دولة ليبيا

وزارة التعليم العالي والبحث العلمي

جامعة طرابلس ــ كلية الطب البشري

قسم طب الأسرة والمجتمع

Medical Research Conference

مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

2017

تحت شعار " البحوث للجميع "

30/1/ 2017م

كتاب المؤتمر

www.uot.edu.ly

30/1/ 2017م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

أهداف المؤتمر:

إن هذا المؤتمر يسعى لعرض آخر ما وصلت إليه البحوث الطبية والدراسات المتخصصة في دور الطب وأثره في ثقافة التنمية, من خلال مشاركة كوكبة من الباحثين والباحثات, لأجل التواصل العلمي والمعرفي بين الباحثين وطلبة العلم, حيث تلاقح الأفكار ونضوجها, فيما تكون هذه البحوث مادة علمية غنية من الأهمية بمكان عدّها دراسات سابقة, ومن الأهمية أيضاً تطويرها والإضافة لها في البحوث المستقبلية.

توصيات المؤتمر:

الاطلاع على آخر الجهود البحثية العلمية في مجال البحوث الطبية وعلومها ودراساتها, من أجل التواصل معها, واستيعاب أفكارها, والعمل على التعريف بها, ونشرها, والإضافة لها.

محاولة صياغة البحوث الطبية بمعايير الجودة والتحكيم العلمي الرصين, والارتقاء بها إلى مستوى البحوث العالمية ذات المواصفات العلمية في الكتابة الأكاديمية.

ربط الباحثين المعاصرين بعضهم ببعض, من خلال هذا المؤتمر الطبي المتميز, الذي يعطي الفرصة لطلبة العلم لبقاء العلماء والمختصين من ليبيا الحبيبة.

يطمح المؤتمر تحقيق ثقافة التنمية التي تعمل على استجلاء الحقائق المعرفية في حقل البحوث الطبية.

تحقيق التنمية على أساس المعرفة والفكر الحر مما ينتج عنه ضرورة تنمية شاملة تعم كل أفراد المجتمع وتغير مناحي الحياة.

توجيه الأنظار نحو الإنسان محور وهدف العملية الطبية.

وأخيراً يحاول المؤتمر الإجابة عن السؤال التالي: كيف يمكن أن تسهم البحوث الطبية بالرقي في صحة المجتمع في ليبيا؟

محاور المؤتمر:

الأبحاث الطبية السريرية.
الأبحاث الطبية للأبحاث المعملية وفي العلوم الطبية الأساسية.
الأبحاث الطبية داخل المجتمع الليبي.
الأبحاث الطبية النظرية.
الأبحاث الطبية المتنوعة: الصيدلة /التقنية/ البيطرة.
الأبحاث الطبية المتعلقة بصحة الإنسان وكذلك الأمراض المشتركة بين الإنسان والحيوان.
الأبحاث البيئية المتعلقة بصحة الإنسان .
الأبحاث الطبية المهنية.
أبحاث التغذية المتعلقة بتنظيم الغذاء الصحي للأمراض المتنوعة.
الأبحاث الطبية في الإدارة الصحية.

شروط المشاركة:

يرجى الاطلاع على شروط الكتابة بصفحة المؤتمر. وملخص الشروط:

يقدم الباحث ملخصاً لا يتجاوز صفحة واحدة ضمن محاور المؤتمر, يتضمن خمسة عناصر: عنوان البحث وإشكاليته وأهميته وأهدافه ومنهجية البحث, ويرسل الملخص عبر البريد الإلكتروني, مرفقاً بسيرة علمية مختصرة, وصورة شخصية, ملاحظة: ملخص البحث باللغة الانجليزية وبصيغته النهائية خالياً من الأخطاء اللغوية والطباعية, ويوضع في رأس الصفحة عنوان البحث / اسم الباحث / اسم الجامعة أو المؤسسة / اسم البلد ـ الدولة.

لا تقل صفحات البحث عن 6 صفحات, ولا تزيد عن 10 صفحات, بما فيها الهوامش وقائمة المصادر والمراجع والملاحق وتوضع الهوامش متسلسلة في نهاية البحث.

يكتب البحث ببرنامج (وورد), بخط (Times New Roman) بحجم (10) في المتن, و (12) في الهامش.

تثبت قائمة المصادر والمراجع مستوفاة في آخر البحث مرتبة على طريقة Vancouver .
الأصالة والتجديد والارتباط المباشر بمحاور المؤتمر.
ألا يكون البحث قد سبق عرضه أو نشره في ندوات أو مؤتمرات سابقة.
لغة المؤتمر هي الانجليزية والعربية.

نرجو من المشاركين إرسال خطاب لتأكيد المشاركة, وفي حال استجدت ظروف تمنع من ذلك, نأمل إبلاغنا بسرعة, لما لهذا الأمر من دور في تنظيم المؤتمر واستقرار برنامجه, كما يرجى من المشاركين الذين يحتاجون إلى تأشيرة دخول إلى ليبيا, إرسال صورة حديثة عن جواز السفر في موعد أقصاه (2016/12/31) لغايات تسهيل مشاركتهم في المؤتمر.

يحق للجنة العلمية الاعتذار عن عدم قبول أي ورقة بحثية في حالة عدم استيفائها للشروط العلمية, دون إبداء الأسباب, وقبول الملخص لا يعني قبول البحث المقدم.
الاخطاء العلمية بالبحوت يتحمل مسؤلياتها القانونية الكاملة صاحب البحت.

مواعيد مهمة:

آخر أجل لاستلام ملخصات البحوث 2016/12/1
آخر أجل لاستلام البحوث كاملة 2016/12/31
موعد المؤتمر 20-2015/9/21
ملاحظة: يبلغ الباحثون بقبول الملخصات والبحوث الكاملة بعد موافقة اللجنة العلمية, وذلك عن طريق البريد الإلكتروني.

رسوم المؤتمر:

مجاني.

ملاحظة: لا تتحمل إدارة المؤتمر مصاريف السفر والنقل الخارجي نظراً لمحدودية الميزانية المالية, وكذلك لا تتحمل مصاريف الإقامة والإعاشة والنقل الداخلي

الاتصال والمراسلة: يتم التسجيل وإرسال المشاركات من خلال إرسال الملخصات والأبحاث عبر البريد الإلكتروني التالي:

Mrc_2015@outlook.com

كلمة المؤتمر

الحمد لله والصلاة والسلام على رسول الله. الحمد لله الذي تتم به الصالحات.

أما بعد:

فإن قسم طب الأسرة والمجتمع ليسعده أن يرفع شعار البحوث الصحية داخل الجامعة ويعقد المؤتمر الثانى للبحوث الصحية من أجل إثراء البحث العلمي لفائدة البلاد والعباد وإذ نستغل هذه الكلمة كي نشكر كلية الطب وجامعة طرابلس وكل من ساهم معنا على إحياء هذا المؤتمر آملين للجميع أن يحقق هذا اللقاء العلمي للجميع مبتغاه وأن يعود بالنفع على العباد من أجل رفعة الوطن والتقدم في ظل الظروف الصعبة التي نمر بها.

نسأل الله أن يوفق الجميع.

www.uot.edu.ly

2017 /1/30م

جامعة طرابلس
كلية الطب

الهيئة الاستشارية للمؤتمر

لجنة الاشراف والإعداد والمتابعة :

د. مختار محمد القصبي	رئيس
د. محمد خالد شمبش	عضو
د. الطاهر المحبّس	عضو

اللجنة العلمية :

ا.د. عمر إبراهيم أبو سنينة	رئيس
د. عزالدين فرنكة	عضو
د. ميلودة الحمادي	عضو
د. ليلى الطاهر السبعي	عضو
د. عائشة بالروين	عضو
د. زينب الدويب	عضو

www.uot.edu.ly

30/1/ 2017م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Analysis of neonatal mortality at Al Jala Maternity and Gynecology Hospital Neonatal Intensive Care Unit (Tripoli, Libya 2014-2016)

Najwa Fituri, Laila Sabei, Nabila Sherlala
Consultant pediatrician at Al Jala Maternity and Gynecology Hospital
Pediatric department, Faculty of medicine, University of Tripoli

Abstract

Back ground: Analysis of neonatal intensive care unit (NICU) outcome is an important step in reviewing the health care provided antenataly and in the NICU. An important information needed to improve the health status of pregnant women, and newborns to achieve the Millennium Development Goal 4 that aims to reduce neonatal mortality by two third, reaching NMR <12/1000 **Aim:** to determine the incidence of neonatal mortality and to analyze the cause-specific neonatal mortality of neonates admitted to neonatal intensive care unit.

Methods In this case series the medical records of 288 deceased neonates in the NICU were reviewed at Al Jala Maternity and Gynecology Hospital, Tripoli, Libya, in the period from April1st 2014 to October 31st 2016.All newborns died in NICU were rolled in the analysis. The information retrieved and analyzed were age, sex of baby, gestational age, birth weight, parity of mother,maternal risk, Apgar scoring at 1 and 5 minutes , cord ABG, time of death, and cause of death. Collected data coded and SPSS software was used for analysis

Result : 24726 babies were born alive in the study period, from which 8930 (36.1%) were admitted to NICU. Neonatal death was 3.2% and the neonatal mortality rate(NMR) calculated was 10.1/1000, were 250 of the babies died in the neonatal period and 38 baby died in postneonatal period. 65.3% of the neonatal deaths occurred in the first week of life while 21.5% died in the late neonatal period. Prematurity and its complications was the main cause of death in 53.1%,

Conclusion and recommendation: the high early neonatal death reflects the need to strengthen the antenatal care. Strong measures should be taken to improve neonatal facilities for better neonatal outcome

Words; Neonatal mortality rate, NMR, early Neonatal mortality rate ENMR, Late Neonatal mortality rate LNMR, Tripoli, Libya, NICU , Al Jala Maternity Hospital Tripoli Libya
Abbreviations: Neonatal mortality rate, NMR, early Neonatal mortality rate ENMR, Late Neonatal mortality rate LNMR, neonatal intensive care NICU, Gestational age GA, Low birth weight LBW, Hypoxic ischemic encephalopathy HIE, Millennium Development Goals MDG, arterial blood gas ABG, low birth weight LBW, moderate low birth weight MLBW, very low birth weight VLBW, extreme low birth weight ELBW, appropriate for date AFD, small for date SFD, respiratory failure RF, necrotizing enterocolitis NEC, interventricular hemorrhage IVH, persistent pulmonary hypertension PPHN, meconium aspiration syndrome MAS,

Introduction

Of the approximately 130 million babies born each year, an estimated four million babies die in the neonatal period[1] . This constitutes 44% of under-5 mortality and approximately 57% of infant mortality.[2,3] Three-quarters of neonatal deaths occur in the first week of life. The highest risk of death is on day one, with up to 45% of neonatal deaths occurring within the first 24 hours of life.[4] Neonatal deaths and stillbirths in developed countries are falling. This is the result of changing patterns in reproductive health, socioeconomic progress and the quality of obstetric and neonatal facilities.[5] The fall in newborn mortality has been slower than that in child mortality.[3]

Globally, the main causes of death are estimated to be preterm birth (28%), severe infections (26%) asphyxia (23%), and congenital anomalies(7%). [6] Advances in perinatal and neonatal care have significantly reduced neonatal mortality rates and have benefited preterm infants admitted to neonatal intensive care units (NICU) in the last decades.[7,8,9] The survival and health of newborn babies is a critical part of the push towards lower child mortality in Millennium Development Goal 4,5.[10] The aim of the United Nations' Millennium Development Goal 4 (MDG4 and MDG5) is to reduce newborn mortality in every country to 12 or fewer deaths per 1,000 live births, and to reduce under-five mortality in every country to 25 or fewer deaths per 1,000 live births.[11] Neonatal outcome is an important indicator of obstetrics and health care, where it has an important role in providing the information needed to improve the health status of pregnant women, and newborns. Focusing on neonatal mortality rate (NMR) that differs from the perinatal mortality rate in that it focuses only on deaths among live births and covers a longer period after birth. Early neonatal deaths (neonatal deaths in the first week of life) are more closely associated with pregnancy-related factors and maternal health, whereas late neonatal deaths(neonatal deaths 7-28th day of life) are associated more with factors in the newborn's environment.

Aim to determine the incidence of neonatal mortality and to analyze the cause-specific neonatal mortality of neonates delivered and admitted to NICU

Methodology

This case series study was carried out at the NICU of Al Jala maternity and Gynecology hospital. This hospital is a governmental specialized tertiary university hospital that provides maternity services in Tripoli, in addition to high percentage of referral of high risk pregnancies from other peripheral hospital and clinics. We reviewed all neonatal medical records died in the study period from April1st 2014 to October 31st 2016 during their admission in NICU. They amounted 288 infant. All babies born alive admitted to NICU were rolled in the analysis including extreme preterm with youngest GA 23week gestation. Babies born dead were excluded. The information retrieved and analyzed were age, sex of baby, gestational age, birth weight, parity of mother, maternal illness, Agar scoring, time of death, date, the underlying cause and the immediate cause of death. The underlying cause of death is the disease which initiated the train of morbid events leading directly to death Blood culture and sensitivity was not available all the time, diagnosing septicemia was based on clinical examination , CRP and thrombocytopenia. Collected data coded and SPSS software version 22 was used for analysis.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Result

A total of 24,726 babies were born alive in the period from April 2014 to October 2016 at Aljala hospital. 8930 (36.1%) were admitted to the NICU of whom 288 (3.2%) newborn died in this period.

(Table1,2) summarizes the demographic and clinical variables as risk factors for neonatal mortality

156 (54.2%) male,193 (67.0%) preterm and 139 (48.3%) babies were born by cesarean section. Of the total deceased newborns 250 (86.8%)died in the neonatal period. 0ne hundred and seventeen (40.6%) died within 24 hour, 188(65.3%) died within 7days of birth (early neonatal period), (21.5%) within 28days after birth(late neonatal period) , and 38 (13.2%) infants died in the post-neonatal period where the longest lived until the age of 69 day. Ninety seven (33.7%) of the died babies had birth weight >2.5 kilogram, 68(23.6%) had LBW ,57(19.8%)were VLBW and 66(22.9%) were ELBW. 244(77.8%) were AFD and only 58(19.4%)were SFD.

The most common *underlying cause* of death that the babies were admitted for was prematurity and it's complications in 153(53.1%) dead baby. 41(14.2%) had congenital anomalies ,54(18.8%) had HIE, 12(4.2%) had sepsis, 23(8%) had RF, and 5(1.7%) babies died suffering from hydrops fetalis

As an *immediate cause* of death, RF was seen in 87(30.2%) dead newborn,75(26%) of the deaths was due to sepsis, 46(16%) had congenital anomaly, 27(9.4%) HIE. NEC , IVH was the cause in 15(5.2%) and 14(4.9%) respectively.15(5.2%) had PPHN as a complication of MAS and pneumothorax. and 9 (3.1%) babies died because mechanical ventilation facilities were not available.

Analyzing the cause of death in relation to maternal risk we found that 41.7% of the babies who died due to HIE their mother had thick meconium and 27.1% had abruptio placenta during delivery (p value 0.001)

The main cause of death in preterms is the complication of prematurity which is inversily proportional with the GA 42.9% of late pt died because of prematurity while 98.2%of ExPT.

37.4% of term babies died due to HIE , 27.5% due to congenital anomaly 25.3% due to respiratory failure ad 8.8% due to sepsis

24 out of the 46 (52.2) infant died with multiple lethal anomalies, 4(8.7%) had brain anomalies, 3(6.5%) had than atophoric skeletal dysplasia and 9(19.6%) had CHD. Two babies died because they had diaphragmatic hernia. 4(8.6%) were diagnosed clinicaly as trisomy 18, and trisomy13 babies .The most common CNS anomaly was anencepthay

59% of HIE newborn had cord ABG <7.00. and 22.4% of the preterm newborn had cord ABG <7.oo(p value 0.001)
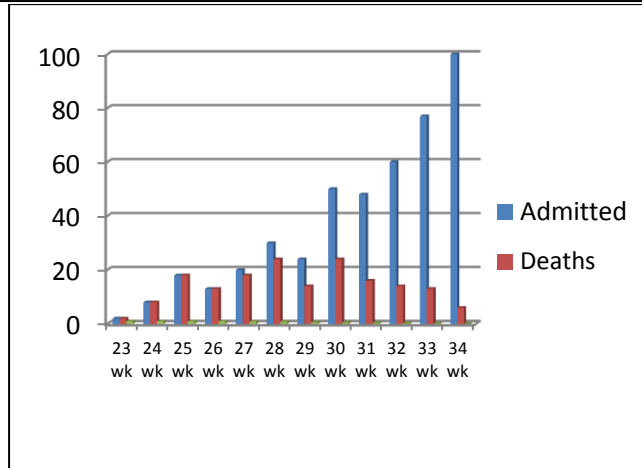
Fig1.Distribution of admitted newborns in relation to GA and outcome

As seen in Fig1. No babies <27 weeks gestation, and only 10% of the 27weeek gestation had survived. survival rate increased with the increase of gestational age where 58.3% of 29weeks and 23% of the 32weeks died.

Table 1 **Maternal characteristics**

Variable	Early neonatal period No (%)	Beyond early neonatal period	P value
- Maternal age			**0.083**
<20 years	11(73.3%)	(26.7%)	
20-35years	(60.7%)	(39.3%)	
>35years	(77.3%)	(22.7%)	
- Parity			
PG	38(61.3%)	24(38.7%)	**0.608**
<5	44(65.7%)	23(34.3%)	
>5	52(71.2%)	21(28.8%)	
	52(62.7%)	31(37.3%)	
- MOD			**0.030**
Vaginal			
C/S	106(71.1%)	43(28.9%)	
	82(59%)	57(41.0%)	
- Maternal Risk			
Thick meconium			**0.020**
PROM	70.3%	29.7%	
Abrupto placentae	57.7%	42.3%	
Cord abnormality	62.5%	37.5%	
DM	33.3%	66.7%	
Normal	36.4%	63.6%	
	76.2%	23.8%	

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 2 **Neonatal characteristics**

Variable	Early neonatal period No (%)	beyond early neonatal period	P value
-Multiple gestation			**0.009**
Singleton	166(66.4%)	84(33.6%)	
Twins	16 (57.1%)	12(42.9%)	
Triplets	0	4 (100%)	
Hexa	6 (100%)	0	
-Gender			
Male	105(67.3%)	51(32.7%)	**0.432**
Female	83 (62.9%)	49(37.1%)	
- Birth weight in relation to GA			
AFD	153(68.3%)	71(31.7%)	**0.0125**
SFD	31 (55.4%)	25(44.6%)	
LFD	4 (50%)	4 (50%)	
-Maturity			
PT	125(64.8%)	68(35.2%)	**0.34**
T	59 (64.8%)	32(35.2%)	
Post date	4 (100%)	0	
-Birth weight			
Normal	64(66%)	33(34%)	
LBW	37(54.4%)	31(45.6%)	**0.001**
VLBW	31(54.4 %)	26(45.6%)	
ELBW	56(84.8 %)	10(15.2%)	
-Immediate cause			
RF			
Sepsis	72(82.8%)	15(17.2%)	**0.001**

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Congenital anomaly	19(25.7%)	55(74.3%)
NEC	43(93.5%)	3(6.5%)
IVH	1(6.7%)	14(93.3%)
HIE	7(50%)	7(50%)
	26(96.3%)	1(3.7%)

Discussion

Babies die after birth because they are severely malformed, are born very prematurely, suffer from obstetric complications before or during birth, have difficulty adapting to extra-uterine life, or because of harmful practices after birth that lead to infections[12]

It is estimated that in developing countries asphyxia causes around seven deaths per 1000 births, whereas in developed countries this proportion is less than one death per 1000 births.[11] Preterm birth complications are the leading cause of newborn deaths[13]

Making Every baby count, Born to soon, Millennium Development Goal 4&5,Count down to 2015 ,and else are all calls to improve the newborn health and to decrease neonatal mortality all over the world

In the last decade, efforts have been made to improve survival and long term outcome of newborns.

At Aljala maternity hospital, the NMR in the study period was 10.1/1000 live births which is a little lower than a study held by *Bashir M. Ashour.et al*. done in Misurata central hospital where NMR was (12.3/1000 live births) although the death rate in Misurata NICU was much higher (10.06 %) compared to the neonatal death in Aljala nicu (3.2%) [13]

Neither gender, parity nor maternal age were significantly associated with neonatal mortality as was published by *Imtiaz Jehan. et al* [14]

The primary causes of death in this study were 53.1% prematurity and its complications, HIE 18.8% congenital anomaly 14.2% and sepsis 4.2% .A close results were seen in Misurata study with 37.5%,16.2%,10%, and 18% respectively[13] The only difference was in the sepsis cases, where in our study it was as an underlying cause but a similar percentage as an immediate cause of death were sepsis complicates the original disease and causes death.

65.3% of neonatal deaths occur in the early neonatal period these results are lower than another study done in Iraq, Umran RM *et a l* where 84% of newborn died before 7 days of age[15]

82.8% of the babies who died due to RF, died in the early period .This high percentage reflects the high number of preterm babies with prematurity complication as RDS ,pneumothorax and pulmonary hemorrhage. (69.5%)

In the last years Aljala NICU has significant shortage of neonatal nurses and shortage of equipments and some vital drugs as surfactant therapy where 9 (3.1%) babies died because facilities like mechanical ventilation were not available.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The delivery of 19.3% of the deceased babies was not attended by neonatologists, and this delayed the immediate and important care needed for them. The non attendance was because of delayed call and the conviction of our obstetrician colleagues of the nonviable newborn.

The MDG-4 aim to reduce the NMR by two third by 2015, to reach 12/1000live birth.We in Aljala hospital are close to this although NMR in Qatar was 4.28/1000 live births during 2011 [16]

Limitations

Shortage of nurses and overcrowded situation limits proper care. The maximum baby to nurse ratio during the study period was 1:8 in level II and 1:4-5 in level III. Equipment and drug shortage was one of the main obstacles for providing proper neonatal care. Missed data in medical records was significant in some variables as mother age and parity that reach 18.7%. Missing important investigations as blood culture or ABG that are very important made definite diagnosis difficult.

Conclusion and Recommendation

International perinatal intervention should be better implemented. Better facilities and good qualified midwives should be encouraged for NICU work for better neonatal outcome. Sepsis is a significant underlying, preventable and immediate cause for that prompt infection control measures are needed to be strictly followed. Policies to strengthen the civil registration, vital statistics, also to report and review deaths . Detailed death certificates for all newborn deaths and stillbirths should be provided

Acknowledgment

I take this opportunity to express my sincere gratitude to all Aljala NICU staff members for their hard work in the extra ordinary situation of Libya those days. Special thanks To my Husband Khairi and my precious daughter Maha for their help in data entry.

References

Lawn JE, Cousens S, Zupan J. Four million neonatal deaths: when? Where? Why? Lancet 2005;9462:891-900.

World Health Organization: Estimates. State of the World's Newborns. 2001, Washington, DC: Saving Newborn Lives, Save the Children/ USA, 1-49

UN Inter-agency Group for Child Mortality Estimation. Levels and trends in child mortality 2014. 2014

Oza S, Cousens SN, Lawn JE. Estimation of daily risk of neonatal death, including the day of birth, in 186 countries in 2013: a vital-registration and modelling-based study. Lancet Glob Health. 2014;2(11):e635–44. doi:10.1016/ S2214–109X(14)70309–2.

Department of Health Services, Bhutan. Annual health bulletin 2001. Thimpu, Ministry of Health and Education, 2002.

Erdem G, for the Turkish Neonatal Society Multicentre Study Group. Perinatal mortality in Turkey. Paediatric and Perinatal Epidemiology, 2003, 17(1):17-21.

1. Hack M, Wright LL, Shankaran S, Tyson JE, Horbar JD, Bauer CR et al. Very low birthweight outcomes of the National Institute of Child Health and human development Neonatal Network, November 1989 to October 1990. *Am J Obstet Gynecol* 1995; 172: 457-464.

2. Horwood SP, Boyle MP, Torrance GW, Sinclair JC. Mortality and morbidity of 500 to 1499 gram birth weight infants liveborn to residents of a defined geographic region before and after neonatal intensive care. *Pediatrics* 1982; 69 613-620.

3. Lee KS, Paneth N, Gartner LM, Pearlman MA, Gruss L. Neonatal mortality: an analysis of the recent improvement in the United States. *Am J Public Health* 1980; 70: 15-21.

World Health Report: Make Every Mother and Child Count (WHO) and The Lancet's Newborn Survival Series (2005) and UNICEF (2008)

Black RE, Morris SS, Bryce J: Where and why are 10 million children dying every year? Lancet 2003, 361(9376):2226–2234.

Neonatal and Perinatal Mortality Country, Regional and Global Estimates, who

Bashir M. Ashour.et al. / Journal of Science / Vol 4 / Issue 2 / 2014 / 87-89.

Bulletin of the World Health Organization 2009;87:130-138. doi: 10.2471/BLT.08.050963

"Neonatal Outcomes In A Level II Regional Neonatal Intensive Care Unit".Pediatr Int. 2016 Nov 12. doi: 10.1111/ped.13200.

Eastern Mediterranean Health Journal / Past issues /Volume 18, 2012 / Volume 18, issue 12

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Epidemiological and clinical profile of patients attending Behcet's disease clinic in Dermatology Department - Tripoli central hospital (2009-2015)

Halima A. El-Megei*. Aisha A. Ben-Roween **.   Somaia Ez. Eddien*

*Tripoli central hospital - dermatology department,**community department –Tripoli university

Abstract :

Behçet's disease (BD) is a rare, multisystem relapsing inflammatory disorder of unknown cause. It is most prevalent (and more virulent) in the Mediterranean region, Middle East, and Far East. We conducted this study to investigate the epidemiological and clinicopathological features of Behcet's disease diagnosed in the department of dermatology -Tripoli central hospital. Data were collected from the Behçet's disease clinic registry.   A total of 95 cases were diagnosed between the years 2009 and 2015 [including cases of orogenital aphthosis], There were 53 female and 42 male patients .   The age ranged from 9 to 59years with mean age of 35±11 years.   From those patients (64.2%) are married, (30.5%) are single, (3.2) are divorced and (2.1%) are children.   Regarding there place of origin; (70.2%) are from northwestern areas,(22.8%) are from mountain areas and only (7%) from the southwestern areas. (34.5%) of our patient are employed, (31%) are housewives, (17.9) are students and (16.7%) have free job. The family history for Behçet's disease was negative in (69.5%) of cases, positive for Behçet's disease in (20%) and positive for oral aphthosis in (10.5%) of them. The duration of disease prior to presenting to us varied between few months to 3 0years.   Oral aphthosis was the most frequent manifestation (98.9%). Genital aphthosis was also frequent (84.2%), followed by joint involvement (64.6%). Skin manifestations in(60%), ocular symptoms were present in (43.2%) . Neurological manifestations (14.9%) and Vascular involvement (6.3%)

were the least reported, no gastrointestinal symptoms were reported in our cases. From the patients on which pethergy test (Cutaneous and mucosal) was done; (59.61%) had positive results, while (40.38%) had negative result. Most of our patients (91.6%) had no sequel till now and most frequent sequel reported in our patients was Eye complications in (5.3%) of them.

Conclusion & recommendation :   The Libyan patients attending our clinic show similar general pattern of the Behçet's disease to those found in different endemic areas in the world in milder form, which is primarily mucocutaneous and arthritic with a higher frequency of positive

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

pethergy test. Most of our patients had no sequele, so a high index of suspicion in patients with mucocutaneous lesions may result in early diagnosis, management and prevention of complications of Behçet's disease, but more data collection from multi centers (including rheumatologic & ophthalmologic centers) is needed to describe the epidemiologic characteristics in Libya .

_____

Keywords :   Behçet's disease (BD), Aphthosis, Pehtergy test

Halima Arebi Megei

Dermatology department, Tripoli central hospital

Email : Hamegei@gmail.com / phone № : 0925249285 .

Introduction :

Behçet's disease (BD); (after the Turkish dermatologist Hulusi Behçet's, 1937), is a chronic complex multisystem disorder characterized mainly by a triad of recurrent aphthous stomatitis (RAS), genital ulcers, and ocular lesions[1]. The peak incidence is between 20 and 35 years of age. The familial form usually comprises 2-5% of cases, except in the Middle East, where it represents 10-15%[2]. Although the exact cause of Behçet's disease is unknown, a genetic component of the disease is suggested by its association with HLA-B51.[3] Behçet's syndrome consists of recurrent oral aphthous ulcerations that recur at least three times in one 12-month period in the presence of any two of the following: recurrent genital ulceration, retinal vasculitis , anterior or posterior uveitis, cutaneous lesions (erythema nodosum; pseudofolliculitis or papulopustular lesions; or acneiform nodules in post adolescent patients who are not receiving corticosteroid treatment), or a positive pathergy test[4]. In neuro Behçet's disease, the CNS can be involved in one or both of two ways: first, and most commonly, through the development of an immune-mediated meningoencephalitis; and second, as a consequence of thrombosis within the dural venous sinuses [5]. In HIV infected patients, recurrent aphthous ulcers (RAU) are more severe and prolonged [6]. The treatment approach depends on the individual patient, severity of disease, and major organ

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

involvement[7].   The drugs used to treat Behçet's disease are generally immunosuppressive. Because the cause of Behçet's disease is unknown, therapy is directed at diminishing symptoms by suppressing the immune system[8].   For ocualar disease, azathioprine is widely accepted as the initial agent, cyclosporine A or infliximab may be used in combination with azathioprine and corticosteroids[8,9,10].   Interferon-alfa, alone or in combination with corticosteroid[11].   CNS disease is usually treated with systemic corticosteroids, Interferon-alfa, azathioprine, cyclophosphamide[12],

Aim of study: to study the epidemiological and clinical characters of patients   attending Behçet's disease clinic in dermatology department Tripoli central hospital

2009 - 2015.

Objectives:

-To describe the sociodemographic characters and risk factors for patients with Behçet's disease.

- To know the duration of the disease at the time of presenting to us.

 -To know the most common clinical presentations of our patients, the   commonest treatment received, the complications of the disease and the compliance of our patients.

Patients and methods :

Study design: case series study.

Study place: Behçet's clinic in dermatology department, Tripoli central hospital.

Study period :   January 2009 to December 2015.

Study population & study tool :   all medical records of patients attended the clinic for diagnosis, treatment and follow up. The data which was drown from medical records include :
Age of the patients, sex, marital state, place of origin and occupation, also the clinical data as : clinical presentation (diagnostic criteria) , duration of the disease, association with family history, treatment type , and the follow up regularity and complications of the disease.

 Data was packaged and analyzed by soft ware SPSS program. descriptive statistics were used.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Results :   A total of 95 cases were diagnosed between the years 2009 and 2015 [including cases of orogenital aphthosis], the diagnosis was made according to the international criteria of classification for BD[13], pethergy test (skin as well as mucosal) was done on some patients; in whom we required more criteria for diagnosis. There were 53 female and 42 male patients . The minimum age was 9 years, the maximum age was 59years with mean age of 35±11 years. From those patients (64.2%) are married, (30.5%) are single, (3.2) are divorced and (2.1%) are children. (70.2%) are from northwestern areas of Libya, (22.8%) are from mountain areas and only (7%) from the southwestern areas. (34.5%) of our patient are employed, (31%) are housewives, (17.9) are students and (16.7%) have free job. The family history for Behçet's disease was negative in (69.5%) of cases, positive for Behçet's disease in (20%) and positive for oral aphthosis in (10.5%) of them. [table-1]summarizes the sociodemographic characters of our Behçet's disease patients].   The duration of disease prior to presenting to us varied between few months to 30years with mean duration of 7.72 years.   Oral aphthosis was the most frequent manifestation (98.9%). Genital aphthosis was also frequent (84.2%), followed by joint involvement (64.6%). Skin manifestations in (60%), ocular symptoms were present in (48.2%) , neurological manifestations (14.9%) and Vascular involvement (6.3%) were the least reported, no gastrointestinal symptoms were reported in our cases [table-2 shows the diagnostic criteria profile of our BD patients]. From the patients with skin manifestations (24.2%) had pustular folliculitis followed by (16.8%) patients with Erythema nodosum (EN), (6.3) patients had pustular folliculitis & EN, others had acniform rash, Erythema multiformi(EM)-like vasculitis and extra genital aphthus (4.2%) for each; see figure No-1 . The most frequent systemic treatment received was colchicine alone (42.1%) followed by colchicine and prednisolone (41.1%),

colchicine and NSAID (6.3%), prednisolone alone (7.4 %), colchicines and Immuran   (1.1 %) and colchicine with prednisolone and Immuran in (2.1%). Some patients were in regular follow up (48.4%) while others (51.6%) were irregular, regarding their prognosis; (91.6%) had no sequelae till now and the most frequent complication reported was Eye complications in (5.3%) of them [table-2]. From the patients on which pethergy test (Cutaneous and mucosal) was done; (59.61%) had positive results, while (40.38%) had negative result [table-3 shows positive pethergy test according to gender].

Discussion:

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Behçet's disease is a multi-organ inflammatory disorder with mucocutaneous, ocular, neurological, musculoskeletal, vascular, gastrointestinal, and pulmonary manifestations.

A total of 95 patients were registered in our clinic in a period of six years including six cases of orogenital aphthosis who didn't show any other criteria of BD tell the time of this study. The most common age group affected was the third decade of life (29.5%) with mean age of 35years, nearly the same result of many studies from different geographical areas summarized in [table-4] except for the study done by J.H.Kappen et al [14] and by Benamour et al[15] where the mean age was 44.2 and 44 years in Netherland & Morroco respectively. Male: female ratio was nearly equal [1:1.26] with very slight female predominance like the ratio in most of the geographical areas with high BD prevalence, in the study form India by Archana Singal et al [16] and from USA studies by Cailin Sibley et al [17] and Parastoo Davari et al [18]; they show more female predominance (1:3.8) & (1:4) respectively while in Sweden males were more affected (2.07:1); Aladdin Mohammad et al[19] , the mean duration of symptoms before diagnosis was 7.72 years

which is very near to that recorded in Istanbul ; Cailin Sibley et al study[17] (6.9 years) and it was little longer in Jordan (Mohammed A et al) [20] and in Sweden (Aladdin Mohammad et al)[19] ;(10.79 years) & (9.91 years) respectivily. Oral ulcers were seen in all patients in the revised studies; but we had one female patient without oral ulcers who had genital ulcer, positive pethergy test and uveitis , Seyedeh et al did a study 2014 to evaluate the clinical features of BD in patients without oral aphthosis (NOA) and their results addressed the distinct features in NOA subset of BD including more prevalent eye involvement and positive pathergy[21] like in our patient. The prevalence of genital ulcers was nearly the same in all the studies from different geographical areas including ours (84.2%), while skin manifestations affected (60%) of our patients and on literature review it has affected from (47.67%) in Brazilian (Sachetto Z et al)[22] to (100%) in Italy Salvarani C et al[23]. From our study group(48.2%) had ocular involvement which is higher than that seen in different studies from Turkey[17,24,25] where BD is most prevalent (34.6%) and except the study done by(Sachetto Z et al)[22] that show high ocular disease (80%); others were similar to our results. All studies that we revised showed significant percentage of joint involvement either as arthralgia or as arthritis which was (65.3%) in our patients; near to that in patients from

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Netherland[14] (67.3%), India[16] (68.9%) and France[26] (59%) but it was higher in those from USA (85.7%) and Istanbul (73.8%)[17]. Neurological and cardiovascular disease were low in our BD patients (14.9%) & (6,3%) respectively which is also near to most of the studies from different geographical areas except that from Lebanon done by Ayad Hamdan et al[27] which showed higher vascular`(36.8%) and neurological (23%) disease. Pathergy test was done only on 52 patients with (59.61%) positive results, results of pethergy test was not recorded (NR) in all the revised studies but some of them showed percentages similar to ours, in one study from Korea done by Dongsik Bang et al [28] low positive pathergy was recorded (15.4%), but with higher positivity in males than females same as our results.

Conclusion & recommendation : The Libyan patients attending our clinic show similar general pattern of the BD to those found in different endemic areas in the world in milder form, which is primarily mucocutaneous and arthritic with a higher frequency of positive pethergy test. Most of our patients had no sequelae, so a high index of suspicion in patients with mucocutaneous lesions may result in early diagnosis, management and prevention of complications of BD but more data collection from multi centers (including rheumatologic & ophthalmologic centers) is needed to describe the epidemiologic characteristics of BD in Libya.

Table No. 1 : **Sociodemographic characters of the patients attending Behcet's disease clinic in Dermatology Department - Tripoli central hospital (2009-2015) .**

Character		Frequency	Percentage
Age group:	(< 10 yrs)	1	1.1 %
	(10 - 20 yrs)	9	9.5 %
	(21 – 30 yrs)	28	29.5 %
	(31 – 40 yrs)	23	24.2 %
	(41 – 50 yrs)	27	28.4 %
	(51 - 60 yrs)	7	7.4 %
Sex:	Male	42	44.2%
	Female	53	55.8 %
Marital state:	Child	2	2.1 %
	Single	29	30.5%
	Married	61	64.2%
	Divorced	03	3.2%
Place of origin:			
Northwestern areas		67	70.2%
Mountain areas		21	22.8%
Southwestern areas		7	7%
Occupation:	Student	16	16.8%
	House wife	28	29.5%
	Employed	35	36.8%
	Free job	16	16.8%
Family history:			
Positive for Behçet's ds.		19	20 %
Positive for oral aphthous		10	10.5 %
Negative for both		66	69.5 %
Tolal		95	100%

جامعة طرابلس
كلية الطب

Table No. 2 : clinical profile, treatment type& prognosis of thepatients attending

Behcet's disease clinic in Dermatology Department - Tripoli central hospital (2009-2015)

.

character	frequency	percentage
Diagnostic clinical criteria:		
Oral ulcer	94	98.9 %
Genital ulcer	80	84.2 %
Skin manifestations:	57	60 %
Ocular manifestations	41	48.2 %
Joint involvement	62	65.3 %
Neurological manifestations	14	14.9 %
Vascular manifestations	6	6.3 %
Treatment type:		
Colchicine	40	42.1 %
Colchicine + prednisolone	39	41.1 %
Colchicine + NSAID	6	6.3 %
Prednisolone	7	7.4 %
Colchicine + Imuran	1	1.1 %
Colchicine + prednisolone + Imuran	2	2.1 %
Follow up :		
Regular	46	48.4 %
Irregular	49	51.6 %
Prognosis:		
No sequelae	87	91.6 %
Eye complications	5	5.3 %
Neurological complications	2	2.1 %
Vascular complications	1	1.1 %
Total	95	100%

Table No. 3 : Positive Pethergy test according to gender:

Total № on which pethergy test was done 52 patients	Positive pathergy Total (59.61%)	Negative pathergy Total (40.30)
Males (16 patients)	11 (68.8 %)	5 (31.2 %)
Females (36 patients)	20 (55.6 %)	16 (44.4 %)
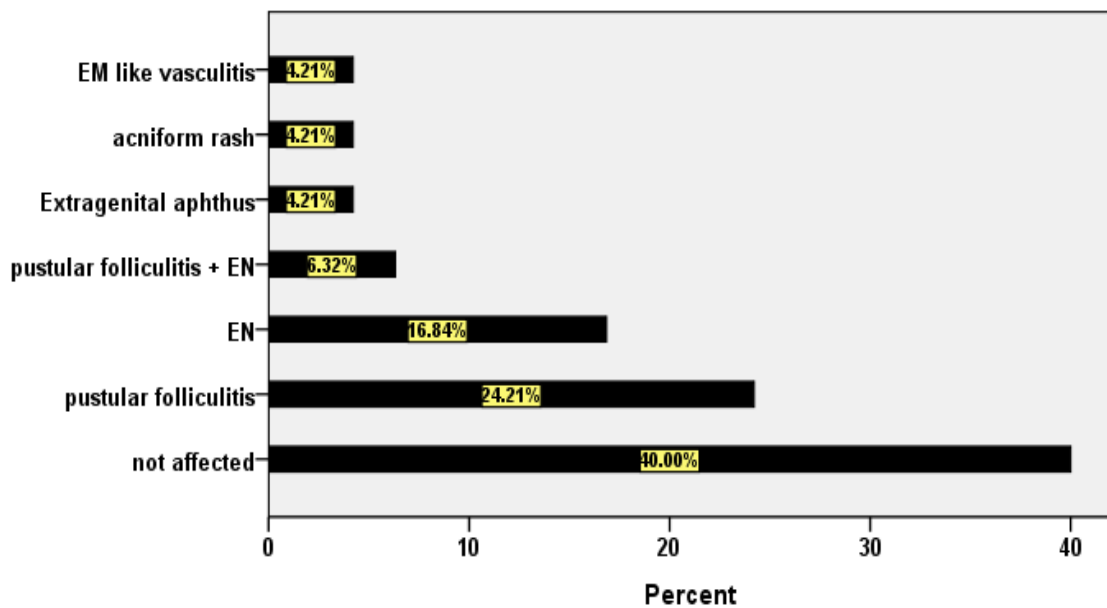
Figure 1: Skin manifestations in affected patients

www.uot.edu.ly

2017 /1/30م

جامعة طرابلس
كلية الطب

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table No. 4 : Epidemiologic & clinical data of our BD patients compared with selected studies from different geographical areas in Literature

Country of study Reference №	№ of patients	Mean age/yrs	M:F ratio	Oral ulcer %	Genital ulcer %	Skin lesions %	Ocular disease %	Joint disease %	CNS %	CVS %	Positive Pathergy %
Istanbul (2014) [17]	107	37.4	1:1.54	100	80.4	92.5	34.6	73.8	3.7	12.1	NR
Italy (2007) [23]	18	33	1:1	100	78	100	56	50	11	6	NR
France (2008) [26]	79	33	1.32:1	100	80	90	51	59	10	NR	NR
India (2013) [16]	29	27.4	1:3.8	100	93.1	93	31	68.9	NR	NR	31
Brazilian (2012) [22]	87	28.03	1:1.18	100	77	47.67	80	31.03	31.03	13.95	NR
Netherland (2015) [14]	110	44.2	1:1	100	79.1	80.9	61.8	67.3	12.7	10.9	57.1
Sweden (2012) [19]	40	30.5	2.07:1	100	80	88	53	40	0	20	NR
Morocco (2006) [15]	1034	44	2:1	100	86	64	44	45	17	20	53
USA (2014) [17]	35	36.1	1:4	100	88.6	91.4	40	85.7	20	22.9	NR
Our study (2016)	95	35	1:1.26	98.9	84.2	60	48.2	65.3	14.9	6.3	59.61

www.uot.edu.ly

2017 /1/30م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

References :

Mohamed S. El-Ghamriny. Ghamriny's Manual of Clinical Dermatology, 6th ed. 2007; Volume 2, Chapter (24): 979, 981 .

Bolognia JL, Jorizzo JL, Rapini RP. DERMATOLOG, 2nd ed. 2008; VOLUME 1, Chapter (27): 27.387,389-390.

Tony Burns, Stephen Breathnach, Neil cox, Christopher Griffiths. ROOKS Textbook of Dermatology, EIGHTH EDITION.2010; VOLUME 3, Chapter (5o): 5o.56.

 WILLIAM D. JAMES, TIMOTHY G. BERGER, DIRK M. ELSTON.

    ANDREWS` DISEASE OF SKIN: CLINICAL DERMATOLOGY,TINTH EDITION.2006; Chapter (34): 34.812-813.

 Al-Araji A, Kidd DP. Neuro-Behçet's disease: epidemiology, clinical characteristics, and management. Lancet Neurol. 2009 Feb;8(2):192-204.

Mahajan VK, Sharma NL, Sharma VC, Sharma RC, Sarin S.   Behçet's disease with HIV infection: Response to antiretroviral therapy. Indian J Dermatol Venereol Leprol 2005;71:276-8

Hatemi G, Silman A, Bango D, et al. EULAR recommendations for the managment of Behçet's disease. Ann Rheum Dis. Dec 2008;67(12):1656-62

 Fatima A Alnaimat, Herbert S Diamond, Jeffrey R Lisse et al, Behcet Disease . Medscape article [Updated : Dec 16, 2014].

Markomichelakis N, Delicha E, Masselose S, Sfikakis pp. Intravitreal infliximab for sight-threatening relapsing uveitis in Behçet's disease: a pilot study in 15 patients. Am J Ophthalmol. Sep 2012;154(3):534-541.e1.

Keino H, Okada AA, watanabe T, Taki W. Decreased ocular inflammatory attacks and background retinal and disc vascular leakage in patients with Behçet's disease on infliximab therapy. Br J Ophthalmol. Sep 2011;95(9): 1245-50.

Deuter CM, Zierhut M, Mohle A, et al. Long-term remission after cessation of interferon-a treatment in patients with severe uveitis due to Behçet's disease. Arthritis Rheum. Sep 2010;62(9):2796-805.

Nuñez-Sotelo CM, Gutiérrez -Gonzalez LA, Rodriguez MA. Rapid, complete and sustained response to corticosteroids and pulse cyclophosphamide therapy in a patient with Behçet and central nervous disease. Maedica (Buchar). Dec 2012;7(4):348-51.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

International Study Group for Behcet's Disease: Criteria for diagnosis of Behcet's disease. Lancet 1990, 335(8697):1078–1080.

J.H. Kappen, E.H.C. van Dijk, M. Baak-Dijkstra, P.L.A. van Daele,W.K. Lam-Tse, P.M. van Hagen, J.A.M. van Laar : Behçet's disease, hospital-based prevalence and manifestations in the Rotterdam area . The Netherlands Journal of Medicine 2015 , V OL . 7 3(10), 471-477

Benamour S, Naji T, Echchilali K, et al. Study of 1034 cases of Behcet's Disease. Clin Exp Rheumatol. 2006;24:S13.

Archana Singal, Namrata Chhabra, Deepika Pandhi, Jolly Rohatgi, Behcet's disease in India: A dermatological perspective. JDVL 2013, 79 (2) : 199-204.

Cailin Sibley, Yusuf Yazici, Koray Tascilar, Nafiz Khan, Yasmin Bata, Hasan Yazici, Raphaela Goldbach-Mansky, and Gulen Hatemi, Behçet Syndrome Manifestations and Activity in the United States versus Turkey — A Cross-sectional Cohort Comparison. J Rheumatol.2014;41(7):1379-1384.

Parastoo Davari, Roy S. Rogers, Brian Chan, Travis H. Nagler & Nasim Fazel, Clinical features of Behcet's disease: A retrospective chart review of 26 patients. Journal of Dermatological Treatment. 2016;27(1):70-74.

Aladdin Mohammad, Thomas Mandl, Gunnar Sturfelt and Marten Segelmark, Incidence, prevalence and clinical characteristics of Behcet's disease in southern Sweden. RHEUMATOLOGY.2013;52(2):304-310.

 Mohammed A. Abu-Ameerh, Sawsan F. Mohammed, Mona T. Mohammad, Osama H. Ababneh, Muawyah, Al-Bdour, Ocular manifestations of Behçet's disease in Jordanian patients. Saudi Journal of Ophthalmology (2013) 27, 247—251.

Seyedeh Tahereh Faezi, Pedram Paragomi, Farhad Shahram, Hormoz Shams, Cheida Shams-Davatchi, Zahra Ghodsi, Clinical features of Behcet's disease in patients without oral aphthosis. Modern Rheumatology. 2014; 24(4):637-639.

 Sachetto Z, Mahayri N, Ferraz RH, Costallat LT, Bertolo MB. Behçet's disease in Brazilian patients: demographic and clinical features. Rheumatol Int. 2012; 32(7):2063-2067.

Salvarani C, Pipitone N, Catanoso MG et al. Epidemiology and clinical course of Behcet's disease in the Reggio Emilia area of Northern Italy: a seventeen-year population-based study. Arthritis Rheum 2007;57:171-178.

Gürler A, Boyvat A, Türsen U, Clinical manifestations of Behcet's disease: an analysis of 2147 patients. Yonsei Med J.1997 Dec;38(6):423-427.

Tursen U, Gurler A, Boyvat A. Evaluation of clinical findings according to sex in 2313 Turkish patients with Behçet's disease. Int J Dermatol. 2003 May;42(5):346-51.

Mahr A, Belarbi L, Wechsler B et al. Population-based prevalence study of Behcet's disease: differences by ethnic origin and low variation by age at immigration. Arthritis Rheum 2008;58:3951-3959.

Ayad Hamdan, Wissam Mansour, Imad Uthman, Abdel Fattah Masri, Fouad Nasr, Thurayya Arayssi, Behçet's disease in Lebanon: clinical profile, severity and two-decade comparison. Clin Rheumatol. 2006 May;25(3):364-367.

 Dongsik Bang, Ju Hee Lee, Eun-So Lee et al. Epidemiologic and Clinical Survey of Behcet's Disease in Korea. J Korean Med Sci 2001; 16: 615-618.

جامعة طرابلس
كلية الطب

Maternal outcome according position of placenta on placenta previa.

Samera Abuodia[1], **Nadya Ayaid** [2], **Lilia Sabai**[3], **Areej Alborki**[4]

Department of Obstetics and Gynaecology, Faculty of Medicine, Tripoli University, Tripoli, Libya.

Department of Obstetics and Gynaecology, Faculty of Medicine, Tripoli University, Tripoli, Libya.

Department of Family and Community Medicine, Tripoli University, Tripoli, Libya.

Department of obstetics and Gynaecology, Faculty of Medicine, Tripoli University, Tripoli, Libya.

Abstract

Objective: The purpose of this retrospective cohort study was to elucidate whether the location of placenta below vterine incision in cesarean section is important in development of maternal complication, to calculate the percentage of placenta previa for the total deliverym to study maternal characteristic and risk of placenta previa, *Design:* Retrospective case series study. *Methods:* The study was conducted on 60 patients at one hospital Tripoli Medical Center for Januaryto December 2015 the subjects were divided to two group: the group whose placenta was located in the Anterior portion of the uterus (Anterior group) and group whose placenta was located on posterior portion (Posterior group), and compared to each other.

Results: In Anterior group the incidance of blood trans fusion 20 (76.9%) from total (28) patient and accrete 18(66.7%) from total (18) patient and hystrectomy (40.7%) and mortility (7.4%) and Bladder injury (29%) was higher, *Conclusion:* Sonographic determination of placenta postion where it's. Location beneath the uterine incision is very important to predict maternal out comes in placenta previa and in such case the obstetricians. Should be a ware of high possibility of maternal massive hemorrhage. *Key words:* Hemorrhage hysterectomy placenta accrete, placenta postion, placenta previa.

www.uot.edu.ly

2017 /1/30م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Introduction

Placenta:

The placenta is the first organ to formed during pregnancy although the placenta is temporary organ connecting the mother and the fetus.

However healthy pregnancy out comes to both mother and fetus depended on normal function placental trophoblasts and proper remodeling of uterine spiral arteries during the earlier stage of pregnancy physiological conversion of uterine spiral arteries and adequate maternal blood supply to successful human placenta.

Studies have shown that women with history of abnormal placenta are at additional risk of cardiovascular disease and metabolic disorder in later life such as hypertension and ischemic heart disease stroke and diabetes in addition abnormal placental function (increased vascular resistant improper nutrient transport and epigenetic gene imprinting).

There are the placenta research has always been an active area of investigation in the past today and will continue be in the future.

Definition and grading of placenta previa:

Placenta remains in the lower portion of the uterus into late pregnant and may partially or completely cover the cervix in the zone of effacement and dilatation of cervix This condition is as placenta previ.[1]

Placenta grading according to senescent changes seen on ultrasound examination the Granuum classification has been demonstrate to reduce the prenatal mortality occurs in four grades ranging from minor to major:

Grade 1 - Minor: Placenta extends to lower portion of the uterus but does not reach cervix.

Grade 2 - Marginal: Lower edge of placenta reaches cervix but does not cover it

Grade 3 - Major: Placenta partially covers cervix

Grade 4 - Major: Placenta completely covers cervix.[1]

Risk factor:

Previous placenta previa recurrence rate 48%[1] caesarean delivery.[2] Myomectomy.[4] or endometrium damage caused by D&C.[3] Alcohol use during pregnancy was previous listed as a risk factor, but is discredited by this article. [3]

Women who have had previous pregnancies, especially a large number of closely spaced pregnancies, are at higher risk due to uterine damage.[4]

Smoking [5] during pregnancy; cocaine use[6,7] during pregnancy.

Women who are younger than 20 are at higher risk and women older than 35 are at increasing risk as they get older. Women with a large placenta from twins or erythroblastosis are at higher risk.

Race is a controversial risk factor, with some studies finding that people from Asia and Africa are at higher risk and others finding no difference. Placental pathology (Vellamentous insertion, suceinturiate lobes, bipartite i.e. bi lobed placenta etc.[1]

Diagnosis:

Trans vaginal sonography, if available, may be used to investigate placental location at any time in pregnancy when the placenta is thought to be low-lying It is significantly more accurate than trans abdominal sonography, and its safety is well established.

Sonographers are encouraged to report the actual distance from the placental edge to the internal cervical os at TVS, using standard terminology of millimeters away from the os millimeters of overlap placental edge exactly reaching the internal os is described as 0 mm When the placental edge reaches or overlaps the internal os on TVS between 18 and 24 weeks gestation(incidence 2-4%), a follow-up examination for placental location in the third trimester is recommended overlap of more than 15 mm is associated with an increased likelihood of placenta previa at term.

When the placental edge lies between 20 mm away from the internal os and 20 mm of overlap after 26 week gestation,ultrasound should be repeated at regular intervals depending onthe gestational age, distance from the internal os, and clinical features such as bleeding,

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

because continued change in placental location is likely, overlap of 20 mm or more at any time in the third trimester is highly predictive of the need for Caesarean section(CS).

The os-placental edge distance on TVS after 35 weeks' gestation is valuable in planning route of delivery. When the placental edge lies > 20 mm away from the internal cervical os, women can be offered a trial of labour with a high expectation of success , distance of 20 to 0 mm away from the os is associated with ahigher CS rate, although vaginal delivery is still possible depending on the clinical circumstances.

In general, any degree of overlap (> 0 mm) after 35 weeks is an indication for Caesarean section as the route of deliver.

Magnetic resonance imaging :although several investigator have reported excellent result using MR imaging to visualize placenta abnormalities .it is has provide useful for evaluation of placenta accrete.

Method and material

The study was conducted on 60 patients from Jan to Dec 2015 on Tripoli Medical Center 60 patients placenta previa among total delivery was 2419 was formed (2.3%) at Tripoli Medical Center Hospital.

Among the study 60 patients 33 was posterior location 27 was anterior location:

Based on review of medical data base, maternal age, parity, maternal past history & uterine surgery and Miscarry to compare maternal development complication, the hemoglobin level prior to surgery and 1 day after surgery, amount of transfusion during surgery, Placenta accrete hysterectomy, maternal death and fetal maturity.

Placenta previa of our study was all confirmed by abdominal sonographic examination prior to delivery in addition to location in the Anterior portion or posterior portion of uterus they were classified By sonographic examination according to level of placenta previa coverage over internal os of cervix as complete or in complete.[9] Most of sonographic done 1 day before of operation (not before 1 week).

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

The data collection from the files and information sheath The subjects were divided to two group the group whose placenta was located in anterior portion of uterus(anterior group) and group whose placenta was located in posterior portion of uterus(posterior group).

RESULTS

Maternal characteristics

Among deliveries 2419, placenta previa case was 60 deliveries that were included, the maternal characteristics were compared between the anterior and the posterior group. When compared, maternal age, the number of abortion and the history of abdominal surgery excluding cesarean section showed no significant difference And also these two groups showed no significant difference in maternal diseases such Amyoma and incidence of myomectomy performed simultaneously during cesarean section.

The table (1) below regarding the abortion show relation of placenta previa with abortion with percentage 24.2 for posterior and 29.6 for anterior.

Table (1) Distribution of placenta previa according to abortion:

Abortion	Posterior	anterior	Total
Noabortion	19	12	31
Percentage %	57.6%	44.4%	51.7%
One abortion	6	7	13
Percentage %	18.2%	25.9%	21.7%
Morethan2	8	8	16
Percentage %	24.2%	29.6%	26.7%
Total	**33**	**27**	**60**

On the other hand, the table (2) below show no difference between the anterior and posterior group on placenta previa regarding the parity with 66.7 for posterior and 88.9 anterior on multiparty patient but there is significant increase the percentage of placenta previa on general 76.7% from total number of patient.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Table (2) Distribution of placenta previa according to parity:

Parity	Posterior	anterior	Total
o parity	4	1	5
Percentage %	12.1%	3.7 %	8.3%
L parity	7	2	9
Percentage %	21.2%	7.4%	15.0%
2 or more parity	22	24	46
Percentage %	66.7%	88.9%	76.7%
Total	33	27	60

- In addition, there were significantly more cases in anterior group with history of previous cesarean section more than posterior group (81.5%vs 34.4%) and this difference is statically significant p=0.00l and there significantly more cases in posterior group regarding no cesarean section more than anterior group (46.9%vs 3.7%) and with significantly p 0.00l on table (3).

able (3) distribution of placenta previa according to number of cesarean section:

Number of CS	Posterior	Anterior	Total
0CS	15	1	16
Percentage%	46.9%	3.7%	27.1%
1 CS	6	4	10
Percentage%	18.8%	14.8%	16.9%
2 ormoreCS	11	22	33
Percentage%	34.4%	81.5%	55.9%
Total	32	27	59

On cases of previous surgery (Uterine surgery) there is no difference between the anterior and posterior group with no statistical significant like the table (4) below .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table (4) Distribution of placenta previa according to uterine surgery:

Uterine surgery	Posterior	Anterior	Total
No	8	10	18
Percentage%	24.2%	37%	30.0%
Yes	25	17	42
Percentage %	75.8%	63.0%	70.0%
Total	33	27	60

And table (5) below show if there is uterine surgery what was the cause like evacuation or dilation and curettage, Myomectomy, laparoscope it is not significant but there is increase the percentage 76.5% of placenta previa on general on patients how has previous evacuation and curettage on of placenta previa according to cause of uterine surgery:

Type of surgery	Posterior	Anterior	Total
E and C	5	8	13
Percentage%	71.4%	80.0%	76.5%
D and C	0	1	1
Percentage%	0.0%	10%	5.9%
Myomectomy	2	1	3
Percentage %	28.6%	10.0%	17.6%

Maternal pregnancy outcomes

The incidence of complete previa on the table (6) below show is more on anterior group (85.2% vs 51 .5%) with significant statistic p=0.00l **.**

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table (6) Distribution of placenta previa according to covering the cervical os:

Placenta covering	Posterior	Anterior	Total
Complete	17	23	40
Percentage %	5 1.5%	85.2%	66.7%
Incomplete	16	4	20
Percentage%	48.5%	14.8%	33.3%
Total	**33**	**27**	**60**

pre maturity of the fetus like the table (7) below on the time of cesarean on no difference between the anterior and the posterior group with dence of term delivery more than the preterm delivery with 77.8 % for anterior, and 75.8 % for posterior.

Table (7) distribution of placenta previa according to prematurity of the fetus:

Prematurity	Posterior	Anterior	Total
Less than 37week	8	6	14
Percentage %	24.2%	22.2%	23.3%
More than 37week	25	21	46
Percentage %	75.8%	77.8%	76.7%
Total	**33**	**27**	**60**

The result of the analysis of maternal complications were according to the placental location . Hemoglobin levels before or after surgery were significantly different between those groups.

Nonetheless, the anterior location received packed red blood cell PRC or whole blood transfused during surgery more than posterior (76.9%vs 24%) and this difference is statically significant p=0.001 like on table (8) .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Table (8) distribution of placenta previa according to received blood transfusion:

Furthermore, incidences of placental accrete on the anterior group more than posterior group (66.7% vs. 0%) and this difference is statically significant p=0.001.

blood transfusion	Posterior	Anterior	Total
Yes	8	20	28
Percentage%	24.2%	76.9%	47.5%
No	25	6	31
Percentage%	75.8%	23.1%	52.5%
Total	33	26	59

Table (9) Distribution of placenta previa according to accrete:

Placenta accrete	Posterior	Anterior	Total
Yes	0	18	18
Percentage %	0.0%	66.7%	3 0.0%
No	33	9	42
Percentage %	100.	0% 1	70.0%
Total	33	27	60

- Hysterectomy were much more common in the anterior group (0% vs 40.7) and this difference is statically significant p=0.001.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table (10) Distribution of placenta previa according to hysterectomy:

Hysterectomy	Posterior	anterior	Total
Yes	0	11	11
Percentage %	0.0%	40.7%	18.3%
No	33	16	49
Percentage %	100%	59.3%	8 1.7%
Total	33	27	60

- Maternal mortality was on anterior group more than posterior group (7.4% vs 0%) and this difference is statically significant p= 0.001.

Table (11) Distribution of placenta previa according to maternal mortality:

Maternal mortality	Posterior	Anterior	Total
Yes	0	2	2
Percentage%	0.0%	7.4%	3.3%
No	33	25	58
Percentage %	100%	92.6%	96.7%
Total	33	27	60

And the incidence of bladder injury on anterior group was more than anterior group (29.6%vsO%)
and this difference is statically significant p=0.001.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

2

Table (12) Distribution of placenta previa according to bladder injury:

Bladder injury	Posterior	Anterior	Total
Yes	0	8	8
Percentage%	0.0%	29.6%	13.3%
No	33	19	*52*
Percentage %	100.0%	70.4%	86.7%
Total	33	27	60

Discussion:

The maternal morbidities and mortality significantly increase when placenta is located in the anterior portion of uterus in placenta previa.

In this study, the incidences of complete previa between the two groups were significantly different. Which concurs with the the study reported by Dong Gyu Jang et al .conducted in 409 patient there is no significant difference between anterior and posterior group on covering of the internal os [16] and like the other study Tuzovic et al. Conducted in 202 patients [17] with complete placenta previa is more anterior and risk of hysterectomy and anta partum and post partum hemorrhage.

It means that anterior placental location is a risk factor that affects pregnancy outcome dependent of the level of coverage of internal os of cervix in placental previa.

We strongly believe that the high incidence of anterior previa among high parity especially 2 or more prior cesarean section in this study is associated with placental accrete And it was observed that the incidence of placenta accrete and hysterectomy is more common in anterior group. Like study[16] of 409 patient was the incidence of hysterectomy on anterior group 12.4% and accrete 2 1.3%, the incidence of accrete in anterior placenta group was 66 %, and the other group was 33.3 % which (18/60) and the number of cases were 60 patient,Not like

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

the other study[19] no difference between the accrete and placenta not accrete on complication.[19]

That can be due to the facts that in the study conducted by Usta et al., the incidence of accrete in anterior placenta group was 8.9 %, and the other group was 5.1 % (p value 0.258), which was lower than the frequency of placenta accrete in our study 66% (18/60) and the number of cases were insufficient (22 patients). In our study, the incidence of placenta accrete was high, which was inferred due to the fact that they were many patients with high risk factors for inducing placenta acerete such as previous cesarean section. and so on The high incidence of placenta accrete.

Factors such as old age, multiparty, previous cesarean section are frequently associated with placenta previva, they are accounted as risk factors of excessive bleeding and peripartum hystere ctomy, even placenta previa does not exist.[10][11][12]

Therefore the age, parity, history of cesarean and history of abortion should be adjusted when demographic in on placenta previa is pursued.[13]

In our study, in addition, to evaluate the effect of the placental location, The result was when the placenta located beneath the incision site, the incidence of excessive blood loss, massive transfusion, placental accreta and hysterectomy significantly increased.

On this study Placenta accrete itself can raise the maternal morbidity and mortality rate.

The incidence of massive transfusion (76%) and hysterectomy were not (11%) And mortality (7.4) It thus speculated that high incidence of placenta accrete in the anterior group affected the increased the risk of massive transfusion and hysterectomy and mortality this is may be due to low education of our country regarding the dangerous of placenta previa on general and pre natal and anta natal carrying on compared with the study regarding mortality [16].

Further retro spective studies including other sonographic markers of massive hemorrhage or adherence of placenta such as extensive vascular lakes[14], heterogeneity of placenta, loss of myometrial zone[15], sponge-like cervix and marginal could be required and it will give us

more information about the relationship of anterior placenta with accrete or massive bleeding and finally it enables more tailored management.

Conclusion

In conclusion, anterior previa is more common in patients with 2 or more prior cesarean section compared to no prior cesarean section and it is more dangerous than posterior previa in view of increasing maternal morbidity as excessive blood loss, massive transfusion, placenta accrete and hysterectomy and mortality. Therefore, sonographic detection of anterior placenta is very important to predict maternal outcomes in placental previa, and in such cases obstetricians should be aware of high possibility of maternal massive.

Recommendation

1. Implement of comprehensive guide line of antenatal, postnatal management of placenta previa is needed.

2. Further study of this problem is recommended in more than one center (multicenter study).

References

Kendrick, Chantal Simon, Hazel Everitt, Tony (2005). Oxford handbook of general practice (2nd ed.). Oxford: Oxford University Press.

Weerasekera, D. S. (2000). "Placenta praevia and scarred uterus - an obstetrician's dilemma". Journal of Obstetrics & Gynaecology 20 (5): 484-5.

Aliyu, MH; Lynch, O; Nana, PN; Alio, AP; Wilson, RE; Marty, PJ; Zoorob, R; Salihu, HM (July 2011). "Alcohol consumption during pregnancy and risk of placental abruption and placenta previa.". Maternal and child health journal 15 (5): 670-6.

Brinsden, Judith Collier, Murray Longmore, Mark (2006). Oxford handbook of clinical specialties (7th ed.). Oxford: Oxford University Press. p. 1970.5.

Arulkumaran, edited by Richard Warren, Sabaratnam (2009). Best practice in labour and delivery (1st ed., 3rd printing. ed.). Cambridge: Cambridge University Press. pp. 142.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Handler, A; Kistin, N; Davis, F; Ferré, C (Apr 15, 1991). "Cocaine use during pregnancy: perinatal outcomes.". American Journal of Epidemiology 133 (8): 818.

Kistin, N; Handler, A; Davis, F; Ferre, C (July 1996). "Cocaine and cigarettes: a comparison of risks.". Paediatric and Perinatal Epidemiology 10 (3): 269-78.

BenirschkeK,Baegen RN: pathology of the human placenta 6d ed.New York.springer.20 l2p204.

Dola CP, Garite TJ, Dowling DD. et al. Placenta previa: does its type affect pregnancy outcome?. Am J Perinatol. 2003;20:353-60.

Oya A, Nakai A, Miyake H. et al. Risk factors for peripartum blood transfusion in women with placenta previa: a retrospective analysis. J Nippon Med Sch. 2008;75:146-51.

Choi SJ, Song SE, Jung KL. et al. Anteparturn risk factors associated with peripartum cesarean hysterectomy in women with placenta previa. Am J Perinatol. 2008;25:37-41.

Hasegawa J, Matsuoka R, Ichizuka K. et al. Predisposing factors for massive hemorrhage during Cesarean section in patients with placenta previa. Ultrasound Obstet Gynecol. 2009; 34:80-4.

Faiz AS, Ananth CV. Etiology and risk factors for placenta previa: an overview and meta-analysis of observational studies. J Matern Fetal Neonatal Med. 2003;13:175-90.

Comstock CH, Love JJJr, Bronsteen RA. et al. Sonographic detection of placenta accreta in the second and third trimesters of pregnancy. Am J Obstet Gynecol. 2004;190:1 135-40.

Comstock CH. Antenatal diagnosis of placenta accreta: a review. Ultrasound Obstet Gynecology.

Jang DG, We JS, Shin JU, Choi YJ, Ko HS, Park IY, Shin JC. Maternal Outcomes According to Placental Position in Placental Previa. Tnt J Med Sci2011; 8(5):439-444.

Tuzovic L. Complete versus incomplete placenta previa and obstetric outcome. mt J Gynaecol Obstet. 2006;93 :110-7.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Zaki ZM, Bahar AM, Au ME. et al. Risk factors and morbidity in patients with placenta previa acereta compared to placenta previa nonaecreta. Acta Obstet Gynecol Scand. 1998;77:391-4.

Usta TM, Hobeika EM, Musa AA. et al. Placenta previa-acereta: risk factors and complications. Am J Obstet Gynecol. 2005;193:1045.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Ecthyma gangrenosum without Pseudomonas bacteraemia in an immunocompetent healthy adult: A case report

Nadia A. El-Sherif [1], Ibtisam M. El-Mangush[1], Salwa A. El-Dibany[2]
[1]Dermatology Department, Benghazi university, Eljamhoria hospital, Benghazi, Libya.
[2]Dermatology Department, Omar El-Mukhtar university, Al-Beida, Libya

Introduction

Pseudomonas aeruginosa may presented with mild cutaneous infections in otherwise healthy persons like toe web infections, hot tub folliculitis, however, in persons with lowered resistance, more severe infections such as malignant otitis externa and necrotizing fasciitis are observed (1). Ecthyma gangrenosum, the characteristic skin sign of Pseudomonas septicemia, occurs in debilitated or in immunocompromised patients (2,3). There are isolated reports of its occurrence in normal healthy subjects with no evidence of bacteremia (4).

Key word: Ecthyma gangrenosum, Pseudomonas aeruginosa, healthy subjects

Case presentation

A 62-year-old female Libyan patient was admitted to dermatology department at El-Jamhoria hospital at Benghazi, with a 1-month history of painful ulcer on the skin over her left breast. She was a febrile and in good condition. Local skin examination revealed a single necrotic ulcerated skin lesion covered with central black eschar was present over her left breast skin surrounded by an intense red areola. Two other smaller lesions with the same features were present (Fig.1). The laboratory findings were: peripheral WBC count 1600 mm3 of which 69% were neutrophils, 24.5% were lymphocytes, and 6.3% were monocytes; hemoglobin 11.4g/ dL and platelets 243 x 10³/L. Liver function tests, blood urea nitrogen and serum creatinine levels and chest radiographs were normal. Pseudomonas aeruginosa was isolated from the necrotic ulcerated skin lesion. However, the results of repeated blood cultures were negative.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Histopathological examination of skin biopsy from the ulcer showed a necrotic epidermis with dermal infiltrate of a moderate number of lymphocytes, and neutrophiles pronounced in

the perivascular area (fig.2,3). The diagnosis of ecthyma gangrenosum associated with Pseudomonas infection was made. The patient was treated with intravenous cefatrixon 1 g IV every 12 hours and three days later gentamicin 100 mg IV every 8 hours has been added according to the result of culture sensitivity, this combination therapy were continues for six weeks. Silver sulfadiazine local application along with surgical debridement were also instituted for better wound healing (fig.4,5). Two months later the skin lesion completely healed.

Discussion

Ecthyma Gangrenous (EG) was first described in 1897 as a cutaneous manifestation of Pseudomonas aeruginosa bacteremia (5). This disease had been related to life-threatening septicaemic infections with high mortality (2). It occurs mostly in immunocompromised patients with leukemia, lymphoma and other malignant diseases, especially in the presence of severe neutropenia, furthermore EG reported in severe burns or organ transplant, or in people receiving immunosuppressive therapy (2,3,6). However, it has been reported also in patients without previously identified medical problems (3,4,7).

Although ecthyma gangrenosum is now known to be caused by a variety of bacteria and fungi, it is still considered to be pathognomonic for *Pseudomonas aeruginosa* infection and it continues to be the most common cause (4,8).

The lesion begins with a painless well-circumscribed edematous papule that subsequently, evolves to a hemorrhagic bulla that ruptures, forming a necrotic ulcer with a gray-black eschar surrounded by an erythematous halo. Certain localizations are particularly affected such as the perineum (57%), the extremities (30%) and trunk (6%), furthermore, fever is noticed in 96% of cases (4).

The pathogenic mechanism for the cutaneous lesion started with bacterial invasion of the arteries in the dermis and subcutaneous tissues occurs by hematogenous seeding in

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

septicemic patients and by direct inoculation in non-bacteremic ones. Subsequently a necrotizing vasculitis caused by obstruction of the dermal vessels and dissolution of the elastic lamina of blood vessels by Pseudomonas elastase and exotoxin A were responsible for the direct tissue destruction and ulcerative lesions (9,10).

Treatment should begin on the basis of clinical findings without waiting for laboratory confirmation. The recommended treatment is an antipseudomonal beta-lactam antibiotic combined with an aminoglycoside appropriate for both bacteremic and non-bacteremic ecthyma gangrenosum (12). Moreover, surgical debridement has been also recommended along with skin grafting when needed (2).

The synergistic effect with the combination of beta-lactams and aminoglycosides, and the risk of the development of resistant strains with monotherapy have made the combination therapy a preferred mode, furthermore, the reduction of mortality rate among patients with invasive infections received combination therapy compared with monotherapy has been reported (12). Our patient received combination therapy along with surgical debridement of the necrotic ulcer to promote its healing.

Mortality rates of patients with ecthyma gangrenosum vary between 35% and 90% depending on the severity of the underlying sepsis (3), while in patients without documented bacteremia, mortality rates can be as low as 15% (13). Furthermore, the mortality rate was 7.5% in the group of patients with skin lesions considered to be primary and 20% in the group of patients with skin lesions considered to be secondary to bacteremia (4).

Conclusion

Dermatologist must be aware of these conditions and consider EG as a likely diagnosis when facing a healthy adult with skin lesions such as those described above even with a negative blood cultures. In this situation, prompt debridement, and initiation of antibiotics with appropriate coverage against Pseudomonas species should be initiated.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

REFFERENCES

Agger WA, Mardan A. Pseudomonas aeruginosa infections of intact skin. Clin Infect Dis. 1995;20(2):302-8.

Singh N, Devi M, Devi S: Ecthyma gangrenosum: a rare cutaneous manifestation caused by Pseudomonas aeruginosa without bacteremia in a leukemic patient. Indian J Dermatol Venereol Leprol 2005, 71:128-129.

Bodey GP, Jadeja L, Elting L: Pseudomonas bacteremia: Retrospective analysis of 410 episodes. Arch Intern Med 1985, 145:1621-1629.

Gençer S, Ozer S, Ege Gül A, Doğan M, Ak O. Ecthyma gangrenosum without bacteremia in a previously healthy man: a case report. J Med Case Rep. 2008; 22;2:14.

Colette CM, Scarfone RJ, Conway D. Ecthyma gangrenosum as a Manifestation of Pseudomonas Sepsis in a Previously Healthy Child. Ann Emerg Med 2000; 36; 383-387.

Tornero C, Ricart C, Arnedo AL, Baeza R. Non-bacteremic ecthyma gangrenosum in a patient with human immunodeficiency virus infection. Rev Clin Esp 1999, 199:332-333.

Mull CC, Scarfone RJ, Conway D: Ecthyma gangrenosum as a manifestation of Pseudomonas sepsis in a previously healthy child. Ann Emerg Med 2000, 36:383-387.

Sen H, Inangil G, Sahin L, Dere K, Ozkan S, Dağli G. Ecthyma-gangrenosum-like lesions associated with methicillin-resistant Staphylococcus aureus infection. Int J Infect Dis. 2009;13(4):e173-5.

Athappan G, Unnikrishna A, Chandraprakasam S. Ecthyma gangrenosum: Presentation in a normal neonate. DOJ 2008; 14 (2): 17

Sevinsky LD, Viecens C, Ballesteros DO, Stengel F. Ecthyma gangrenosum: A cutaneous manifestation of *Pseudomonas aeruginosa* sepsis. J Am Acad Derm. 1993;29:104–106

Song WK, Kim YC, Park HJ, Cinn YW: Ecthyma gangrenosum without bacteraemia in leukaemic patient. Clin Exp Dermatol 2001, 26:395-397.

Chan YH, Chong CY, Puthucheary J, Loh TF. Ecthyma gangrenosum: a manifestation of Pseudomonas sepsis in three paediatric patients Singapore Med J 2006; 47(12): 1080-1083

Varghese GM, Eapen P, Abraham S. Ecthyma gangrenosum of a single limb Indian Journal of Critical Care Medicine 2011; 15(3): 188–189

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Figure 1. A necrotic ulceration of the breast skin and scattered small ulcerated erythematous papules.
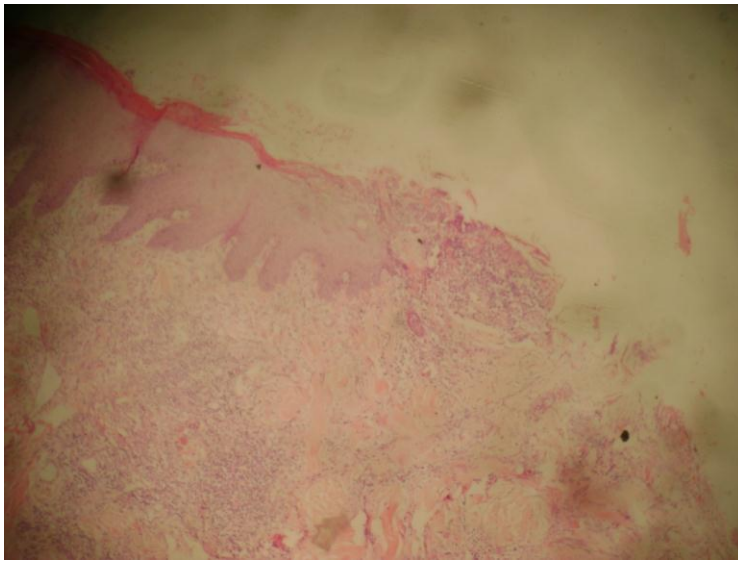
Figure 2. Ulceration and epidermal necrosis with inflammatory cell infiltration

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
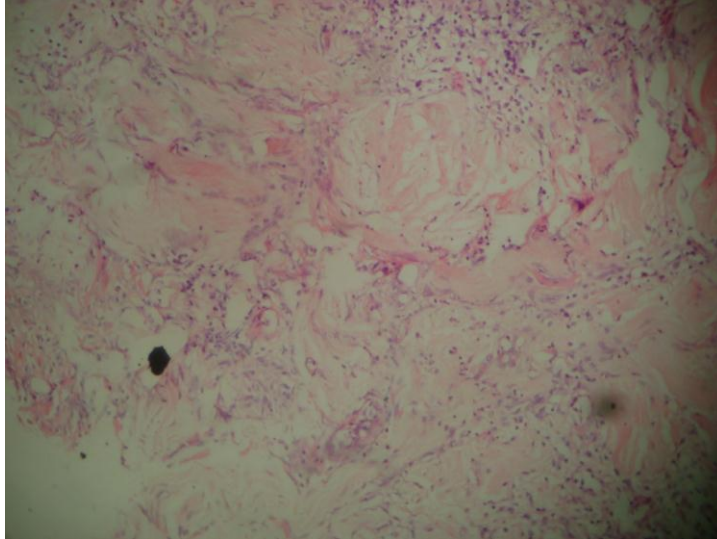
Figure 3. Ulcer with inflammatory cellular infiltrate. (higher magnification of fig.2).

Figure 4. Ulcer after surgical debridement of the necrotic lesion and initiation of systemic antibiotics .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Figure 5. Healing of the ulcer after complete coarse of antibiotic

A novel single point mutation of the LDL receptor gene in a Libyan hypercholesterolemic family.

Ahmed Zaid*, Ghada Salem.

Department of Biochemistry, Faculty of Medicine, University of Tripoli, Tripoli, Libya.

*Corresponded author A.zaid@uot.edu.ly

ABSTARCT

Autosomal dominant hypercholesterolemia (ADH), a major risk for coronary heart disease, is associated with mutations in the genes encoding the low-density lipoproteins receptor (*LDLR*), its ligand apolipoprotein B (*APOB*) or *PCSK9* (Proprotein Convertase Subtilin Kexin 9). Familial hypercholesterolemia (FH) caused by mutation in the *LDLR* gene is the most frequent form of ADH. Low density lipoprotein receptor plays a key role in regulating plasma low-density lipoprotein cholesterol (LDL-C) levels in human. In the present study we identified a novel polymorphism 24400 G > C in a Libyan HF patient. Genotypes of the *LDLR* 24400 G > C polymorphism were determined via Polymerase Chain Reaction (PCR) and gel electrophoresis, and then confirmed by direct DNA sequencing. This study identified a novel *LDLR* gene polymorphic mutation which is the first to be described here in the Libyan population, increasing the spectrum of ADH-causative mutations.

INTRODUCTION

Atherosclerosis is a disease of the arteries responsible for coronary artery disease (CAD) and myocardial infarction (MI), which underlies most deaths in industrialized countries (1). It is due to multiple genetic factors, environmental factors, and interactions among them. Identification of these genetic and environmental factors will provide valuable information for prevention and control of CAD.

Autosomal dominant hypercholesterolaemia (ADH) (OMIM #143890) is characterized by raised serum LDL-cholesterol levels, and accelerated atherosclerosis that increased the risk of premature coronary heart disease (CHD) (1). The most prevalent underlying molecular defect of ADH consists of mutations in the LDL receptor gene, but mutations in the *LDL receptor*

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

binding domain of the *apolipoprotein B (apoB)* (familial defective apolipoprotein B) (2), and *PCSK9* have also been associated with familial hypercholesterolaemia (FH) (3). Mutation in the gene encoding the low-density lipoprotein receptor (*LDLR*) is the most common genetic cause of FH (http://www.ucl.ac.uk/fh). The LDL receptor protein is a cell-surface protein which mediates specific uptake and degradation of LDL by its endocytosis, mainly in liver. A wide variety of mutations including insertions, deletions, nonsense and missense mutations has been described in patients with FH. LDLR gene (MIM# 606945) is located on chromosome 19 (19p13.3) and consists of 18 exons which spans about 45 kb with a mature protein of 860 amino acids (6, 7).

Mutation in apolipoprotein B-100 gene (APOB100;MIM 107730) is the second cause of the clinical FH phenotype. This gene is located on chromosome 2p24.1 that codes for the protein component of LDL particles (8, 9). ApoB-100 is an integral component of LDL and functions as the ligand for the LDLR. Therefore mutations in the APOB 100 will drastically alter its functional activity leading to a decrease in its binding to LDLR, thereby delaying the clearance of LDL particles. In contrast to LDLR, only a small number of functional mutations have been identified in APOB gene such as R3500Q (12), R3500 W (13). and R3531C (14). There are no data regarding LDLR and APOB gene mutations in Libyan population. The aim of this study was to characterize the *LDLR* in Libyan FH patient. Other still unknown genes could also be involved.4 The frequency of heterozygous FH in most populations is about 1/500, homozygous FH is rare (1 per million), but in Tunisia, a neighboring country of Libya, higher frequency has been reported (1/165) because of the high levels of consanguinity in this population (6) Eight mutations causing FH in the *LDLR* gene have been reported in the Tunisian population.(7,8) In this study, we report two apparently unrelated families with severe hypercholesterolaemia.

MATERIALS AND METHODS

All subjects provided informed consent, and the institutional review board approved the study.

Blood sampling: Samples were collected from the affected individuals. Blood was obtained from the subjects by venipuncture after obtaining informed written consent from the patient. Blood was obtained from the subjects by veinopuncture in heparinated tube (Puls blood

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

collection tubes, BD Vacutainer, UK). The collection of the whole blood samples were in the Tripoli Medical Center, Tripoli, Libya.

DNA extraction: Genomic DNA from all patients was isolated from whole blood using QIAamp DNA Mini preps Kit (QIAGEN, USA) in 200 μl or 400 μl of total volume according to Qiagene user protocol. Genomic DNA was administrated in DNA electrophoresis apparatus (TECHNE - multisub, horisontal agarose, UK). The DNA is visualized in the gel by addition of ethidium bromide to check the quality. Concentration of genomic DNA samples was determined by Nanodrop 3300 (Thermo Scientific, USA).

PCR (Polymerase Chain reaction): Primer3 and BLAST software (http://www.ncbi. nlm.nih.gov/ tools/primer-blast/,) used to design primers for the PCR, Each amplification reaction was performed using 100 ng of genomic DNA in 25 μL of reaction mixture consisting of 25 μmol/L of each primer, 200 μmol/L of each deoxynucleotide triphoisphate, 2.5 μL of 10 × PCR buffer (100 mM Tris-HCl, pH 8.3, 500 mM KCl, 20 mM MgCl2, 1% Triton), and 2 units of *Taq* polymerase. After initial denaturizing at 94 °C for 5 min, the reaction mixture was subjected to 35 cycles of 30 s denaturation at 94 °C, 30 s annealing at 58 °C and extension 30 s at 72 °C, followed by a final 5 min extension at 72 °C. After electrophoresis on a 1.2% agarose gel with 0.5 μg/mL ethidium bromide (EB), the amplification products were visualized under ultraviolet light for analysis using photographing Apparatus: Chemi Image - Advanced Molecular Vision.

In order to purify PCR product for the 18 *LDLR* exons amplified from the genomic DNA primers, nucleotides, polymerase, and salts we used the QIAquick PCR product Purification Kit (Qiagene, USA). The Purifications were done for PCR product samples and were kept in -20°C in sufficient quantity to perform DNA sequencing.

LDLR Gene Primers

LDLR Gene	*Primers for long-range PCR (5'→ 3'direction)*	L	Start	Stop	Tm	GC%	AF
promoter	F:CACGTGATCGTCCCGCCTA	19			60.0	62.0	263
	R:AAATTCTTGTCAACCTACTTGTGC	24			60.2	37.0	
Exon1	F: TAGGACACAGCAGGTCGTGAT	21	5113	5133	60.89	52.38	160
	R: CCCTCTCAACCTATTCTGGCG	21	5273	5253	60.20	57.14	
Exon2	F: ATTCTGGCGTTGAGAGACCC	20	15800	15819	59.75	55.00	223
	R: GGCGAGACCCTGTCTCTATTAC	22	16023	16002	59.71	54.55	
Exon3	F: TGGGTCTTTCCTTTGAGTGACA	22	18239	18260	59.49	45.45	219

Page 53

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

		L			Tm		AF
	R: CCACTCCCCAGGACTCAGATA	21	18458	18438	60.06	57.14	
Exon4	F: AGACTTCACACGGTGATGGTG	21	20795	20815	60.27	52.38	476
	R: CCCAGGGACAGGTGATAGGA	20	21271	21252	60.03	60.00	
Exon5	F: CCCTGCTTCTTTTTCTCTGGTTG	23	22120	22142	59.99	47.83	240
	R: AAGCAGCAAGGCACAGAGAAT	21	22360	22340	60.55	47.62	
Exon6	F: TCAGACACACCTGACCTTCCT	21	22967	22987	60.41	52.38	229
	R: CATGTCTCAGTCCCTTTCCTGG	22	23196	23175	60.36	54.55	
Exon7	F: CGAGAGTGACCAGTCTGCATC	21	26235	26255	60.47	57.14	215
	R: TGGTTGCCATGTCAGGAAGC	20	26450	26431	60.90	55.00	
Exon8	F: ATCGCTCCGTCTCTAGCCAT	20	27071	27090	60.54	55.00	238
	R: CTGCCTGCAAGGGGTGAG	18	27309	27292	60.36	66.67	
Exon9	F: CTTGGTTCCATCGACGGGT	19	28841	28859	59.70	57.89	282
	R: CAGGAGCCCTCATCTCACCT	20	29123	29104	60.69	60.00	
Exon10	F: CAGGTGAGATGAGGGCTCC	19	29103	29121	59.17	63.16	291
	R: CTGCTCCCTCCATTCCCTCT	20	29429	29410	60.69	60.00	
Exon11	F: CCTCCAGCCTCACAGCTATTC	21	31677	31697	60.20	57.14	211
	R: GTCTGTCCTCCAGCCTGTG	19	31888	31870	59.71	63.16	
Exon12	F: GGCATCAGCACGTGACCT	18	32437	32454	60.05	61.11	222
	R: ATCCGCCACCTAAGTGCTTG	20	32659	32640	60.39	55.00	
Exon13	F:TCCCAGTGTTTAACGGGATTTGT	23	35666	35688	60.44	43.48	237
	R:TTCCACAAGGAGGTTTCAAGGT	22	35903	35882	59.76	45.45	
Exon14	F:ATAGCTGATGATCTCGTTCCTGC	23	35942	35964	60.31	47.83	243
	R: CAGTTGGAGGACACAGGACG	20	36185	36166	60.32	60.00	
Exon15	F: CGTGGCACTCAGAAGACGTT	20	38759	38778	60.60	55.00	251
	R: ACCCGTCTCTGGGTGAAGAG	20	39010	38991	60.90	60.00	
Exon16	F: CCTTTAGACCTGGGCCTCAC	20	43589	43608	59.75	60.00	169
	R: ACATAGCGGGAGGCTGTGA	19	43758	43740	60.69	57.89	
Exon17	F: AGCTGGGTCTCTGGTCTCG	19	45077	45095	60.68	63.16	283
	R: TTGAGGATCATATGCCTCCAGC	22	45360	45339	59.96	50.00	
Exon18	F:TGTTTCCTGAATGCTGGACTGAT	23	46849	46871	60.25	43.48	179
	R:GCAATGCTTTGGTCTTCTCTGTC	23	47028	47006	60.37	47.83	

Tm: primer melting temperature. L: primer length. AF: amplified fragment

Page 54

Genetic Analyzer The sequencing of the amplified samples was done by 3130 Genetic analyzer using (Big dye sequencing kit from applied biosystem, USA). GeneScan and GeneMapper 3.0 softwares (Applied Biosystems) were used to determine the genotype of each subject.

Biochemical analysis Blood samples were taken for biochemical analysis following overnight fasting. Serum total cholesterol (TC), triglyceride (TG) and HDL cholesterol (HDL-C) concentrations were determined at accredited clinical laboratories using routine clinical methods. LDLcholesterol (LDL-C) concentrations were calculated using the Friedewald equation [17]. For TG levels _4.6 mmol/L, no LDL-C value was calculated (3 cases).

RESULTS

Clinical and biochemical analyses for blood samples were preformed as shown in Table1 on the family. The father had myocardial infarction (MI) late 2014 and the Mother and daughter were healthy with no CHD. The biochemical analysis shows that the father has a high level of cholesterol and LDL and normal level of trigacylycerol which is an indication for familial hypercholesterolemia (FH) the ratio. The father, mother and daughter are none diabetic with no history of nephrological problems or hyperthyroidism (Tabel 1). Biochemical analysis showed normal values in body mass index (BMI), cholesterol and triacylglycerol for the mother and the daughter indicating that the father can be consider as a potential patient with a familial hypercholesterolemia.

In This study, we succeeded in optimizing the right PCR protocol for amplifying all 18 exon, the software primer 3 for designing PCR prime used for this purpose.

In order to study the cause of (FH) and identify the gene that responsible for the increase of cholesterol, all of the 18 exons and promoter region of *LDLR* gene were amplified by PCR for all three subjects. PCR product for different exons was applied in electrophoresis analysis to check the quality and size of the amplified fragments of different exons (Figure 1).

All amplified exons were purified and sequenced for identification of mutation in the *LDLR* gene. Our results show no mutation in all exons in the mother and daughter. However, we found a novel mutation at the position 24400 in exon 10 of the father with a change of G to C. This change led to a change in amino acid glycine (Gly) to amino acid arginine (Arg). To

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

our knowledge no other study found this mutation before. In order to confirm the finding, we sequence exon 10 of the father from both direction, the 5' end and 3' ends using exon 10 forward primer and exon 10 reverse primers respectively, (figure 2 A&B). Indeed, the sequencing by using the reverse primer showed a mutation from G to C only. We also can see two peaks G and C at the same place, the peak T represent the wild type allele and the peak C represent the mutated allele, this also indicating that the patient has is a mutation because each peak represents one *LDLR* allele. We have also sequenced the hole gene of *PCSK9* which some mutations in this gene showed a correlation with FH, but no mutation were found in all 12 exons of *PCSK9* gene (Data not shown), suggesting *LDLR* mutation which we reported here responsible about the increase in serum cholesterol in the father

Discussion

The spectrum of *LDLR* mutations causing FH has been studied in many different countries as this information is useful in devising the most efficient laboratory strategy for genetic testing. In genetically heterogeneous countries such as the UK, Italy or the Netherlands, there are many different mutations found [37].

A frequency of FH ranging from 1/411 (0.24%) for North Karelians of Finland [24] to 1/67 (1.5%) for Ashkenazi Jew in South Africa [25]. The frequency of FH is 1/900 (0.11%) for Japanese in Asia [26]. IRAN Very little is known about the frequency of FH in Arabic countries, and our finding is the first report of mutation in one of the gene causing FH in Libya. In addition, the mother and the daughter show no phenotype and were healthy and did not carry any of LDLR gene mutations.

The mature human LDLR proteinof 160 kDa is composed of five domains, exon 1 encodes a short 5' untranslated region and 25 hydrophobic amino acids that are not present in the mature protein. This sequence functions as a signal peptide to direct the receptor synthesising ribosomes to the Endoplasmic Reticulum (ER) membrane. Other functional domains of the peptide correspond to the exons as indicated in Figure (4), exons 2 and 6 encode the Ligand binding domain 292 AA, exons 7 and 14 encode EGF precursor homology approx 400 AA, exon 15 encodes O-linked sugars 58 AA, 41 bp of exon 17 plus exon 16 encode the transmembrane domain (membrane spanning 22AA) and the reminder of exon 17 together with exon 18 encode the cytoplasmic domain (cytoplasmic tail 55AA). (nano)

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

At present, more than 1,100 variants of *LDLR* gene have been listed in the *LDLR* databases (Al-Allaf FA, 2010) underlying a high genetic heterogeneity of *LDLR* mutations/rearrangements, 65% (n = 689) of which were DNA substitutions, 24% (n = 260) small DNA rearrangements (<100 bp), and 11% (n = 117) large DNA rearrangements (>100 bp). The DNA substitutions and small rearrangements occur along the length of the *LDLR* gene, with 839 in the exons (93 nonsense variants, 499 missense variants and 247 small rearrangements), 86 in intronic sequences, and 24 in the promoter region. The highest proportion of exon variants occurs in the ligand binding domain (exons 2-6) and the EGF (Epidermal Growth Factor) precursor domain (exons 7-14) (Al-Allaf FA, 2010). As shown these mutations are distributed across the 18 exons, introns, and the promoter region of the *LDLR* gene (Romano M, 2011). That's why it is considered the primary causative defects in approximately 85% of FH cases (Dvir H, 2012). The resulting loss of function leads to elevation of plasma LDL and to the development of atherosclerosis at an early age (Dvir H, 2012). Mutations in the ectodomain of LDLR disrupt the binding of LDL to the cell surface, whereas mutations in the cytoplasmic tail of LDLR retain LDL binding but lead to internalization defects by precluding clustering of the receptor in clathrin-coated pits and its subsequent endocytosis (Dvir H, 2012).

According to the nature and location of the mutations within the *LDLR* gene and based on the functional characteristic of the encoded proteins, five different classes of FH-causing mutations have been defined (Go GW, 2012 ; Schaefer JR, 2012). Class I mutations include null alleles with no detectable LDL receptor protein (receptor synthesis defect). Class II mutations include transport-defective alleles, which disrupt normal folding of the receptor and cause either failure in transport to the cell surface or successful transport of truncated, mutated receptors. (class II a) mutations completely block the transport of the receptor or partially blocked (class II b or leaky LDLRs) in their transport from the endoplasmic reticulum to the Golgi apparatus due to impaired glycosylation (defect in targeting receptor to cell surface). Class III mutations (binding-defective alleles) encode LDL receptors with normal intracellular transport but defective LDL binding. Class IV mutations (internalization-defective alleles) produce LDLR with normal transport and cell surface LDL binding but defective clustering in clathrin-coated pits for internalization. Finally, class V mutations (recycling defective alleles) produce LDLR that internalize normally, but are unable to

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

release bound ligand within the acidic environment of the endosome, and thus do not recycle to the cell surface (Go GW, 2012 ; Schaefer JR, 2012).

In this study the mutation G529R in exon 10 which is one of the exons that coded the EGF precursor domain which is an extracellular domain but not involve in ligand binding. The change from non charged amino acid glycine to the positively charged amino acid arginine would most likely to cause a conformational change in the structure LDL receptor. Further study in *ex-vivo* level is required in order to understand the mechanism of how this new mutation causes FH and which class it belongs. One possible that the amino acid change from glycine to arginine is change from non polar amino acid to a charged one, this can certainly cause a conformational change in LDLR protein and that can disturb the interaction between LDLR and its natural receptor the lipoprotein LDL.

ACKNOWLEGEMENTS

REFERENCES

1- Goldstein JL, Brown MS "History of Discovery:The LDL Receptor"Arterioscler Thromb Vasc Biol. 2009 Apr;29(4):431-8

2- Huang S, Henry L, Ho YK, Pownall HJ, Rudenko G. "Mechanism of LDL binding and release probed by structure-based mutagenesis of the LDL receptor" J Lipid Res.2010 February;51(2):297-308.

3- Hamilton-Craig I, Kostner K, Colquhoun D, Woodhouse S. "Combination therapy of statin and ezetimibe for treatment of familial hypercholesterolemia"Vasc Health Risk Manag.2010 Nov10;6:1023-37

4- Zhao Z, Michaely P." Role of an Intramolecular Contact on Lipoprotein Uptake by the LDL Receptor" Biochim Biophys Acta. 2011 Jun;1811(6):397-408

5- Zhao Z, Michaely P."The Role of Calcium in Lipoprotein Release by the LDL Receptor "Biochemistry. 2009 Aug 4;48(30):7313-24.

6- Mata et al ." Clinical characteristics and evaluation of LDL-cholesterol treatment of the Spanish Familial Hypercholesterolemia Longitudinal Cohort Study (SAFEHEART)Lipids Health Dis.2011;10:94.

7- Go GW, Mani A."Low-Density Lipoprotein Receptor (LDLR) Family Orchestrates Cholesterol Homeostasis"Yale J Biol Med.2012 Mar;85(1):19-28

8- Fahed AC, Nemer GM "Familial Hypercholesterolemia: The lipids or the Genes?".Nutr Metab (lond).2011;8:23.

9- Bambauer R, Bambauer C, Lehmann B, Latza R, Schiel R."LDL -Apheresis:Technical and Clinical Aspects" ScientificWorld Journal. 2012;2012:314283.

10- Brown MS, Goldstein JL."The SREBP Pathway: Regulation of Cholesterol Metabolism by Proteolysis of a Membrane-Bound Transcription Factor".Cell.volume 89,Issue 3, 2 May 1997, 331-340.

11- Kang Q, Chen A."Curcumin suppresses expression of low-density lipoprotein(LDL)receptor, leading to the inhibition of LDL-induced activation of hepatic stellate cells."Br J Pharmacol.2009 Aug;157(8):1345-1367.

12- Schaefer JR, Kurt B, Sattler A, Klaus G, Soufi M."Pharmacogenetic aspects in familial hypercholesterolemia with the special focus on $FH_{Marburg}$." Clin Res Cardiol Suppl.2012 Jun;7(suppl 1):2-6.

13- Lillis AP, Van Duyn LB, Murphy-Ullrich JE, Strickland DK.." The low density lipoprotein receptor-related protein 1: Unique tissue-specific functions revealed by selective gene knockout studies."Physiol Rev.2008 Jul;88(3):887-918.

14- Spuch C, Ortolano S, Navarro C."LRP-1 and LRP-2 receptors function in the membrane neuron. Trafficking mechanisms and proteolytic processing in Alzheimer`s disease."Front Physiol.2012;3:269.

15- Orth M, Bellosta S."Cholesterol: Its Regulation and Role in Central Nervous System Disorders."Cholesterol. 2012;2012:292598.

24. Vuorio AF, Turtola H, Piilahti KM, Repo P, Kanninen T, Kontula K. Familial hypercholesterolemia in the Finnish north Karelia. A molecular, clinical, and genealogical study. ArteriosclerThromb Vasc Biol. 1997;17:3127–38.

25. Seftel HC, Baker SG, Jenkins T, Mendelsohn D. Prevalence of familial hypercholesterolemia in Johannesburg Jews. Am J Med Genet. 1989;34:545–7.

26. Mabuchi H, Haba T, Ueda K, Ueda R, Tatami R, Ito S, et al.

Serum lipids and coronary heart disease in heterozygous familial hypercholesterolemia in the Hokuriku district of Japan. Atherosclerosis. 1977;28:417–23.

Table1. Clinical and biochemical characteristics of the studied subjects:

Parameters	Father	Mother	Daughter
Age	55	46	19
Glucose (mg/dl)	91.21 ± 11.12	88.11 ± 10.14	86.23 ± 12.10
BMI	22	24	23
Total cholesterol (mg/dl)	**402.93 ± 34.72**	198.11 ± 22.81	177.44 ± 34.32
Triglycerides (mg/dl)	129.96 ± 112.05	122.73 ± 15.73	130.85 ± 73.71
HDL-cholesterol (mg/dl)	42.52 ± 13.07	43.98 ± 21.74	44.45 ± 34.74
LDL-cholesterol (mg/dl)	**228.47 ± 26.59**	106 ± 23.45	102.33 ± 22.65
Cholesterol/HDL ratio	**9.47 ± 1.98**	4.50 ± 1.11	4.02 ± 1.76

Figure 1 Polyacrylamide of 2 % gel for exon 10 amplified double strand PCR product . Lane 1,Cont. control sample of amplified exon 10. Lane 2, P Patient amplified sample of Exon 10. Lane 3 N negative control and on the right lane 100 λDNA size marker. 291 bp is the size of the amplified fragment which cover exon 10.
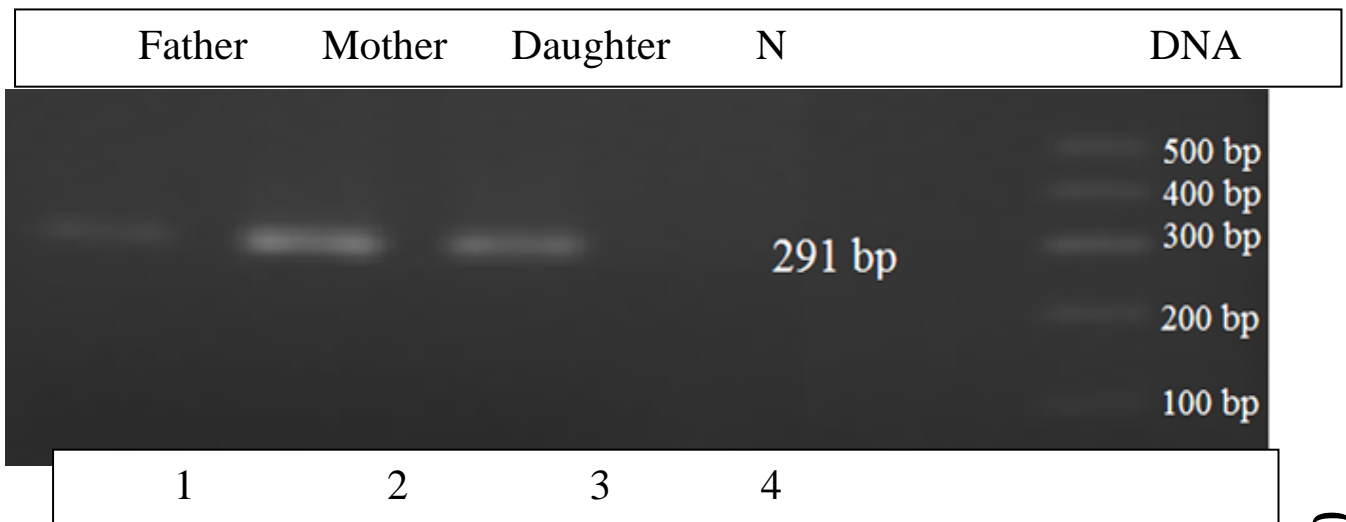
Figure 2. Electropherograms of *LDLR* gene polymorphism in exon 10. a) Forward
 primer 24400 T > C the arrow indicate the polymorphism. b) Reverse primer 24400 A > G

Page 60

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

G T T C A T G G G T G C G
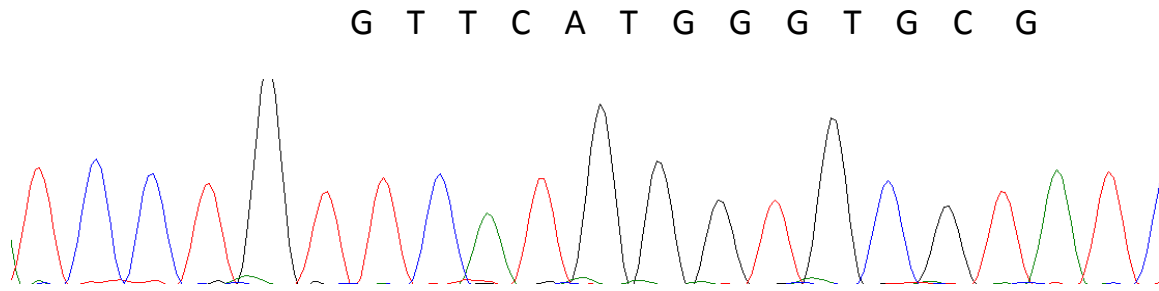
A

Mut
Forward   G A A C A T **G/C** G G T G C G

↓
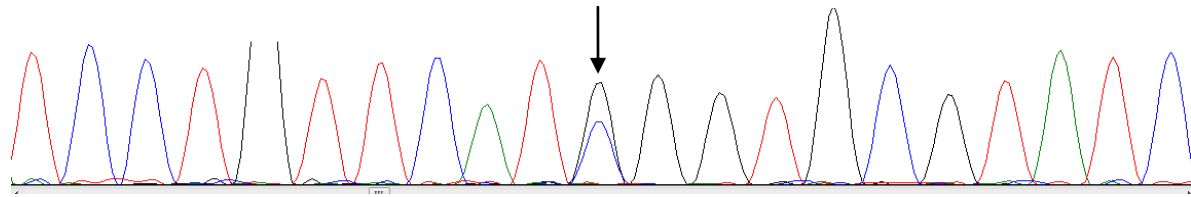
WT
Reverse   G C A C C C A T G A
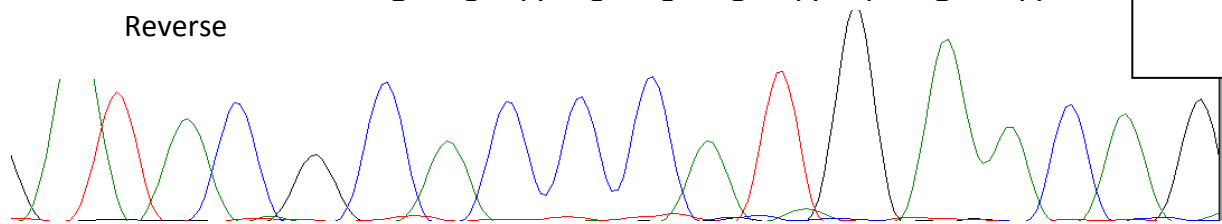
B

Mut
Reverse   G C A C C **C/G** A T G A

↓
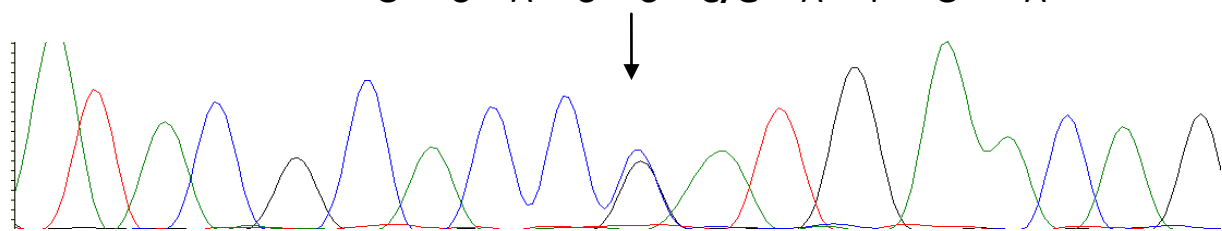
Directed acyclic graphs as an aid to strengthen the observational studies to overcome confounders:

A review article

Amal A. Abdalla ElFakhri*

Assistant lecturer-Department of Family and Community Medicine

University of Benghazi

Benghazi, Libya.

*contact details: amal_alfoony@yahoo.com , +218913239570

Abstract

Study design in which confounding detection methods can be applied sometimes is not possible to conduct, therefore observational designs are more popular where problem of confounding is more obvious

Aims: This review was conducted to describe the epidemiological use of directed acyclic graphs in confounder selection to strengthen the observational studies where other means of confounder control cannot be applied.

Methods: The search was conducted through finding web published papers; The search key words which were used are Directed Acyclic Graph, causal path, confounding control. Truncated words and abbreviations (e.g. DAGs) were not used as the results were totally irrelevant to the subject.

Results: the found studies were read and they provided a good understanding of the subject, the concept of Directed A cyclic Graphs (DAGs) which are graphs depicted as a sequence of variables which are named nodes or vertices, usually in a temporal order, connected by lines called arcs or edges, with arrows indicating causal direction, DAGs provide visual summary the use of them can be guided for depiction and application to limit the problem of confounders in observational studies.

Conclusion. The results presented in this paper demonstrate the great help of using DAGs to define confounders when assessing the association between an exposure and an outcome when conducting observational study design.

Key Words: Directed acyclic graphs, node, arc, collider, confounding bias.

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Introduction

Confounding is a major issue in epidemiological studies. In a study of the association between exposure to a cause (or risk factor) and the occurrence of disease, confounding can occur when another exposure exists in the study population and is associated both with the disease and the exposure being studied. Confounding occurs when the effects of two exposures (risk factors) have not been separated and the analysis concludes that the effect is due to one variable rather than the other (1).

There are several methods frequently used to control confounding, either through study design or during the analysis of results (2).

The methods commonly used to control confounding in the design of an epidemiological study are:
randomization
restriction
 matching.

Study design in which such methods can be applied sometimes is not possible to conduct, therefore observational designs are more popular where problem of confounding is more obvious, to overcome such a situation the use of Directed acyclic graphs, (DAGs) might play a crucial role to improve the standards of observational study design (3).

DAGs have been used for a long time as an aid to causal relations and inference(4). They are a graphical summarisation of causal links and particularly helpful in the proper selection of analytic strategy and used in the identification of confounders as they represent the causal path between an exposure and an outcome (5). In addition, DAGs are a considerable help in the categorization of potential confounders together with the visualization of research hypothesis (6). DAGs are of great concern, mainly because they are linked to an important issue in epidemiology, which is the confounding, for which no statistical test is available.

2017 /1/30م

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Objectives

The aim of this review is to find out the extent to which DAGs can help in epidemiology, and how they have been used to address causal relation and other different issues such as confounding and selection bias . In addition, formulation of a strategy by which, proper use of DAGs can be achieved.

Background and literature review

Confounding is a situation when there is an alternative explanation of the observed cause-effect association other than the studied one(7), it is a type of bias that is commonly expected, especially in observational studies (3). It occurs when an extraneous factor causes both the exposure and the outcome, thereby distorting the relationship between the two (1). The identification of confounders and controlling for these is essential for generating unbiased results. However, this is one of the most challenging issues in observational epidemiology, because it is necessary to distinguish confounders from intermediate factors/variables (also known as mediators), which are caused by the exposure and cause the outcome, and must be treated differently to confounders. Therefore, deciding which factors are potential confounders that need to be controlled for and which are not, can be confusing, from a practical point of view (8).

When modelling the relationship between outcome factor and possible mediating factors (variables) a commonly used approach in confounder selection is to start with a complete model, containing all possible variables, and then reduce the number of variables included one variable at a time (so-called "step-wise") using change-in-estimate or significance testing approaches (8).

Change in estimate calculations are conducted by considering a covariate as a confounder if the adjusted and unadjusted estimates differ by a specified amount, such as 10% or more (9), when each covariate is added to, or deleted from, the model.

Unfortunately, this approach can be impractical or inappropriate, not least when too many covariates are available for inclusion in the analysis (8).

An increasingly popular alternative approach is, the graphical representation of causal effects between variables using a path diagram (a directed acyclic graph "DAG" is one form of

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

them). DAGs provide investigators with potent tools for identifying confounders and assessing bias (10).

The basic concept and structure of DAGs

A DAG is depicted as a sequence of variables which are named nodes or vertices (figure 1), arranged in a temporal order, connected by lines, which are called arcs or edges, with arrows indicating causal direction (11). A node is called child when it is caused by another node, immediately preceding it in the path, and the later is called parent, while the node is called as descendent if it can be reached from another node (ancestor) by moving through a sequence of variables (12). All possible common causes of any variable are included in the DAG; this will help in the final interpretation, by explaining sources of uncertainty and identifying direction of biases (12).

A —————→ B
—————→ C

Figure (1) DAG

A, B & C are nodes "A" parent for "B", "B" child of "A"

"A "ancestor for "C"
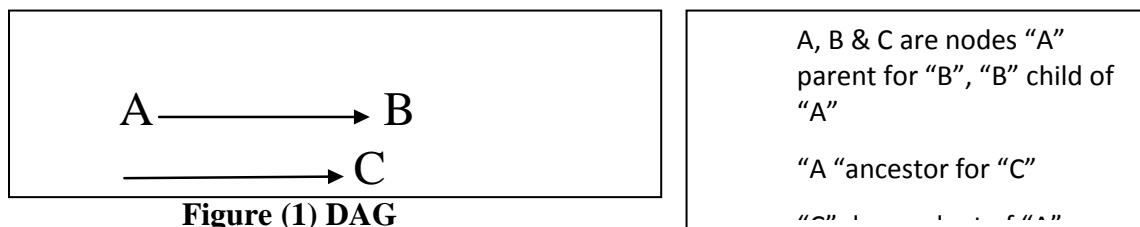
DAGs are drawn as a visual summary of the causal and temporal relationships between variables ('nodes') in a network of paths (a path being a sequence of nodes linked by edges). A path is 'directed' when it follows the edges according to the arrowheads' directions (11).

The arrowheads are unidirectional and positioned between nodes, so that a node can be a parent (A), or a child (B) as in the path [A→B], (figure 1). While the path from A to C [A→B→C] represents the concept of an ancestor (A) and a descendent (C). If the directed edges/arcs from a node were followed from one node to the next, one cannot end up back at the same node, and in this sense it is considered 'acyclic'(13).

Finally, a collider is a variable/node within a DAG caused directly by two or more other variables/nodes (14), B in figure 2 is a collider such that both the preceding "A" and subsequent "C" nodes have directed edges/arcs pointed towards it (i.e. it is a common effect of both (15). A path is said to be 'blocked' if it contains two nodes associated through a common effect/collider (11).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

$$A \longrightarrow B \longleftarrow C$$
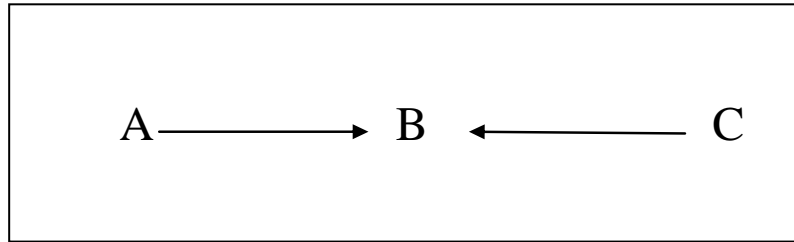
Figure (2) a path with a collider

DAGs were originally used as an aid for causal inference analyses in expert systems, artificial intelligence and robotics, and were then extended for use in epidemiology by Robins [1987] (16) to overcome the limitations of traditional methods of controlling for confounding[10] primarily because DAGs have simple rules for representing causal relations between variables and thereby identifying confounders (17).

The use of DAGs is of great help especially in social epidemiology, where complex causal chains are often involved in the relationships between multiple, interrelated social factors (5).

DAGs can also help planning analyses in observational studies lacking randomization, and facilitate better understanding of the associations between all available covariates and the analytical challenges these pose (10), including: (a) appropriately identifying and adjusting for potential confounders; (b) anticipating and understanding the consequences of conditioning on a mediator; (c) identifying bias and confounding due to inappropriate adjustment; and (d) recognizing the occurrence of selection bias due to inappropriate conditioning on a collider or a child of a collider, which induces, non-causal, associational paths (18).

Proper use of DAGs

The use of DAGs needs to be guided; a six steps guideline toward unbiased estimate was discussed in a study conducted by Shrier and Platt [2008] (19), to follow these steps, a depicted DAG is needed, with a suspected confounders, first start with ensuring that the variables chosen to reduce bias are not descendants of the main exposure, i.e. not in the causal path between the exposure and the outcome. Then deleting any variable meets one of

the following criteria: a) non ancestor of the exposure, b) non ancestor of the outcome, c) non ancestor of the suspected confounders. The third step is elimination of all lines emanating from the exposure. Step four is connecting any parents (any two variables sharing a common child). Step five is to strep (remove) all arrowheads. Finally delete all lines between the covariates in the model. By completion these steps, if the exposure dissociated from the outcome then, the selected variable as confounders are appropriate, and adjustment for them will result in an unbiased estimate. This paper is clearly presented, and the steps can be applied to any DAG, however, it is of limited help in case of misspecification of variables by not including confounding variables, i.e. under adjustment can occur.

Conclusion

Basing on the found studies, the ideal use of DAGs in appropriate modelling of observational data, and correctly specifying and adjust for any confounding relationship can be summarized in the following points:

Comprehensive prior knowledge about the association between the outcome and the exposure of interest which is achievable by finding literature about that to avoid the problem of unmeasured confounders.

Formulation of assumptions of this association, and considering all possible mechanisms and scenarios from the exposure and the outcome.

Classifying the association, is it pure causal association? Could it involve a common effect, or any other type of associations? From which, the type of bias could occur can be expected.

Depiction a DAG for that association, with careful inclusion of the covariates in light of DAG full model method, and assigning of possible confounders, with considering of not to involve non-confounding covariates.

Application of the 6 steps guideline, to ensure that, adjusting for the selected confounders eliminate the confounding effect in the association.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

References

1- MERCHANT, A. T. & PITIPHAT, W. 2002. Directed acyclic graphs (DAGs): an aid to assess confounding in dental research. *Community Dental and Oral Epidemiology,* 30**,** 399-404

2- Grimes DA, Schulz KF. Bias and causal associations in observational research. *Lancet* 2002;359:248-52.

3-FLANDERS, W. D., KLEIN, M., DARROW, L. A., STRICKLAND, M. J., SARNAT, S. E., SARNAT, J. A., WALLER, L. A., WINQUIST, A. & TOLBERT, P. E. 2011. A method to detect residual confounding in spatial and other observational studies. *Epidemiology,* 22**,** 823-6.

4- GREENLAND, S., PEARL, J. & ROBINS, J. M. 1999. Causal diagrams for epidemiologic research. *Epidemiology,* 10**,** 37-48.

5-FLEISCHER, N. L. & DIEZ ROUX, A. V. 2008. Using directed acyclic graphs to guide analyses of neighbourhood health effects: an introduction. *Journal of Epidemiology and Community Health,* 62**,** 842-846.

6- SUZUKI, E., H. KOMATSU, T. YORIFUJI, E. YAMAMOTO, H. DOI and T. TSUDA. (2009). Causal inference in medicine part II. Directed Acyclic Graph a useful method for confounders selection, categorization of potential bias and hypothesis specification. *Japanese journal of Hygiene*. 64, pp.796-805

7- MULLNER, M., H. MATTHEWS, D. ALTMAN. (2002). Reporting on statistical methods to adjust for confounding: A cross-sectional survey. *Annual for internal medicine*, **136** (2), pp.122-126.

8- TONG, I. S. & LU, Y. 2001. Identification of confounders in the assessment of the relationship between lead exposure and child development. *Annals of Epidemiology,* 11**,** 38-45.

9- MALDONADO, G. & GREENLAND, S. 1993. Simulation study of confounder-selection strategies. *American Journal of Epidemiology,* 138**,** 923-36.

10-SUNG, V. W. 2012. Reducing bias in pelvic floor disorders research: using directed acyclic graphs as an aid. *Neurourol Urodyn,* 31**,** 115-20.

11-VANDERWEELE, T. J. & ROBINS, J. M. 2007. Directed acyclic graphs, sufficient causes, and the properties of conditioning on a common effect. *American Journal of Epidemiology,* 166**,** 1096-104.

12- ROBINS, J.M. (2001). Data, design, and background knowledge in etiologic inference. *Epidemiology*. **11**, pp. 313-320.

13- GREENLAND, S., J. PEARL, M. ROBINS. (1999). Causal Diagrams for Epidemiologic Research. *Epidemiology. **10** (1), pp.37-48.*

14- GREENLAND, S. 2003. Quantifying biases in causal models: classical confounding vs collider-stratification bias. *Epidemiology,* 14**,** 300-6.

15- VANDERWEELE, T. J. & TAN, Z. 2012. Directed acyclic graphs with edge-specific bounds. *Biometrika,* 99**,** 115-126.

16- ROBINS, J. 1987. A graphical approach to the identification and estimation of causal parameters in mortality studies with sustained exposure periods. *Journal of Chronic Disease,* 40**,** 139S-161S.

17- HOWARDS, P. P., SCHISTERMAN, E. F., POOLE, C., KAUFMAN, J. S. & WEINBERG, C. R. 2012. "Toward a clearer definition of confounding" revisited with Directed Acyclic Graphs. *American Journal of Epidemiology*.

18- SHAHAR, E. 2009. Causal diagrams for encoding and evaluation of information bias. *Journal of Evaluation in Clinical Practice,* 15**,** 436-440.

19- SHRIER, I. and PLATT, R. (2008) Reducing bias through directed acyclic graphs. *BMC Medical Research Methodology.* **8**(70), pp. 1-15.

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Curcumin and its beneficial effects on neurodegenerative disorder in brain

Abdul Ilah[1, *], Sabia bano[2], Faisal Ismail[1], Zahid H. Siddiqui[3], Akhtaruzzaman[4]

[1]Faculty of Medical Technology, University of Tobruk, Tobruk, Libya
[2]Department of Biotechnology, Singhania University, Pacheri bari, Jhunjhunu, Rajasthan, India.
[3]Faculty of Science Department of Biology , University of Tabuk , Kingdom of Saudi Arabia,
[4]Department Anatomy, National Medical college Dr S.M. Ave, Beniapukur, Kolkata, India.

Corresponding author: Dr. Abdul Ilah, Email: mdabdul.ilah@omu.edu.ly

Keywords: Curcuma longa, Curcumin, Alzheimer, Depression Tardive dyskinesia

ABSTRACT

Curcuma longa or Turmeric is one of the most important herbs from the family zingibaraceae and genus Curcuma. This herb contains a wide variety of phytochemicals that are widely recognized as active pharmaceutical agent for prevention and treatment of mental and metabolic disorder. Three curcuminoids compounds such as Curcumin or Diferuloylmethane (bright yellow colored agent), De- methoxy -curcumin, and Bis- de-methoxy-curcumin are the main active phytochemicals of *Curcuma longa*, have shown strong pharmacological actions on neurodegenerative disorder in human. The therapeutic action of Curcumin has been well studied so far. Curcumin has many evidence based records of neuroprotective action to cure neurodegenerative and neuropsychiatric disorders like Alzheimer, Tardive dyskinesia, Major depression etc. The mechanism of Curcumin's neuroprotective action is not fully understood yet. However, the anti-inflammatory and antioxidant properties of Curcumin are believed to play central role for curing neurodegenerative disorder. Moreover, Curcumin has also been proved to be a potent inhibitor of reactive astrocyte expression and

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

thus prevents cell death. Several in vivo and in vitro studies suggested that Curcumin could modulate various neurotransmitter levels in the brain.

In this review we have attempted to present evidence based pharmacological actions of curcumin active constituents of *Curcuma longa* to addresses neurological disorder such as Alzheimer's disease, Tardive dyskinesia, Major depression and other related neurodegenerative disorder and discussed the possible action mechanism of curcumin as an anti-neurodegenerative drug.

INTRODUCTION

The *Curcuma longa L.* is popularly known as turmeric in English, a perennial herbs belongs to the family Zingiberaceae and genus curcuma . The centre of origin of the herbs is south Asia. The *curcuma longa* is widely used as a spice in cuisine of several Asian countries [1,2]. It has been used as traditional medicine in Chinese folk, Indian ayurveda and Siddha system of medicines since times immemorial [3,4]. In the Ayurvedic system of medicine turmeric has been used for the treatment of several internal disorders such as liver disease, indigestion, common colds, throat infections and skin sores [4]. Most recent research investigations have revealed that Curcumin is one of the most active biomolecules of component of *curcuma longa* and holding 150 different therapeutic actions including strong anticancer properties. The clinical research reported that Alzheimer's disease and other neuropsychiatric disorders like, Tardive dyskinesia, Major depression, have been effectively treated with Curcumin. [5].

BIOCHEMISTRY OF CURCUMA LONGA

Curcuma longa constitutes numerous active chemical compounds such as Curcuminoids and Terpenoids volatile oils sugar proteins and resins. Curcuminoids is a group of pharmacologically active compounds which are commonly found in different species of *curcuma longa*. The available curcuminoids are Curcumin (diferuloylmethane),

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

demethoxycurcumin, and bisdemethoxycurcumin[6,7]. The Curcumin is the most well studied constituents so far and found to play various pharmacological roles, including antioxidant, anti-proliferative anti-inflammatory, and anti angiogenic in human and animal model [8].

ABSORPTIONS OF CURCUMIN

The animal experiment provides the several data that showed Curcumin is very poorly absorbed compound and maintained very low curcumin in blood serum levels. Wahlstrom et al. in 1978 first time treated Sprague– Dawley rats by feeding orally with 1 g/kg of Curcumin and they found that a very small amount of Curcumin was present in the blood plasma after 15 hours of treatment that was absorbed from the gut [9]. Ravindranath et. al. again had repeated the experiment and treated the rat by feeding orally with 400 mg of Curcumin and analyzed portal and heart blood after 15-24 hours of treatment and found that there was no Curcumin present in heart blood however very trace amount (less than 5 μg/mL) were detected in portal blood [10].

They again treated the rat by feeding orally with 10 – 400 mg tritium labeled Curcumin and found detectable amounts of Curcumin in the blood [11].

It is noticed that even when doses were increased up to 2000mg/kg Curcumin, the availability of Curcumin in blood was very low (1.35 µg/mL) after 0.8 hours treatment duration. In the human body the administration of the same doses of Curcumin are found to absorb in very trace amount (0.006 µg/mL) after 1 hour of treatment duration [12]. Interestingly intraperitoneal administration of Curcumin at the rate of 100 mg / kg showed quite high absorptions (2.25 µg/mL) within 15 minutes of treatment duration but declined rapidly within 1 hour [13].

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

In another experiment, Yang et al. reported that through   intra venous administration of   10 mg/kg curcumin in the rats showed maximum serum curcumin level (0.36 µg/mL) , while a 50-fold more curcumin dose were administered orally and found only 0.06 µg/mL serum level in rat [14]. This study clearly indicating that the role of route of Curcumin administrations is significant and on the other hand serum levels of Curcumin in rate and human cannot be compared directly.

The poor absorptions and poor bioavailability of Curcumin in the blood plasma level has been overcome by special scientific methods such as - use of adjuvant that can slow down metabolic cascade of Curcumin. It is most important methods so far developed by which the bio availabilities of Curcumin have been improved. The enhancement of bioavailability of Curcumin has also been achieved by following other methods; 1. Use of nanoparticles, 2. liposomes,   3. phospholipids, and 4. micelle formulations. These formulations have underpinned the absorption, better permeability, longer circulatio and resistance to metabolic processes [15, 16, 17].

METABOLISM OF CURCUMIN

The Curcumin is a poly Phenolics compound and found to present in powder of various curcuma longa species (in rhizome) with variable quantity (approximately 1- 3.14 %). The metabolism of Curcumin starts just after its absorptions from the alimentary tract and found to present in the blood circulation and get metabolized into Tetrahydrocurcumin (THC), Hexahydrocurcumin (HHC),Curcumin glucuronide and Curcumin sulfate in the liver (figure 1). Two small quantity of biliary metabolites detected that were dihydroferulic acid together with traces of ferulic acid [18]. Later, Asai et al. carried out enzymatic hydrolysis of plasma samples and proved that predominant metabolites in plasma following oral administration of

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

curcumin, were glucuronides /sulfates of Curcumin [19]. Pan et al. re confirmed by hydrolyzing of plasma samples using glucuronidase enzyme that 99% metabolites of curcumin found in plasma was glucuronide conjugates. They have also identified other conjugates in plasma are curcumin–glucuronoside, dihydrocurcumin–glucuronoside, tetrahydrocurcumin (THC)–glucuronoside, and tetrahydro curcumin and are considered as major metabolites of curcumin in vivo animal system. [20]. Holder et al. also observed that most of the billiary metabolites of curcumin were glucuronides of tetrahydrocurcumin (THC) and hexahydrocurcumin (HHC) in rats. [21].

CURCUMIN

Oral peritoneal   **Intra venous/ intra**

Curcumin glucuronide /Curcumin sulphate   **DihydroCurcumin**

metabolites)

TetrahydroCurcumin (major

HexahydroCurcumin

HexahydroCurcuminol,

Ferulic acid / Dihydroferulic acid
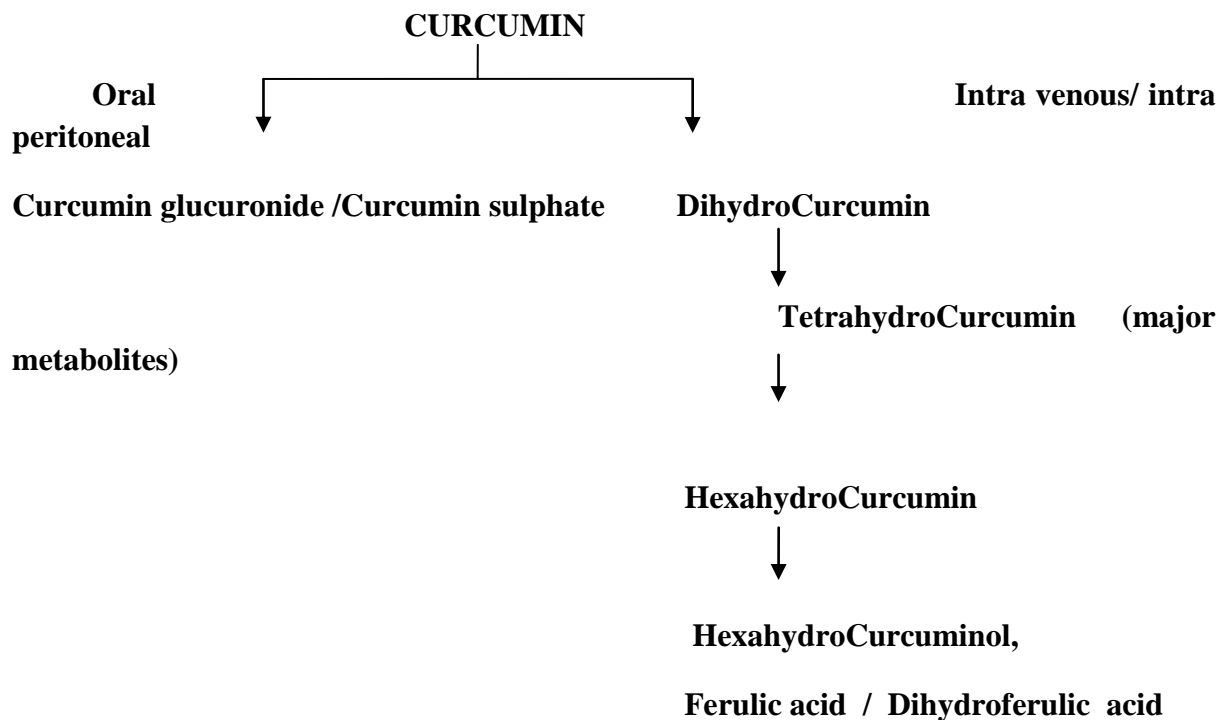
Figure 1. At a glance Curcumin Metabolism

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

THE ANTI ALZHEIMERS EFFECTS AND ACTION MECHANISM OF CURCUMIN

Alzheimer's disease (AD) is a kind of neurodegenerative disorder. The cognitive abnormality and clear living and behavioral changes are the main characteristic features of the disease. It is just like one of the common form of old age dementia. The recent authentic report of WHO, suggested that 6% of woman and 5% of men are affected by Alzheimer's type of dementia after attaining 60 years of age in all over the world [22]. Development of beta amyloid plaques is one of the main risk factors for Alzheimer disease [23] and it is observed that uses of Curcumin has effectively destroyed beta amyloids plaques and helped to improve the recovery pathway [24].

Zhang L suggested that Curcumin could play indirect role to alleviate Alzheimer's neurodegenerative complication acting together with human macrophages. They experimentally proved that Curcumin is synergistically fighting alongside macrophages to clear beta amyloids protein plaques [25]. Another research study showed that Alzheimer patients have activated microglia and reactive astrocytes around A- beta plaques in brain. The activated microglia and reactive astrocytes used to secrets cytokines and some reactive substances that aggravate the A-beta pathogenesis. Thus microglia is believed to plays a significant role in developing AD.

The Curcumin with its characteristic lipophilic properties can cross all the cell membrane and show anti proliferative actions on microglial cells consequently proliferation of microglia is inhibited. A research team of University of Southern California Los Angeles reported that Curcumin stop proliferation of microglial cells by differentiating them into mature cells or by systematic cell death. They also confirmed that higher concentration of Curcumin showed rapid inhibitory effects on microglial cell proliferations [26]. It is well established that

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

chronic inflammation in nerve cells is another main cause of Alzheimer's disease. Numerous research studies supported that the microgliosis, astrocytosis and the existence of pro-inflammatory substances are the causal risk factor of chronic inflammation in the brain and led to depositions of amyloid-β (Aβ) peptide plaques which is the main cause of Alzheimer's pathogenesis.

The inflammation in the brain has been significantly reduced with the treatment of Curcumin and complication of Alzheimer's disease was subsided. The scientist believed that the intracellular inhibitory action of Curcumin on Egr-1 DNA-binding activity in THP-1 monocytic cells, and Aβ-induced expression of Egr-1 protein may have reduced the brain inflammation [27].

It is observed that Egr-1 amyloid peptide, induced the cyto-chemikine gene expression in monocytes. The chemotaxis actions of monocytes are found to occur in response to cytochemokines from activated microglia and astrocytes in the brain which can be effectively reduced by Curcumin [28]. Moreover, Curcumin has been found to decrease transcriptions of inflammatory cytokines and other key chemical compound needed for inflammation. The presence of Curcumin in cells are found to weaken or inhibit the production of pro inflammatory cytokines IL-1, IL-6 and Tumor Necrosis factors (TNF). The intracellular expression of IL-12 p40/p70 and IL-12 p70 are also inhibited by Curcumin [29, 30]. According to scientist the Curcuminoids have strong anti-oxidant actions. The free radical formation and its propagation in the cell, are effectively inhibited by curcuminoids. It also reduces the lipoprotein oxidation and neuron damaging free radicals and alleviates the problems of AD and other neurodegenerative disorder such as Huntington's and Parkinson's disease[30] . The increased lipid peroxidation and lipofuscin accumulation are the common problem in older age and linked to AD [31].

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

A research team from Jawaharlal Nehru University, India proved that, Curcumin has been found to reduce lipid peroxidation, lipofuscin accumulation and helped to increase effects of superoxide dismutase, sodium-potassium ATPase thus Curcumin is believed to help in reducing Alzheimer's symptoms in aged people. In another report scientist confirmed that pre treatment of curcumin has potentially protected brain mitochondria from oxidative attack of peroxynitrite (product of the reaction of nitric oxide with superoxide), with their characteristics detoxification properties directly or by raising total cellular glutathione levels [31].

ANTI DEPRESSION EFFECT OF CURCUMIN

Depression is a serious neurological disorder. The irritable mood, loss of interest and concentration, felling of extreme guilt, significant body weight instability, hypersomnia ,or insomnia and suicidal tendencies are the characteristic feature of depression and is the result of neurological dysfunction. Despite several antidepressant drugs are available for this problems but most drugs are associated with severe side effects. The Curcumin has been found to be the sole alternative drugs of this disease without side effects. Curcumin found to have potential antidepressant activity and it was experimentally proved in animal model by using forced swim test and chronic unpredictable stress [32, 33]

ANTI TARDIVE DYSKINESIA EFFECT OF CURCUMIN

Tardive dyskinesia (TD) is a kind motor nerve dysfunction of the orofacial, limb and trunk muscular system. It is characterized by uncontrolled movement of orofacial muscles, grimacing, protruding tongue, rapid eye blinking and frequent involuntary movement of the arms, legs and fingers [34]. This type of nervous dysfunctions is found to occur with the

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

patient who underwent on extensive neuroleptic treatment. There is no standards treatment for Tardive dyskinesia pathogenesis so far but disease could be minimized by reducing doses of neuroleptic drugs. If the patients have strong symptoms of schizophrenia then neuroleptic drugs can't be stop or minimized. So there is an only open option is to find alternate drug of choice for neuroleptic disease or direct treatment drugs for TD. Although, there are many alternative drugs are available such as benzodiazepines, adrenergic antagonists, and dopamine agonists etc. However all these drugs options are not free from side effects. S. K. Kulkarni 2010 observed major remedial effects of curcumin on Tardive dyskinesia affected rat with increased symptoms of Vacuous Chewing Movements (VCM), tongue protrusion and facial jerking. These T D symptoms were induced by administering haloperidol, 1 mg/kg through intra peritoneal route in rat before curcumin treatment. Interestingly it is noticed that prolong administration of haloperidol caused increased lipid peroxidations availability in different part of the brain which was significantly overturned by pretreatment with Curcumin [35]. It was also proved by neurochemical evidence based experiment that prolong use of haloperidol drugs decreases the level of glutathione, superoxide dismutase, catalase dopamine, serotonin and norepinephrine in the brain which significantly prevented by pretreatment with Curcumin. So it can be concluded that Curcumin could be used for the direct treatment of TD [34].

SIDE EFFECTS
High doses sometimes have showed some temporary uneasiness like normal gastro intestinal distress, heaviness in chest, skin rashes etc. However no serious side effects have been reported so far [36].

CONCLUSION
Based on available information it is well established that curcumin is an acive constituents of curcuma longa with strong anti-inflammatory and anti-oxidative properties. The therapeutic action of curcumin on Alzheimer's disease, major depression, Tardive dyskinesia and other neurodegenerative disorder are widely proved with evidenced based research. However it needs more clinical trials and research investigation for understanding pharmacological

Page78

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

actions, better drug absorption, and route of drug administration before its therapeutic use in public.

REFERENCES

Priyadarsini, KI (2014). "The chemistry of curcumin: from extraction to therapeutic agent". Molecules. 19 (12): 20091–112. doi:10.3390/molecules191220091. PMID 25470276.

Prasad, S; Aggarwal, B. B.; Benzie, I. F. F.; Wachtel-Galor, S (2011). Benzie IFF, Wachtel-Galor S, eds. Turmeric, the Golden Spice: From Traditional Medicine to Modern Medicine; In: Herbal Medicine: Biomolecular and Clinical Aspects; chap. 13. 2nd edition. CRC Press, Boca Raton (FL). PMID 22593922.

Chattopadhyay, Ishita; Kaushik Biswas; Uday Bandyopadhyay; Ranajit K. Banerjee (10 July 2004). "Turmeric and curcumin: Biological actions and medicinal applications" (PDF). Current Science. Indian Academy of Sciences. 87 (1): 44–53. ISSN 0011-3891. Retrieved 16 March 2013.

"Herbs at a Glance: Turmeric, Science & Safety". National Center for Complementary and Integrative Health (NCCIH), National Institutes of Health. 2012. Retrieved 11 October 2012.

S. K. Kulkarni and A. Dhir. An Overview of Curcumin in Neurological Disorders. Indian J Pharm Sci. 2010 Mar-Apr; 72(2): 149–154. doi: 10.4103/0250-474X.65012,PMCID: PMC2929771

Tayyem RF, Heath DD, Al-Delaimy WK, Rock CL (2006). "Curcumin content of turmeric and curry powders". Nutr Cancer. 55 (2): 126–131. doi:10.1207/s15327914nc5502_2. PMID 17044766.

Nagpal M, Sood S (2013). "Role of curcumin in systemic and oral health: An overview". J Nat Sci Biol Med. 4 (1): 3–7. doi:10.4103/0976-9668.107253. PMC 3633300. PMID 23633828.

Preetha Anand,Ajaikumar B. Kunnumakkara, Robert A. Newman, and Bharat B. Aggarwal. Bioavailability of Curcumin: Problems and Promises, Mol. Pharmaceutics, 2007, 4 (6), 807-818•   DOI: 10.1021/mp700113r • Publication Date (Web): 14 November 2007

Wahlstrom, B; Blennow, G. A study on the fate of curcumin in the rat. Acta Pharmacol. Toxicol. (Copenhagen) 1978, 43 (2), 86–92.

Ravindranath, V.; Chandrasekhara, N. Absorption and tissue distribution of curcumin in rats. Toxicology 1980, 16 (3), 259– 65.

Ravindranath, V.; Chandrasekhara, N. Metabolism of curcumin– –studies with [3H] curcumin. Toxicology 1981, 22 (4), 337–44.

Shoba, G; Joy, D; Joseph, T; Majeed, M; Rajendran, R; Srinivas, P. S. Influence of piperine on the pharmacokinetics of curcumin in animals and human volunteers. Planta Med 1998, 64 (4), 353–6.

Pan, M. H.; Huang, T. M.; Lin, J. K. Biotransformation of curcumin through reduction and glucuronidation in mice. Drug Metab. Dispos. 1999, 27 (4), 486–94.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Yang, K. Y.; Lin, L. C.; Tseng, T. Y.; Wang, S. C.; Tsai, T. H. Oral bioavailability of curcumin in rat and the herbal analysis from Curcuma longa by LC-MS/MS. J. Chromatogr. B Anal. Technol. Biomed. Life Sci. 2007, 853 (1–2), 183–9.

Karikar, C.; Maitra, A.; Bisht, S.; Feldmann, G.; Soni, S.; Ravi, R. Polymeric nanoparticle-encapsulated curcumin ("nanocurcumin"): a novel strategy for human cancer therapy. J. Nanobiotechnol. 2007, 5, 3.

Li, L.; Ahmed, B.; Mehta, K.; Kurzrock, R. Liposomal curcumin with and without oxaliplatin: effects on cell growth, apoptosis, and angiogenesis in colorectal cancer. Mol. Cancer Ther. 2007, 6 (4), 1276–82.

Suresh, D; Srinivasan, K. Studies on the in vitro absorption of spice principles—Curcumin, capsaicin and piperine in rat intestines. Food Chem. Toxicol. 2007, 45 (8), 1437–42.

Holder, G. M.; Plummer, J. L.; Ryan, A. J. The metabolism and excretion of curcumin (1,7-bis-(4-hydroxy-3-methoxyphenyl)-1,6- heptadiene-3,5-dione) in the rat. Xenobiotica 1978, 8 (12), 761–8.

Asai, A.; Miyazawa, T. Occurrence of orally administered curcuminoid as glucuronide and glucuronide/sulfate conjugates in rat plasma. Life Sci. 2000, 67 (23), 2785–93.

Pan, M. H.; Huang, T. M.; Lin, J. K. Biotransformation of curcumin through reduction and glucuronidation in mice. Drug Metab. Dispos. 1999, 27 (4), 486–94.

Holder, G. M.; Plummer, J. L.; Ryan, A. J. The metabolism and excretion of curcumin (1,7-bis-(4-hydroxy-3-methoxyphenyl)-1,6- heptadiene-3,5-dione) in the rat. Xenobiotica 1978, 8 (12), 761–8.

Fratiglioni L, De Ronchi D, Agüero-Torres H. Worldwide prevalence and incidence of dementia. Drugs Aging. 1999;15:365–75. [PubMed]

Shrikant Mishra and Kalpana Palanivelu,. The effect of curcumin (turmeric) on Alzheimer's disease: An overview Ann Indian Acad Neurol. 2008 Jan-Mar; 11(1): 13–19. doi: 10.4103/0972-2327.40220 PMCID: PMC2781139

Ng TP, Chiam PC, Lee T, Chua HC, Lim L, Kua EH. Curry consumption and cognitive function in the elderly. Am J Epidemiol. 2006;164:898–906. [PubMed]

Zhang L, Fiala M, Cashman J, Sayre J, Espinosa A, Mahanian M, et al. Curcuminoids enhance amyloid -beta uptake by macrophages of Alzheimer's disease patients. J Alzheimers Dis. 2006;10:1–7. [PubMed]

Ambegaokar SS, Wu L, Alamshahi K, Lau J, Jazayeri L, Chan S, et al. Curcumin inhibits dose-dependently and time-dependently neuroglial proliferation and growth. Neuro Endocrinol Lett. 2003;24:469–73. [PubMed]

. Pendurthi UR, Rao LV. Suppression of transcription factor Egr-1 by curcumin. Thromb Res. 2000;97:179–89. [PubMed]

15. Park SY, Kim DS. Discovery of natural products from Curcuma longa that protect cells from beta-amyloid insult: A drug discovery effort against Alzheimers disease. J Nat Prod. 2002;65:1227–31. [PubMed]

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Park SY, Kim DS. Discovery of natural products from Curcuma longa that protect cells from beta-amyloid insult: A drug discovery effort against Alzheimers disease. J Nat Prod. 2002;65:1227–31. [PubMed]

16. Kim GY, Kim KH, Lee SH, Yoon MS, Lee HJ, Moon DO. Curcumin inhibits immunostimulatory function of dendritic cells: MAPKs and translocation of NF-B as potential targets. J Immunol. 2005;174:8116–24. [PubMed]

Bala K, Tripathy BC, Sharma D. Neuroprotective and anti-ageing effects of curcumin in aged rat brain regions. Biogerontology. 2006;7:81–9. [PubMed]

Ng TP, Chiam PC, Lee T, Chua HC, Lim L, Kua EH. Curry consumption and cognitive function in the elderly. Am J Epidemiol. 2006;164:898–906. [PubMed]

Zhang L, Fiala M, Cashman J, Sayre J, Espinosa A, Mahanian M, et al. Curcuminoids enhance amyloid -beta uptake by macrophages of Alzheimer's disease patients. J Alzheimers Dis. 2006;10:1–7. [PubMed]

Bishnoi M, Chopra K, Kulkarni SK. Protective effect of Curcumin, the active principle of turmeric (*Curcuma longa*) in haloperidol-induced orofacial dyskinesia and associated behavioural, biochemical and neurochemical changes in rat brain. Pharmacol Biochem Behav. 2008;88:511–22. [PubMed]

S. K. Kulkarni and A. Dhir. An Overview of Curcumin in Neurological Disorders. Indian J Pharm Sci. 2010 Mar-Apr; 72(2): 149–154. doi: 10.4103/0250-474X.65012,PMCID: PMC2929771

Liddle M, Hull C, Liu C. Powell D Contact urticaria from curcumin. Dermatitis. 2006;17:196–7. [PubMed]

A Study of Autism Spectrum Disorder and its association with Epilepsy in Tobruk

From : Dr Sasmita Devi Agrawal, Dr Saeed H. A. Adheem.

Department of Pediatrics, Tobruk University, Tobruk , Libya

Correspondence to : Dr Sasmita Devi Agrawal,

Asst Prof Pediatrics, Tobruk University, Libya sashmeetabk@gmail.com

Abstract :

Objective : The Autism Spectrum Disorder associated with Epilepsy is quite frequent and poses numerous challenges for the affected individual and the family. Reports of increasing prevalence, the lack of proper management and care for these children make autism a public health crisis.This study aims to know the co-occurrence of epilepsy and Autism Spectrum Disorder (ASD) in Tobruk .The Age ,sex and prognosis of ASD has also included in the study.

Method : The sample were collected from the Centre of General Autism in Tobruk which belongs to the Society for Rehabilitation centre from the period of January 2013 to December 2016. Complete medical records of the 175 children attending the centre have been reviewed. Out of 175 children 60 were diagnosed as ASD.The seizure characteristics and the outcome of epilepsy in autism has been studied.The age, sex , presence of intellectual disability and prognosis of all the ASD cases has also been evaluated.

Result :

Our study shows an incidence of 10%(6 out of 60) autism children associated with epilepsy which is quite high and similar to the incidence of other studies.There is a male predominance 83.3%(50 out of 60 were male) .There is no much difference of age distribution in male and female. The prognosis was very poor in children associated with epilepsy. All types of seizure were observed. 2 pair of identical twins have been seen with autism .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Conclusion :

Epilepsy is the most prevalent neurological disorder associated with autism which has also been found in our study. Results of this study suggest epilepsy with autism is difficult to manage and carries poor prognosis.

Key words : ASD, Epilepsy, Prognosis, Age & sex .

Introduction :

Autism spectrum disorders (ASD) are lifelong, often severely impairing neurodevelopmental disorder involving the social , language, and behavioral development of the child .They usually present with repititive behaviour and may say the same sentence again and again.They often seem to be in their "own world." Comorbidity with other neurologic disorders and an emerging literature of structural and functional neuroimaging differences in autism indicates an underlying central nervous system abnormality (1). Recent studies also indicates the role of genetics and environmental factor in autism (7, 8). It usually remains unrecognised and undiagnosed due to lack of appropriate tools for routine developmental screening of the disease.Early identification and early intensive intervention during the toddler and preschool years is required to improve the outcome of the disease (12).

Method :

This study is a 3 year retrospective review of clinical records of the patient attending the centre for Autism in Tobruk belonging to the Society for rehabilitation centre.Records were evaluated from the period of January 2013 to December 2016. All the children diagnosed as Autism spectrum disorder were included in this study.The relevant information was collected which includes age, sex, association with epilepsy, intellectual disability and family history.The illness details like the duration of disease,common presentation, prognosis (attendance to normal school and need for reference to the pediatric neurologist) has been recorded.Data was analysed in detail.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

RESULTS :

A total 175 children attending the Autism centre of Tobruk during the 3 year study period were included . 60 children were diagnosed as having Autism spectrum disorder (34.2 %) . Patients were accompanied by the parents in most of the cases.

Table 1 : Year wise attendance of cases

Year	No of cases
2013 - 2014	5
2014- 2015	31
2015 - 2016	24

The above table shows an increasing incidence of cases.

Table 2 showing common presentations of Autism

Presentation	%
Hyperactvity	100 %
Repititive behaviour	86 %
No/ less eye contact	75 %
Delayed language	80 %
Disruptive behaviour	20 %
Abnormal gait & delayed motor development	30 %
Intellectual disability	40 %

The **age** group of children were between 3 – 10years . Most children belongs to the age group of 3-5yrs.

Sex :

Male = 50 (83.3%). Female= 10 (16. 7%).

This study shows a complete male predominance like most of the studies (4). Several other studies has also recorded the extreme male theory (15,16).

6 children were diagnosed as having **epilepsy** (10%) which is quite high, also recorded in other studies. (1, 4,5,6). All type of seizure has been seen in these

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

children. 2 children were presented with refractory epilepsy. All Children with epilepsy were presented with more self injuries (self biting) , disruptive behaviour, delayed motor development and intellectual disability.

1 child with epilepsy had profound mental retardation (IQ<20). The frequency of reference to the pediatric neurologist in these cases were more than without epilepsy.

2 pairs of identical twins are also seen to have autism in our study which indicates the role of genetics (7,8).

In 3 case family history was positive which also indicates that genetics plays an important role .

10 out of 60 children has started to attend the school with normal children.

Discussion :

This study shows ASD is a common neurodevelopmental disorder among the children attending the centre for Autism in Tobruk (34.2%). Epilepsy is the most prevalent neurological disorder associated with Autism which has also been found in our study (4,5).10% of ASD children were having epilepsy.The onset of the disease is around 3 years of age with a male predomonance which has previously been recorded (14, 15). Results of this study suggest epilepsy with Autism is difficult to manage. Understanding the relationship between ASD and epilepsy is critical for appropriate management (e.g. social skills training, seizure control) . Studies have shown that among identical twins, if one child has ASD, then the other will be affected about 36-95% of the time. In non-identical twins, if one child has ASD, then the other is affected about 0-31% of the time [7,8] , our study has shown a 100% occurence . ASD tends to occur more often in people who have certain genetic or chromosomal disorder. About 10% of children with autism are also identified as having Down syndrome, fragile X syndrome, tuberous sclerosis, or other genetic and chromosomal disorders.[9,10]. Recent studies also shows congenital brain malformations (like tuberous sclerosis & cortical dysplasia) plays an important role in Autism . So, all case of ASD should be advised for genetic studies, chromosomal analysis and MRI of brain to reach the underlying etiology. Routine developmental surveillance and screening of all children is suggested

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

for early identification of autism and to differentiate autism from other developmental disorders. More prospective research studies are needed in Toruk with finding of EEG and MRI of brain for detail understanding of the disease and better management of cases.

With Staffs of Tobruk Autism centre

★ **What this study adds :**

Epilepsy is the common neurological disorder associated with Autism. Early identification and intervention improves the outcome of the disease.

References

The Role of Epilepsy and Epileptiform EEGs in AutismSpectrum Disorders SARAH J. SPENCE AND MARK T. SCHNEIDER
Pediatrics and Developmental Neuroscience Branch, National Institute of Mental Health, NIH, Bethesda, Maryland 20892-1255.

Filipek PA, Accardo PJ, Baranek GT, et al. The screening and diagnosis of autistic spectrum disorders. J Autism Dev Disord 1999;29:437–482.

Kielinen M, Rantala H, Timonen E, Linna SL, Moilanen I 2004 Associated

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانية
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Medical disorders and disabilities in children with autistic disorder: a population-based study. Autism 8:49–60.

Children with Autism Spectrum Disorder and Epilepsy **Article** *in* <u>Pediatric Annals</u> 42(12):255-60 · December 2013
Tuchman R, Rapin I. Epilepsy in autism. Lancet Neurol. 2002;1:352–358. [<u>PubMed</u>]

Clarke DF, Roberts W, Daraksan M, Dupuis A, McCabe J, Wood H, Snead OC 3rd, Weiss SK. The prevalence of autistic spectrum disorder in children surveyed in a tertiary care epilepsy clinic. Epilepsia. 2005;46:1970–7.<u>**View ArticlePubMedGoogle Scholar**</u>

Hallmayer J, Cleveland S, Torres A, Phillips J, Cohen B, Torigoe T, Miller J, Fedele A, Collins J, Smith K, Lotspeich L, Croen LA, Ozonoff S, Lajonchere C, Grether JK, Risch N. Genetic heritability and shared environmental factors among twin pairs with autism. Arch Gen Psychiatry. 2011; 68(11): 1095-1102.

Taniai H, Nishiyama T, Miyahci T, Imaeda M, Sumi S. Genetic influences on the board spectrum of autism: Study of proband-ascertained twins. Am J Med Genet B Neuropsychiatr Genet. 2008; 147B(6): 844-849.

DiGuiseppi C, Hepburn S, Davis JM, Fidler DJ, Hartway S, Lee NR, Miller L, Ruttenber M, Robinson C. Screening for autism spectrum disorders in children with Down syndrome. J Dev Behav Pediatr. 2010; 31:181-191.

Zecavati N, Spence SJ. Neurometabolic disorders and dysfunction in autism spectrum disorders. Curr Neurol Neurosci Rep. 2009; 9(2): 129-136.

Injuries in Children With Epilepsy: A Hospital-based Study SUSHMA SAJJAN, #PUNEET JAIN , SUVASINI SHARMA, ANJU SETH AND SATINDER ANEJA From Departments of *Pediatrics, Lady Hardinge Medical College and associated Kalawati Saran Children Hospital and#Pediatric Neurology, Department of Neonatal, Pediatric and Adolescent Medicine, BL Kapur Super Speciality Hospital;New Delhi, India.

Zwaigenbaum, Lonnie; Bauman, Margaret L.; Choueiri, Roula; Kasari, Connie; Carter, Alice; Granpeesheh, Doreen; Mailloux, Zoe; Roley, Susanne Smith; Wagner, Sheldon (2015-10-01). "<u>Early Intervention for Children With Autism Spectrum Disorder Under 3 Years of Age: Recommendations for Practice and Research</u>". Pediatrics. **136** (Supplement 1): S60–S81. <u>doi</u>:<u>10.1542/peds.2014-3667E</u>. <u>ISSN</u> <u>0031-4005</u>. <u>PMID</u> <u>26430170</u>.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

5. Gabis L, Pomeroy J, Andriola MR. Autism and epilepsy: cause, consequence, comorbidity, or coincidence? Epilepsy Behav. 2005;7:652–656. [PubMed].

Volkmar FR, Szatmari P, Sparrow SS. Sex differences in pervasive developmental disorders. J Autism Dev Disord. 1993;23(4):579–91. [PubMed].

Kanner L. Autistic disturbances of affective contact. Nervous Child. 1943;2:217–50.

DYSLIPIDEMIA AND BODY MASS INDEX AS RISK FACTORS FOR CARDIOVASCULAR DISEASES IN PATIENTS WITH EARLY ONSET ANDROGENETIC ALOPECIA.

Nadia A Elsherif[1], Abdulhamed AM Elorfi[1], Azza SH Greiw[2] and Hani M Elgahwaji[3]

[1]Department of dermatology and venereology, Faculty of medicine-Benghazi university

[2]Department of family and community medicine, Faculty of medicine - Benghazi university

[3]Cardiology department, El-Jamhoria hospital, Benghazi

Abstract:

Background: Cardiovascular risk factors have been assessed with some skin diseases such as psoriasis and Lichen Planus. Recently, many studies reported a higher prevalence of diabetes and other risk factors for cardiovascular disease in patients with androgenetic alopecia. However, few studies have focused on lipid parameters and body mass index (BMI) in patients with androgenetic alopecia. *Objective:* To assess lipid levels and BMI in men and women with early onset androgenetic alopecia (AGA). *Patients and methods:* A prospective study was used and included 231 patients (124 were females and 107 were males) with a diagnosis of early onset androgenetic alopecia (before 35 years of age) collected from Dermatology department of El-Jumhuriya Hospital at Benghazi city. *Results:* Male patients presented a higher significant of the means of; triglycerides levels (128±47 vs. 113±69 mg/dL P<0.05), total cholesterol (193±57 vs. 181±32 mg/dL P<0.05), LDL-C (108±52 vs. 103±27 mg/dL P<0.05), TC/HDL ratio (5±2.3 vs.4.2±0.9 P<0.05), LDL/HDL ratio (2.4 ±1.6 vs. 2.4±0.7), and lower HDL-C values (40±11 vs. 46±9 mg/dL P<0.05) vs. female patients. The mean of BMI among males was significantly higher (28±3 vs. 27±4) compared to females. *Conclusion:* The results obtained in this study indicated that screening for dyslipidemia and BMI in patients with early onset AGA is useful to detect individuals at risk of cardiovascular diseases.

Key words: Androgenetic alopecia, early onset, Lipid profile, BMI.

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Introduction:

Androgenetic alopecia (AGA) is the most common type of baldness, and is characterized by progressive thinning of the scalp hair because of gradual transformation of terminal scalp hair into vellus hair, which has a shorter and thinner shaft (1). AGA is induced by androgens in genetically susceptible women and men (2).

Many studies have shown that adult males with AGA are at greater risk of developing cardiovascular comorbidity, metabolic syndrome, and endothelial dysfunction which is a marker of early atherosclerosis; than healthy individuals (3,4). However, data are more limited with regards to cardiovascular risk factors in women with AGA (5,6). Mansouri et al. (5) support the hypothesis that AGA is associated with coronary heart disease (CHD) in women under the age of 55 years, according to angiographic studies, however, the mechanism of the association of CHD and AGA has not been elucidated yet. The objective of this study is to assess lipid levels and BMI in men and women with early onset AGA.

Patients and methods

The study included 231 consecutive patients with a diagnosis of early onset AGA (before 35 years of age), 124 were females and 107 were males, who were attending the dermatology department of El-Jumhuriya Hospital at Benghazi city. Before initiation of the study, each patient was fully informed about the study and their verbal consent was taken.

Diagnosis of AGA was based on clinical findings, including: pattern of increased hair thinning on frontal/parietal scalp with greater hair density on occipital scalp; retention of frontal hairline (in females). The degree of AGA was determined by application of Ludwig scales (II–III) and Ebling scales (III–V) for females and males respectively.

Patients of AGA with Ebling degree III or above for males (vertex and frontal alopecia); and Ludwig degree II or above for females were included in the study.

Exclusion criteria were: patients suffering from other types of alopecia, telogen effluvium, cicatricial alopecia, and using any medication for alopecia, hormone replacement therapy with testosterone or corticosteroids, smoking, and thyroid diseases. Each patient subjected to detail history including: sport, personal history of cardiovascular disease, and drug treatments (antidiabetic agents, lipid-lowering agents, and antihypertensive drugs), family history of

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

androgenetic alopecia, and of cardiovascular disease. Weight and height of each patient were recorded to calculate the body mass index (BMI) (weight in kg/height in meters square, 19-25, normal; 26-30, overweight; >30, obese).

Blood samples drawn between 08.00 h and 10.00 h A.M. after a 12-h fasting period for analysis of glucose, total cholesterol (TC), triglycerides (TG), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C). Also, total-C/HDL-C and LDL-C/HDL-C ratios were calculated.

STATISTICAL ANALYSIS:

Data were fed to computer using Statistical Package for Social Sciences (SPPS) version 11.5 and reviewed. Descriptive statistics in the form of percentages, mean and standard deviation of different parameters was used. Chi square test was used to compare qualitative parameters, $P < 0.05$

RESULTS

A total of 231 patients with AGA were studied; 124 were females their mean age±SD was 38.5±6.4 years and 107 were males their mean age±SD was 38.1±7.8 years. Among male patients 43.9% had stage III, 33.6% stage IV, and 22.4% stage V AGA on the Ebling scale. Among the female patients 27.4% had stage II, 41.1% stage III, 17.7% stage IV and 13.7% stage V AGA on the Ludwig scale.

Mean time since alopecia onset was 20.2 years (19.8 years for men and 20.5 years for women).

None of the patients had a history of CVD or hyperlipidaemia. However, 28.2% of females and 16% of males had a family history of CVD.

Mean age, BMI values are summarized in Table I for men and women with AGA. Males with AGA presented a higher significant mean BMI (28±3 vs. 27±4 p =0.006) than females. Males with AGA grade IV and V had significantly higher BMI than those with alopecia grade III (P = 0.000). In females significantly higher BMI was seen in alopecia grade III-V than patients with alopecia grade II (P=.002) (Table 2).

Table 3. Shown the results of lipid parameters of the patients under study, male patients with AGA presented higher significant values in triglyceride, total cholesterol, LDL-C, TC/HDL ratio, LDL/HDL ratio, and lower HDL-C values than female patients. However, both males and females with AGA presented no significant differences between Ebling degree (III–V) and Ludwig degree (II–V) of AGA in lipid parameters (Table 4).

An Echo study change was seen in 17% of male patients, and in 11.3% of female patients, although these changes were recorded in advanced stages of AGA in both sexes this was not

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

statistically significant. Left ventricular hypertrophy (LVH) was seen in 25% of males with Ebling stage V AGA, and in 14% of females with Ludwig stage IV AGA.

Table 1. Demographic data of the patients under study.

	Males	Females
Number	107(54%)	124(46%)
Age±SD years	38.1±8	38.5±6
BMI	28±3.2	27.1±4.1
Family history of CVD	17 (16%)	35 (28%)
Sport history	67(63%)	11(9%)

Table 2. Comparison of androgenetic alopecia stages with respect to BMI of the patients.

	Males (Ebling degree)				Females (Ludwig degree)			
	III	IV	V		II	III	IV	V
Normal BMI	35%	11%	0%		44%	18%	18%	0%
Overweight	52%	46%	46%		41%	57%	55%	65%
Obese	13%	43%	54%		15%	26%	27%	35%
P value		.000*					.002*	

Table 3. Prevalence of dyslipidemia in men and women with androgenetic alopecia

	Males	Females	P value
TG	128.1±47.4	113.6±69	0.032*
Cholesterol	193±57	181±32	0.000*
HDL-C	40±11	46±9	0.001*
LDL-C	108±52	103±27	0.000*
TC/HDL	5±2.3	4.2±0.9	0.000*
LDL/HDL	2.4±1.6	2.4±0.7	0.000*

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 4. Distribution of dyslipidemia in men and women with AGA according to baldness pattern

	Males (Ebling degree)				Females (Ludwig degree)			
	III	IV	V		II	III	IV	V
High **TG**	41%	46%	42%		18%	28%	5%	18%
High **Cholesterol**	35%	49%	54%		3%	49%	91%	47%
Low **HDL-C**	52%	70%	71%		62%	73%	77%	88%
High **LDL-C**	41.3%	57%	58%		27%	47%	64%	47%
High **TC/HDL**	52%	76%	67%		29%	73%	91%	77%
High **LDL/HDL**	6.5%	30%	33%		0%	10%	27%	18%

Not significant P >0.05

DISCUSSION

The association between androgenetic alopecia and cardiovascular disease was first posited by Cotton et al in 1972 (3). Since then, several epidemiology studies have investigated this association; however, the results have been conflicting (4).

In this study we found significantly higher lipid levels and BMI in men compared with women with AGA. Moreover, a significant association between BMI with AGA severity has been found.

Our results were in agreement with previous studies which reported significantly higher levels of TG, total cholesterol, LDL-C, total cholesterol/HDL-C ratio and LDL-C/HDL-C ratio and significantly lower HDL-C values in men than women with AGA (4,7). Moreover, previous study reported a higher BMI was significantly associated with greater severity of hair loss in men with early onset male-pattern AGA (8).

However, data are more limited with regards to cardiovascular risk factors in women with AGA. Arias-Santiago et al reported that women with AGA showed higher significant mean values than non-alopecic women for all the parameters (TG, LDL-C, total cholesterol, TC/HDL-C and LDL-C/HDL-C) and lower significant HDL-C than controls (4). Although previous studies support the hypothesis that women with some markers of insulin resistance

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

have significantly increased risk for female AGA, no significant differences in lipid profiles or BMI were found (9,10).

No significant differences were observed between Ludwig degree (II–III) and Ebling degree (III–V) of AGA in lipid parameters among both genders in our study, this was in agreement with previous study by Arias-Santiago et al (4). However, Sadighha et al reported that patient with vertex-type AGA showed significantly lower HDL-C and higher TG levels than the control group, further supporting evidence suggesting a greater susceptibility to CHD in these patients (7).

Although an association between early AGA and serious cardiovascular disease has been suggested; the underlying mechanism of this association is still not understood (11). Testosterone is converted by 5α-reductase into dihydrotestosterone (DHT), this then acts to miniaturize the hair follicles in the scalp. Similarly, androgen receptors and 5α–reductase has been detected in the arterial wall endothelium and the heart, DHT stimulates smooth muscle proliferation in blood vessels, a key phenomenon in arteriosclerosis, together with lipid deposition (6).

Conclusion:

Cardiovascular screening in patients with androgenetic alopecia could prove useful for detection of at-risk individuals and for initiation of preventive therapy before cardiovascular disease develops.

References:

Jang WS, Son IP, Yeo IK, Park KY, Li K, et al. The Annual Changes of Clinical Manifestation of Androgenetic Alopecia Clinic in Korean Males and Females: an outpatient-based study. Ann Dermatol 2013;25(2):181-8

Price VH. Androgenetic alopecia in women. J Investig Dermatol Symp Proc. 2003; 8(1):24-27.

Cotton SG, Nixon JM, Carpenter RG, Evans DW. Factors discriminating men with coronary heart disease from healthy controls. Br Heart J 1972; 34: 458–464.

Arias-Santiago S, Gutiérrez-Salmerón MT, Buendía-Eisman A, Girón-Prieto MS, Naranjo-Sintes R. A Comparative Study of Dyslipidaemia in Men and Women with Androgenic Alopecia. Acta Derm Venereol 2010; 90: 485–487

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Mansouri P, Mortazavi M, Eslami M, Mazinani M. Androgenetic alopecia and coronary artery disease in women. Dermatol Online J 2005; 11:2

Arias-Santiago S, Gutiérrez-Salmerón MT, Castellote-Caballero L, Buendía-Eisman A, Naranjo-Sintes R. Androgenetic alopecia and cardiovascular risk factors in men and women: a comparative study. J Am Acad Dermatol 2010; 63(3):420-9

Sadighha A, Zahed GM. Evaluation of lipid levels in androgenetic alopecia in comparison with control group. J Eur Acad Dermatol Venereol 2009; 23: 80–81.

Yang CC, Hsieh FN, Lin LY, Hsu CK, Sheu HM, Chen W. Higher body mass index is associated with greater severity of alopecia in men with male-pattern androgenetic alopecia in Taiwan: A cross-sectional study. J Am Acad Dermatol. 2014;70(2):297-302

Matilainen VA, Mäkinen PK, Keinänen-Kiukaanniemi SM. Early onset of androgenetic alopecia associated with early severe coronary heart disease: a population-based, case control study. J Cardiovasc Risk 2001; 8: 147–151.

Giltay EJ, Toorians AW, Sarabdjitsingh AR, de Vries NA, Gooren NJ. Established risk factors for coronary heart disease are unrelated to androgen-induced baldness in femaleto-male transsexuals. J Endocrinol 2004; 180: 107–112.

Acibucu F, Kayatas M, Candan F. The association of insulin resistance and metabolic syndrome in early androgenetic alopecia. Singapore Med J. 2010;51(12):931-6.

Presence of Growth Hormone Deficiency in Short Statured Children
Tripoli Children Hospital (2005-2008)

Faten A Ben Rajab[1], Mona M Al-dageez[1], Miluda R Elhamadi[2]
Tel: 0923796126

[1] Endocrine unit , Tripoli children Hospital . Tripoli, Libya
[2]Department of Family and Community Medicine, University of Tripoli. Tripoli, Libya
Correspondence and reprint request:
F Ben Rajab
Associate professor, Pediatric Department.
Faculty of Medicine, University of Tripoli. Tripoli, Libya
      E-mail: FatenBenRajab@yahoo.com

Abstract
Background:
Growth is a continuous biologic process subject to genetic, environmental, nutritional and hormonal influences. Altered growth may result from disturbance of any of these factors. Short stature is defined by height or length below 3rd centile(< -2 SDS) or less than 0.4th centile (< -2.5 SDS) for that specific age and sex. One cause of short stature can be endocrine disorder like growth hormone deficiency(GHD) with or without other chronic disease.
Aims:
To identify the causes of short stature among children referred to pediatric endocrinology department, Tripoli Children Hospital and determine the presence of Growth hormone deficiency amongst them.
Method and material:
A cross sectional study was conducted at Pediatric Endocrinology department, Tripoli Children Hospital from January 2005 to December 2008, all Medical Records of Short Stature Children and who referred for GH evaluation, were reviewed. Data Analysis for sex, age, history of chronic illness, malnutrition, specific syndromes, bone age, mid parental height and level of growth hormone by using Insulin Tolerance Test (ITT) was performed by SPSS program version 11.
Results:
The results revealed that short stature was diagnosed in 133 patients, male to female ratio was 1.4:1 (p=0.046). Age ranged between 2years to 18 years with mean chronological age of 9.5±4 years; by using a cutoff point at 5 years; 77.4% came later (6-18 years) at school age (p=0.001). Chronic illness were present in 35.3% of the short stature children. Growth hormone deficiency was detected in 114 patients; 81 cases (71%) diagnosed as isolated growth hormone deficiency , 33 patients diagnosed as growth hormone deficiency associated with other diseases: 18 cases(15.8%) were celiac disease, 5 cases (4.4%) were congenital heart disease, 3 patients(2.6%) were bronchial asthma, 2 patients (1.7%) were failure to thrive, 2 children(1.7%) with recurrent chest infection, one case (0.9%) was Russell silver syndrome, one case (0.9%) was Noonan syndrome and one child (0.9%) was hypothyroidism.
Conclusion :
Growth hormone deficiency is common cause of short stature and can be present as single cause or in association with other causes of short stature.
Recommendation :
   Estimation of growth hormone level among patients who present with short stature and associated with chronic illness if their height was not improved on specific therapy for their under lying disease is recommended.

Key words: children ,short stature, growth hormone , deficiency, *Libya*

www.uot.edu.ly

2017 /1/30م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Introduction

Growth is the fundamental physiological process that characterize child hood; it subject to genetic, environmental, nutritional and hormonal influences. Altered growth potential may result from disturbance of any of these factors. Short stature is usually defined in an individual whose height below 3rd centile or less than 2 standard deviation for that specific age and sex [1] or less than the 0.4th centile (< -2.5 SDS) for the reference range. [2]

It is important about growth measurement being made at long interval of 6 months to years. [3]

The peak height velocity of pubertal growth spurt is just before 12 years in girls and 14 years in boys, making the average 12 year old girl briefly taller than her male peer. [3]

If growth velocity is abnormally slow for considerable period of time it manifest as a fall in percentile when plotted on the growth velocity chart. [2] Final height is the height reached after the completion of puberty and is estimated to be achieved when growth velocity has slowed to < 2 cm per year. This can be confirmed by finding epiphyseal fusion of small bones of the hand and wrist on assessing the bone age x- ray. [2] It is largely genetically determined; a target height range can be estimated in each individual from their parent's height. [4] The definition of short stature (Less than 0.4centile) may be at variance with circumstance of an individual's family, an individual may be on the l0th centile but can be perceived to be shortly by the family if parents are tall, to determine the signification by calculating the Mid Parental Height (M.P.H) & the target centile range. [4]

There are several causes of short stature, the most common causes, beyond the first two years of life are Familial Short Stature which refers to normal growth leading to an inherited short adult height, those children track short growth channels with normal growth velocity and normal bone age. [3] ; and constitutional growth delay, which are variants of normal growth and need no medical treatment. [1, 5-8] Short stature may also be seen with severe Intrauterine Growth Retardation (IUGR) or children born Small for Gestational Age (SGA) and in large number of dysmorphic syndromes (Turner, Noonan, Down's & Prader Willi) [1,5, 9, 10] Almost any chronic disease can cause short stature such as renal disease, malignancy, pulmonary disease, Cystic Fibrosis (CF), cardiac disease .Coeliac disease is a common cause of short stature, especially in younger children, Congenital heart disease: both cyanotic heart disease and congestive heart failure may be associated with growth failure; Skeletal disorder as Achondroplasia, Hypochondroplasia and Mucopolysaccharidoses ; Nutritional deprivation and therapies like glucocorticoids, chemotherapeutic drugs, and radiotherapy can result in short stature [,6,11- 16]. Common endocrinological causes of short stature include hypothyroidism, hypopituitarism (isolated GHD or multiple anterior pituitary hormone deficiencies), hypercortisolism and classical

Laron syndrome [5,6, 11, 15, 17]. All these are characterized by being overweight-for-height. Idiopathic Short Stature (ISS) is considered when no causative disorder can be identified [18].

Growth hormone deficiency (GHD) is a medical condition in which the body does not produce enough growth hormone. [19] It may be isolated or may occur with other pituitary hormone deficiency, congenital or acquired, it can be partial or complete. It's usually permanent, but some time transient. The most common form of congenital GHD is idiopathic, malformation of pituitary gland can be isolated or associated with other congenital malformation. The most severe isolated form is pituitary aplasia, in which the pituitary gland is completely absent. [19] Pituitary malformation can occur with other mid line defect, the most frequent etiology of acquired GHD is idiopathic. [20]

GHD is characterized by decrease growth velocity, delay in skeletal maturation. [21] & could be isolated or associated with other causes of short stature.

The study was conducted to identify the causes of short stature among children referred to pediatric endocrinology department, Tripoli Children Hospital and determine the presence of Growth hormone deficiency amongst them.

Material and methods:

A cross-sectional study was carried out at pediatric endocrine clinic in Tripoli Children Hospital from January 2005 to December 2008; included all medical records of children referred for growth hormone evaluation.

The inclusions criteria were : Children ≤ 18 years, height > 2-2.5 standard deviation below the mean (<0.4th-3rd percentile) using WHO/UK charts, abnormal height velocity less than (4 cm/year), height below target centile for mid parental height (MPH) for individual child which calculated by recoding father and mother height (in cm) divided by 2 then MPH = add 7 for boys & subtract 7 for girls. Most boys attain their final adult height within 10 cm of their MPH & most of girls attain their final adult height within 8.5 cm of their MPH.

The study includes all records with complete history and physical examination including birth weight measurement of weight, height and (upper segment/ lower segment ratio), dysmorphic features.

Recorded investigations included complete blood count, ESR, renal function tests, blood and urinary pH to exclude Renal Tubular Acidosis (RTA) and metabolic disorders, thyroid function tests (FT4 &T4), glucose, calcium, phosphate, alkaline phosphatase, stool and urinalysis. Tissue transglutaminases (IgA &IgG) to exclude coeliac disease and those with positive serology were

Page 98

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

subjected to diagnostic jejunum biopsy. Bone age was determined radio-logically by left hand and wrist X-ray comparing with Greulich Pyle charts. Those children were followed for > 6 months, if their growth velocity was subnormal; they should have growth hormone (GH) provocative testing by insulin tolerance test and growth hormone deficiency (GHD) was confirmed if the peak GH concentration failed to reach 7 ng /ml.

Insulin tolerance test:

Patient should be fasting after mid night, dose of 0.1 unit /kg of insulin IV is given in children over 4 years of age in younger children a dose of 0.05 is sufficient ,and must be administrated under careful observation.[2] Serum samples should be obtained before insulin administration and then at 15, 30, 45 and 60, 90 minute later. Serum glucose level must decrease by 50% of initial value or to less than 40 mg/dl however, more severe hypoglycemia must be avoided because it can lead to seizures, coma or death. [2]

Normal and expected values: About 20 minute after the glucose nadir there should be episode of GH secretion. The peak level should above 10 n g/ml in some patient, the response is delayed thus 90 minute sample is recommended. [2] Children of GHD have a response of less than 7ng /ml.

Karyotyping results was recommended for those females where the etiology was in doubt, to rule out Turner's syndrome.

Statistical analysis:

Data was entered in SPSS version 11.0 and descriptive statistics were used as frequencies , means ± standard deviation and percentages , categorical data were compared using the chi-square test, statistical significance was considered if p value <0.05.

Results:

During the study period, hundred and thirty three patients with short stature were evaluated in a pediatric endocrine clinic, in Tripoli Children Hospital.

The study showed that78 males (58.6%), 55 females (41.4%) were identified as having short stature and referred for growth hormone evaluation, and there was a significant difference. (p value =0.046) .

Their age ranged between 2 years to 18years with mean chronological age 9.5 ± 4 years, by using a cutoff point at 5 years; 22.6% of the patients came before school entry and 77.4% came later (6-18 years), the difference between these two counts was statistically significant (p=0.001). (fig.1,2)

By classification of the study group according to their bone age, 120 patients (90.2 %) have delayed bone age by more than 2-3 years behind their chronological age and the rest of patients have normal bone age .

Regarding the height in relation to target centile range the results showed that 86 patients (64.9%) their height were below their target centile range and only 5 patients (3.7%) their height were within their target centile range, there was no data for the mid parental height & target centile range in (31.3%) of patient's records.(fig.3)

  Results showed that, 86 patients (64.7%) were free from any chronic illness, while 47 patients(35.3%) were had chronic problems as followed: 3 patients have bronchial asthma, 5 patients have congenital heart disease, 20 patients have celiac disease, 3 patients were failing to thrive without clear cause, 3 patients have Chronic renal failure, 1 patient was Achondroplasia, 2 patients have recurrent chest infection, 1 patient has Nephrotic syndrome, 1 patient was Russell Silver syndrome, 2 patients have hypothyroidism, 3 patients were Turner syndrome and 3 patients were Noonan syndrome. (table1)

Results revealed that, 120 (90.2 %) of the patients were had GH assessment by ITT , 114 (95%) patients out of 120 were had growth hormone deficiency, 81 (71.1%) of those patients have isolated growth hormone deficiency, the other 33 patients had growth hormone deficiency associated with other chronic illness as following: 15.8 celiac disease, 4.4% were congenital heart disease, 2.6% were bronchial asthma, 1.7% with failure to thrive, 1.7% recurrent chest infection , 0.9% Russell silver , 0.9% hypothyroidism, 0.9% Noonan syndrome. Patients who have celiac disease (18 out of 20) also have GHD as a cause of their short stature. The result showed significant association between celiac disease and GHD (p = .0001).

Study revealed that six patients were had normal GH level (2 patients have celiac disease, 1 patient has hypothyroidism, 1 patient was FTT, 1 patient has Achondroplasia, 1 patient has Nephrotic syndrome). (table2)

Discussion:

Growth is the fundamental physiological process that characterize child hood. The etiology of short stature ranges from normal variants like constitutional growth delay and familial short stature to pathological conditions like endocrine and systemic disorders. There were 133 short stature children referred to endocrine unit of Tripoli child hospital during the period of the study , their age ranged between (2-18) years ; with mean chronological age 9.5 ± 4 years, by using a cutoff point at 5 years; the majority of them came later (6-18 years) at school age which explained by more attention to

Page 100

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

children growth at this time, which was in agreement with previous Pakistan study, demonstrated that 76.3% of children having age >5years.[16]

Present study showed that, 41.4% of patients were female & 58.6% were male; male to female ratio was1.4:1, similar finding were observed in Al-Jurayyan et al study, which showed that male to female ratio was1.3:1.[22] Also similar finding demonstrated in study done in Pakistan, showed short stature more common in boys than girls=1.9:1.[23]

In this study 90.2% of patients had significant delayed bone age and 64.9% of patients their height lies below their target centile range; these results high light up the importance of bone age &target centile range in assessment of growth in short stature children.

Results revealed that, 120 (90.2 %) of the patients were had GH assessment by ITT , the other 13 patients (9.8%) either the test was not indicated as in (3 patients Turner , 2 patients Noonan & 3 patients CRF) since they have normal growth velocity; or no results in their records without clear cause in 5 cases .

Among 120, 114 patients have low GH level on ITT result which is going with growth hormone deficiency , 81(71.1%) patients out of 114 had isolated GH deficiency , in accordance with Zayed et al study.[24] However, contradicted finding was demonstrated in Rabbani et al. study where GHD present in 10.7% of the cases.[16] The other 33 patients had GH deficiency along with other etiology. Presence of high frequency of GH deficiency among patients in present study can be explained because this clinic is specialized endocrine unit and Tripoli children hospital is referral Centre accept cases from all Libyan regions.

On the other hand , the most common non endocrine systemic disease were celiac disease(15.8%), which is similar with Italian study [25]; followed by congenital heart disease (3.8%), approximately the same finding were indicated by Sultan et al.[23]

Conclusion:
Growth hormone deficiency is common cause of short stature and can be present as single cause or in association with other chronic disease like celiac disease.

Recommendation:
Estimation of growth hormone level among patients who present with short stature and associated with chronic illness if their height was not improved on specific therapy for their under lying disease is recommended.

References :

1. Lam WF, Hau WL, Lam TS. Evaluation of referrals for genetic investigation of short stature in Hong Kong. Chin Med J (Engl). 2002; 115:607-611.

2. Lifshitz F. Pediatric Endocrinology. 5th ed. Marcel Dekker, INC Basel New York. 2007; 1-37.

3. Waterston T., Pttelms and Platt W. M. Pediatrics Understanding Child Health. 3rd ed. Oxford London.1997; 280-283..

4.Tasker R C, McClure R.J, Acerini C.L, Oxford Hand Book of Pediatrics. 5th ed. London Oxford University Press.2008; 464.

5. Simm P, Werther G. Child and adolescent growth disorders – An overview. Australian Family Physician 2005;34(9):731-736.

6. Zargar AH, Laway BA, Masoodi SR, Wani AI, Salahuddin M. An etiological profile of short stature in the Indian subcontinent. J Paediatr Child Health1998; 34:571-6

7. Bhadada SK, Agrawal NK, Singh SK, Agrawal JK. Etiological profile of short stature. Indian J Paediatr2003; 70:545-7.

8. Halac I, Zimmerman D. Evaluating short stature in children. Pediatr Ann2004; 33:170-6.

9. Abuzzahab MJ, Schneider A, Goddard A, Grigorescu F, Lautier C, Keller E, et al. IGF-I receptor mutations resulting in intrauterine and postnatal growth retardation. N Engl J Med 2003; 349: 2211-22.

10. Eid A, Omar A, Khalid M, Ibrahim M. The association between chid born small for gestational age and short stature. J Preg Child Health 2016;3:220.

11. Waheed KA, Irfan K, Ahmad TM, Khan HI. Spectrum of clinical presentation of chronic renal failure in children. Pak Paediatr J 2002; 26:167-71.

12. Queiroz MS, Nery M, Cançado EL, Gianella-Neto D, Liberman B. Prevalence of celiac disease in Brazilian children of short stature. Braz J Med Biol Res2004; 37:55-60.

13. Pescovitz O. H, Eugster E. A. Pediatric Endocrinology Mechanism, Manifestation and Management. 6th ed. Awolter Kluwer company, London. 2004; 176-179. 180-181.183..

14. Roberton D.M, South M. Practical Pediatrics. 6th ed. Churchill Livingston- Elsevier London. 2008; 667.

15. Checkley W, Epstein LD, Gilman RH, Cabrera L, Black RE. Effects of acute diarrhea on linear growth in Peruvian children. Am J Epidemiol2003; 157:166-75.

16. Rabbani MW, Khan WI, Afzal AB, Rabbani W. Cause of short stature identified in children presenting at a tertiary care hospital in Mutan Pakistan. Pak J Med Sci 2013;29(1):53-57.

17. Famuyiwa OO. Short stature at the University College Hospital, Ibadan, Nigeria. West Afr J Med1992;11:61-71.

18. Miller BS, Zimmerman D. Idiopathic short stature in children. Pediatr Ann2004; 33:177-81.

19. William Berger. Growth hormone deficiency. 2005; available at Wikipedia. The free encyclopedia.

20. Thomas Moshang Jr .pediatric endocrinology. Mosby 2004; 153-154-155.

21 Hay W W, Levin M J, Sondheimer, J M, Deterreding RR. Current pediatric diagnosing &treatment. 17 ed. Mc-Graw-Hill USA. 2005; 964.970.

22. Al-Jurayyan NA, Mohamed SH, AlQtaibi HM, ALIssa ST, Omer HG. Short stature in children: patterns and frequency in a pediatric clinic , Riyadh, Saudi Arabia. Sudan J Paediat 2012;12(1):79-83.

23. Sultan M, Afzal M, Qureshi SM, Aziz S, Lutfullah M, Khan SA, et al. Etiology of short stature in children. Journal of the College of Physician and Surgeon Pakistan 2008;18(8):493-497.

24. Zayed AA, Mustafa MK, Al-Ani MA, Momani MS, Yousef AM. The prevalence of isolated growth hormone deficiency among children of short stature in Jordan and its relationship with consanguinity. Clin Endocrinol (oxf). 2014;81(6):876-82.

25. Giovenale D, Meazza C, Cardinale GM, Sposito M, Mastrangelo C, Messini B, et al . The prevalence of growth hormone deficiency and celiac disease in short stature children. Clinical Medicine & Research 2006; 4(3):180-183
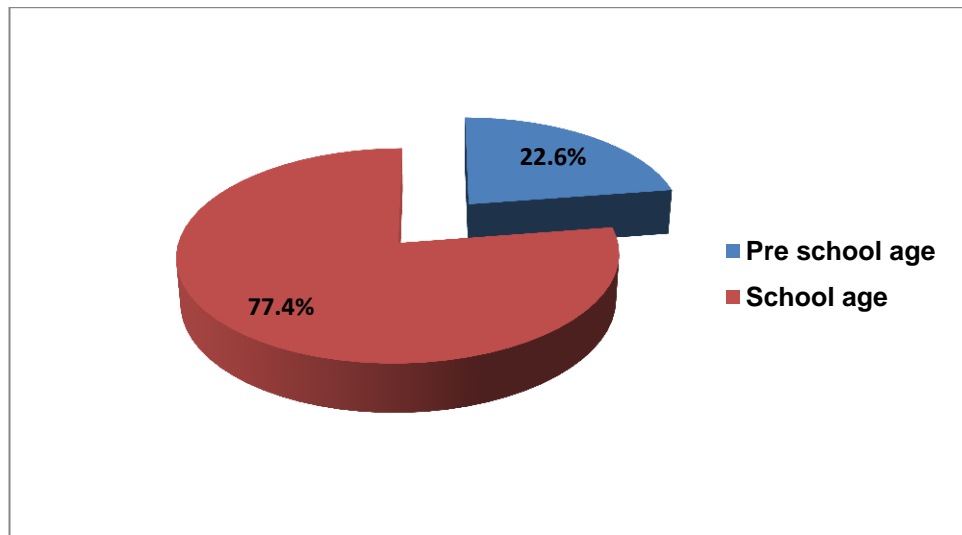
Figure (1): Age distribution of patients attending pediatric endocrine clinic(2005-2008).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
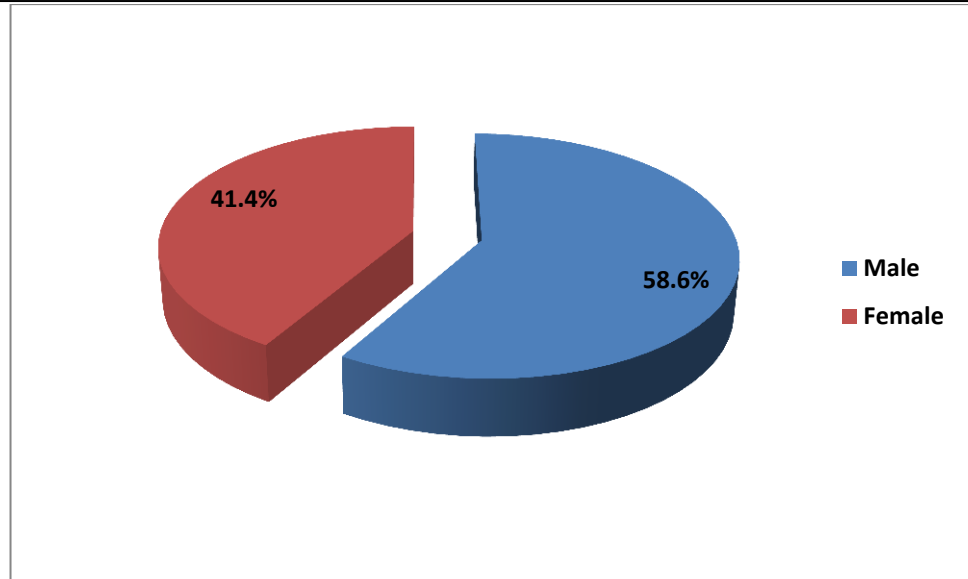
Figure(2): Gender distribution of short statures children attending pediatric endocrine clinic(2005-2008).
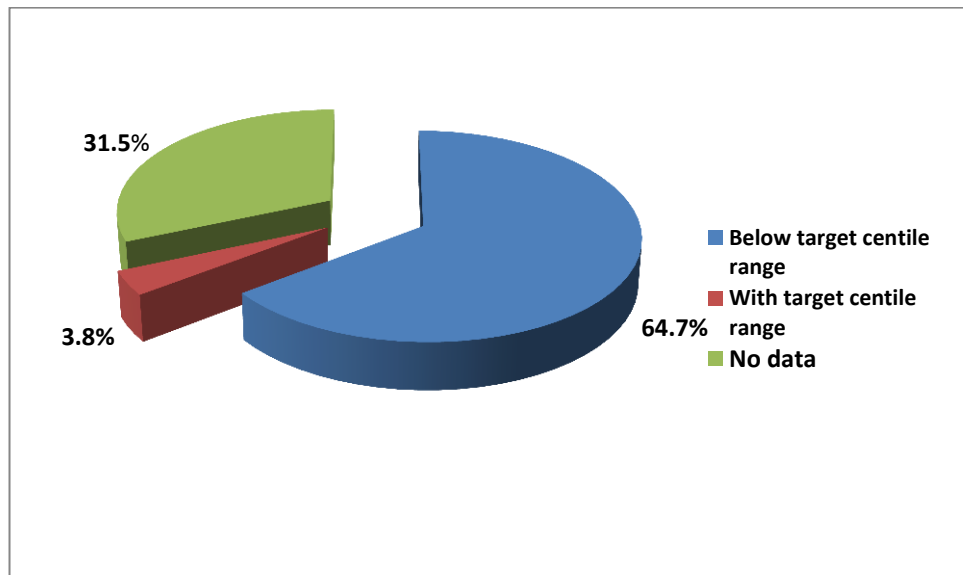
Figure (3): Distribution of the patient height according to target centile range(2005-2008).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table (1): Distribution of cases according to type of chronic illness (2005-2008).

	Frequency	Percent
No chronic illness	86	64.7%
Bronchial asthma	3	2.3%
CHD	5	3.8%
Celiac	20	15%
FTT	3	2.3%
CRF	3	2.3%
Achondroplasia	1	.8%
Recurrent chest infection	2	1.5%
Nephrotic syndrome	1	.8%
Russell silver syndrome	1	.8%
Hypothyroidism	2	1.5%
Turner syndrome	3	2.3%
Noonan syndrome	3	2.3%
Total	133	100%

Table (2): Distribution of cases according to causes of short stature and presence of GHD (2005-2008)

	GHD	
	No.	**Percent**
Isolated GHD	81	71.1%
Bronchial asthma	3	2.6%
CHD	5	4.4%
Celiac disease	18	15.8%
FTT	2	1.7%
Recurrent chest infection	2	1.7%
Russell silver syndrome	1	0.9%
Hypothyroidism	1	0.9%
Noonan syndrome	1	0.9%
Total	114	100

Chronic kidney disease associated anaemia among adults in Libya: an epidemiological pattern.

J Elamouri[1], H Elkout[2]

[1]Department of medicine, Tripoli Central Hospital, Tripoli, Libya; [2] Department of Medicine, Nephrology unit.

Corresponding author: Dr Hajer Elkout, Department of Family and Community Medicine, Tripoli University, Tripoli, Libya.

Abstract:

Background: Chronic kidney disease (CKD) is a major public health problem with a prevalence of 9-11% worldwide. One major complication of CKD is anaemia. the current prevalence of anaemia in CKD patients in the Libya is not known.

Aims: To describe epidemiological patterns of anaemia at different stages of CKD.

Methodology: descriptive, hospital-based study was conducted using the hospital records of 204 patients attending the nephrology outpatient clinic in Tripoli central hospital. All patients were adults aged over 18 years, and registered in the period between January 2007 to December 2009. CKD was classified into 5 stages based on the glomerular filtration rate and anaemia was assessed by serum haemoglobin and stratified into 3 groups (<11, 11-13 and >13 g/dl).

Result: The prevalence of anaemia significantly increased with stage of CKD, from 3.1% at stage 1 to 70.4% at stage 5. A total of 37% of CKD patients with anaemia were on erythropoietin and ferrous therapy.

Conclusion: Anaemia was present in approximately 40% patients with CKD. Prevalence of anaemia was strongly associated with declining kidney function. Younger women and older men were more likely to have low haemoglobin levels. More studies are needed to evaluate the role of early anaemia treatment on the progress of renal impairment.

Keywords: CKD chronic kidney disease, DM diabetes mellitus, GN glomerulonephritis.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Introduction:

Chronic kidney disease (CKD) is a global public health problem due to its high prevalence in both initial and final (renal failure) stages, and to the high cost and poor results of treatment. Epidemiological studies of the adult population in several countries report CKD prevalence of 9%−11%. In Libya, data on the prevalence of CKD is lacking, however, the reported incidence of end stage renal diseases (ESRD) is 80-100 per million per year, and there is approximately 2100 patients currently on dialysis in Libya[1].

CKD has been identified as a risk factor for death and cardiovascular-related morbidity and is a substantial burden on the health care system. The increasing prevalence of chronic kidney disease can be attributed in part to the growing elderly population and to the increasing rates of diabetes and hypertension[2].

Reduced haemoglobin levels has been observed in patients with CKD. Previous research has shown that the prevalence of anaemia in CKD patients ranges between 15% to 60% [3-8]. In addition, the CKD-associated anaemia is usually normochromic, normocytic and occurs mostly as a result of decreased kidney production of erythropoietin [5,9]. Also, although it can be detected at any stage of CKD, the prevalence and severity of "renal anaemia" are positively related to the stage of CKD; anaemia has been diagnosed in one quarter of stage 1 CKD patients, half of those stratified to CKD stages 2, 3, and 4 and three quarters of CKD patients starting dialysis[3-11].

There is a clear evidence that anaemia of CKD increases morbidity and mortality from cardiovascular complications such as angina, left ventricular hypertrophy and worsening heart failures. This may deteriorate renal function and leads to the establishment of a vicious cycle termed the "cardio-renal anaemia syndrome" [Muzzarelli, Pfistere; 2006; Dowling 2007].

Therapy of renal anaemia with erythropoietin can correct anaemia and also slows the deterioration of the renal insufficiency[5,12].

The main aim of this study is to describe the patterns of anaemia in CKD patients and to explore the association between the level of renal insufficiency and presence of anaemia.

Methods

Descriptive (cross-sectional) study includes all files of patients diagnosed with CKD and aged over 18years who attend the nephrology clinic in the Tripoli Central Hospital in Libya. The study carried out over three years between January 2007 to December 2009. Data were collected via patients interviews if available and questioner that included demographic data (age, sex, smoking status), medical history, laboratory investigations (serum Creatinine, Serum urea, Haemoglobin level, protein: creatinine ratio), family history of renal disease or its risk factors (diabetes mellitus, Hypertension, Renal disease). The level of renal insufficiency was classified into CKD stages 1–5 as defined by the national kidney foundations kidney disease outcomes quality initiative guidelines using Cockcroft-Gault equation[13,14]:

Creatinine clearance (mL/min)

= (140-age) x weight (kg) / 72 x s. creatinine (mg/dl) (multiplied by 0.85 for female)

Patients were categorised according to the level of haemoglobin into three groups: those with haemoglobin less than 11mg/dl, between 11 and 13mg/dl and more than 13mg/dl.

Statistical analysis

Data were managed and analysed using SPSS version 18. Variables were reported as absolute numbers and percentages; descriptive statistics used to determine baseline population characteristics as appropriate. Bivariate analyses were conducted to describe associations using chi-squared, P value considered significant when <=0.05.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Result:

A total of 204 CKD patients were included in the study. Mean age was 51.8 (Standard deviation 15.7, range 18-80 years), and 55.4% of CKD patients who were registered in the outpatient clinic between 2007 and 2009 were females, while 44.6% of them were male. There was no difference between the mean age of male and female. P value = 0.809 (not significant). The baseline characteristics of the 113 women and 91 men studied are shown in Table 1.

Table 1: Baseline characteristics of patients included in the study.

	No.	%
Sex		
Male	91	44.6
Female	113	55.4
Age groups (years)		
≥ 39	39	19.1
40 – 60	86	42.2
> 60	79	38.7
Stages of the disease		
Stage 1	32	15.6
Stage 2	34	16.6
Stage 3	71	34.6
Stage 4	40	19.5
Stage 5	27	13.2
Haemoglobin level (mg/dl)		
<11	94	46.1
11-13	78	38.2
>13	32	15.7
History of diabetes	115	56.1
History of hypertension	149	72.7
Urea level (mg/dl)		
< 10	2	1
10 – 50	44	21.5
> 50	158	77.5
Fasting blood sugar level (mg/dl)		
< 70	1	0.5
70 – 115	88	43.1
>115	85	41.7
Not recorded	30	14.7
Creatinine level (mg/dl)		
< 0.5	2	1
0.5 – 1.5	41	20.1
>1.5	161	78.9

Relationship between age groups and stages of CKD is shown in table 2. There were significant difference between the patients in different age group, P value was >0.001

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 2: Relation between age of patients in accordance with stage of CKD disease

Stages of the disease	Age group/year					
	≥ 39		40 – 60		>60	
	No.	%	No.	%	No.	%
Stage 1	20	38.5	12	13.5	0	0
Stage 2	8	15.4	15	16.9	11	17.5
Stage 3	8	15.4	39	43.8	24	38.1
Stage 4	9	17.3	17	19.1	14	22.2
Stage 5	7	13.5	6	6.7	14	22.2

Mean Haemoglobin level for women was 10.6 ± 1.7 and for men was 11.9 ± 2.2. there were 76 (37.3%) CKD patients on erythropoietin and 109 (53.2%) on Ferrous sulphate therapy. Out of the 81 patient with haemoglobin of less than 11g/dl, 58 (71.6%) were treated with both erythropoietin and Ferrous sulphate while only 16 patient (17.7%) of those with haemoglobin of 11-13 g/dl were treated for anaemia. The level of haemoglobin was significantly proportional to the stage of CKD ($P<0.001$). Table 3 illustrates the relationship between level of haemoglobin (and the mean haemoglobin) and the stage of CKD.

Table 3: The relationship between the haemoglobin level and the stage of the CKD.

Stages of the disease	Haemoglobin level mg/dl					
	Mean (St D)	<11		11-13		>13
		No.	%	No.	%	No.	%
Stage 1	12.7 (±1.6)	1	3.1	18	58.2	13	40.6
Stage 2	11.5 (±2.1)	11	33.3	15	45.5	7	21.2
Stage 3	11.3 (±1.9)	25	35.2	36	50.7	10	14.1
Stage 4	10.3 (±1.5)	25	62.5	14	35.0	1	2.5
Stage 5	9.8 (±2.2)	19	70.4	6	25.9	1	3.7
Total	11.2 (±2.0)	81	39.9	90	44.3	32	15.8

St D= Standard deviation.

In comparison with the two groups with the haemoglobin levels between 11 and 13 and above 13 g/dl, the group with haemoglobin below 11 g/dl had significantly more prevalence of diabetes and hypertension [P values= 0.006 and 0.022 respectively]. Younger women tended to have lower haemoglobin than older women. Whereas, the likelihood of anaemia was higher among older men, P value not significant (Table 4).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Table 4: Distribution of patients according to sex, age and haemoglobin level

Haemoglobin	≥ 39 years of age		40 – 60 years of age		>60 years of age	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
<11	3 13.0%	13 22.4%	7 30.4%	21 36.2%	13 56.5%	24 41.4%
11-13	7 15.,.9%	15 32.6%	24 54.5%	21 45.7%	13 29.5%	10 21.7%
>13	11 47.8%	3 33.3%	12 52.2%	4 44.4%	0 0.0%	2 22.2%
Total	21	31	43	46	26	36

Discussion:

Anaemia considered is a common complication of CKD. The prevalence of anaemia in this population increased progressively with worsening renal insufficiency.

Nearly half of the studied patients (39.9%) are anaemic with haemoglobin level less than 11 mg/dl, with most the patients who have haemoglobin level less than 11 mg/dl are in stage 5 (70.4%). The National Kidney Foundation (NKF-K/DOQI) Clinical Practice Guidelines recommend an assessment of anaemia among patients with renal insufficiency when the haemoglobin is less than 11 g/dl among premenopausal women and less than 12 g/dl among adult men and postmenopausal women [14].

In this study, low haemoglobin levels can be detected in early stages of CKD, 36% of patients with haemoglobin of less than 11g/dl were in stage 1 and 2 of CKD, and about 40% were in stage 3. A similar trend has been reported in large studies in developed countries[3-6, 8,9,11,15]. Reports from studies performed in developing countries also showed similar patterns; In India, anaemia was recorded in 40.7%, and low haemoglobin level was correlated with decreased eGFR in CKD patients [10]. Another study in Saudi Arabia found that the prevalence of anaemia was strongly associated with the stage of CKD. Proportions of patients with low haemoglobin (less than 10mg/dl) was 21%, 17%, 31%, 49%, and 72%, respectively, for stages 1–5. Also, in accordance with our study, CKD-associated anaemia was more prevalent in females, diabetic patients and those with hypertension [7].

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشرى طرابلس - قسم الأسرة والمجتمع

Blood haemoglobin levels were used to estimate anaemia in this study, based on the WHO definition of anaemia[16], it was not possible to obtain more detailed information from the current data. Serum ferritin and transferrin levels might be better markers of iron deficiency, however no single biochemical indicator is reliably diagnostic of iron deficiency [17,18].

Disruption of erythropoietin production and iron deficiency are the main causes of CKD-associated anaemia, thus, treatments include iron supplementation and erythropoietin. In the present study, treatment rates were high, 37% CKD patients were treated with erythropoietin and 53% were treated with ferrous sulphate regardless of their haemoglobin level. These rates were higher than those reported in other studies [3,6,15].

One limitation of this study is that no causal relationships between anaemia and CKD could be established because of its cross-sectional design. However,

In conclusion, anaemia was present in approximately 40% of CKD patients and was more frequent at higher stages of CKD. Younger females, hypertensive and diabetic patients were more likely to have CKD-associated anaemia. Relatively few CKD patients with anaemia were being treated for anaemia. Future research should investigate the benefit of early intervention to treat anaemia in order slow down the impairment of renal function.

References

1. Alashek W, McIntyre C W, Taal M W. Epidemiology and aetiology of dialysis-treated end-stage kidney disease in Libya. *BMC Nephrology*, 2012 13:33. doi: 10.1186/1471-2369-13-33

2. Paul Arora MSc, Priya Vasa , Darren Brenner , Karl Iglar , Phil McFarlane ,Howard Morrison , Alaa Badawi . Prevalence estimates of chronic kidney disease in Canada : results of a nationally representative survey. *CMAJ*. 2013 Jun 11; 185(9): E417–E423. doi: 10.1503/cmaj.120833

3. Hsu CY, McCulloch CE, Curhan GC: Epidemiology of anemia associated with chronic renal insufficiency among adults in the United States: Results from the Third National Health and Nutrition Examination Survey. *J Am Soc Nephrol*. 2002,13(2):504–10.

4. McClellan W, Aronoff SL, Bolton WK, et al. The prevalence of anemia in patients with chronic kidney disease. *Curr.Med.Res.Opin*. 2004Sep;20(9):1501–10.

5. Dowling TC. Prevalence, etiology, and consequences of anemia and clinical and economic benefits of anemia correction in patients with chronic kidney disease: an overview. *Am J Health Syst Pharm* 2007 Jul 1;64(13 Suppl 8):S3- 7;quiz S23-5. DOI:10.2146/ajhp070181

6. Stauffer ME, Fan T (2014) Prevalence of Anemia in Chronic Kidney Disease in the United States. *PLoS ONE* 9(1): e84943. doi:10.1371/journal.pone.0084943

Page 113

7. Shaheen FAM, Souqiyyeh MZ, Al-Attar BA, et al. Prevalence of Anemia in Predialysis Chronic Kidney Disease Patients. *Saudi J Kidney Dis Transpl* 2011;22(3):456-463

8. Kazmi WH, Kausz AT, Khan S, et al. Anemia: an early complication of chronic renal insufficiency. Am J Kidney Dis 2001;38(4):803-12.

9. Besarab A, Levin A. Defining a renal anemia management period. *Am.J.Kidney Dis* 2000;36:S13–S23.

10. Singh AK, Farag YM, Mittal BV et al. (2013) Epidemiology and risk factors of chronic kidney disease in India-results from the SEEK (Screening and Early Evaluation of Kidney Disease) study. *BMC Nephrology*.2013, 14: 114-124. DOI: 10.1186/1471-2369-14-114

11. Amenós A, Martínez-Castelao A, Fort-Ros J et al. (2014) Prevalence of anaemia and its clinical management in patients with stages 3-5 chronic kidney disease not on dialysis in Catalonia: MICENAS I study. *Nefrologia*. 2014;34(2): 189-98. doi: 10.3265/Nefrologia

12. Muzzarelli S, Pfisterer M. Anemia as independent predictor of major events in elderly patients with chronic angina. *Am.Heart J* 2006;152:991–996. DOI: 10.1016/j.ahj.2006.06.014

13. Cockcroft DW, Gault MH: Prediction of creatinine clearance from serum creatinine. *Nephron*. 1976;16(1):31–41.

14. National Kidney Foundation NKF-K/DOQI clinical practice guidelines for anemia of chronic kidney disease: Update 2000. *Am J Kidney Dis* 2001;37[Suppl 1]: S182–S238.

15. Clase CM, Kiberd BA, Garg AX (2007) Relationship between glomerular filtration rate and the prevalence of metabolic abnormalities: results from the Third National Health and Nutrition Examination Survey(NHANES III). *Nephron Clin Pract*.2007;105(4):c 178-84. DOI: 10.1159/000100489

16. World Health Organization. Iron Deficiency Anaemia Assessment, Prevention and Control: a guide for programme managers; 2001.

17. Expert Scientific Working Group: Summary of a report on assessment of the iron nutritional status of the United States population. *Am J Clin Nutr* 42: 1318–1330, 1985

18. Cook JD, Finch CA, Smith NJ: Evaluation of the iron status of a population. *Blood.1976Sep;* 48(3): 449–455.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Incidence of HBV Infections Detected During Pre-Employment Checkup in Tripoli, Libya

Fatma Alsharif[1, *], Faisal Ismail[2,3], Abdul Ilah[2]

[1] Department of Genetic Engineering, Biotechnology Research Centre, Tripoli, Libya

[2] Faculty of Medical Technology, University of Tobruk, Tobruk, Libya

[2] National Centre for Disease Control, Tobruk, Libya

*Corresponding Author: Fatma Alsharif, Department of Genetic Engineering, Biotechnology Research Centre, Tripoli, Libya, Email: ashariffatma@yahoo.com

Keywords: Tripoli, pre-employment check up, HBV

ABSTRACT

Background: Occult Hepatitis B Virus still posed to be ultimate threats to the community in Libya. The rapid screening and identification of this viral infection has been the important subject of research globally to rid of this viral infection. This research has conducted a thorough checkup for screening hepatitis viral infection among selected candidates for employment in Libya. We have reported here a precise result out of our checkup that shows about 16.8% anti-HBc positive cases among people who performed pre employment viral test in Tripoli city, Libya.

Objectives: To identify and estimate the frequency of occult HBV infections among selected individuals for employment in Tripoli Libya.

Methods: Blood samples were obtained from 400 individuals who were initially selected for employment in Tripoli in Saint James Hospital for pre-employment checkup. Samples were analyzed for HBsAg and anti-HBc antibody alone or in combination. Antibodies to HBV (anti-HBs < 10 mIU/ml) were investigated further for the presence of HBV DNA by PCR.

Results: Total of 67 samples were positive by indicating 16.8% frequency of anti-HBc positive cases among tested individuals. Anti-HBc positive samples (67) were again tested for anti-HBsAb and found to be all 67 cases positive. Again for more confirmation all 67 Anti-HBc positive samples were analyzed with the quantitative real-time PCR. Three samples out of 67 samples from this analysis were found to be HBV DNA positive which was calculated as 4.5%.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Conclusion: The breakthrough of pre-employment health checkup was significant events. The result may indicate an acute or chronic infection. In some persons anti-HBc may be the only serological marker for the detection of past infection in patients with chronic inactive HBV. A proportion of pre-employment individuals with HBV-DNA in their blood may be a potential source of HBV infection. The implementation of anti-HBc and PCR analysis in healthy people for viral infection screening would help to detect HBV carriers, and will improve the pre-employment test protocol.

INTRODUCTION

Hepatitis B virus (HBV) infection is a worldwide serious public health problem, with approximately 2 billion people with serological evidence of HBV infection [1]. Nearly 400 million people have been severely suffering from transient and chronic infections of the liver. Transient infections may produce serious illness and approximately 0.5% deaths with fatal, fulminate hepatitis while chronic infections have serious consequences, leaving nearly 25% deaths in untreated liver cancer [1]. Worldwide deaths from liver cancer caused by HBV infection may have exceeded one million per year [2].

The hepatitis virus is found to be 100 times more infectious than human immunodeficiency virus (HIV) and unlike HIV it could survive outside the body in dried blood for more than a week. Hepatitis virus usually is transmitted through blood and other body fluids including semen, saliva and pre ejaculate. It can also be transmitted via organ transplantation, hemodialysis, and prenatally [4].

Occult HBV infection, is defined as the existence of HBV-DNA in the blood serum, cells and tissue of hepatic and the lymphatic (immune) system, in the absence of serum HBsAg[3].

Most frequently occult HBV infection follows resolution of acute hepatitis and continues indefinitely after clearance of HBsAg and biochemical improvement in liver function [4]. Serological testing in occult HBV infection normally reveals the presence of anti-HBc, which are now recognized not only as available marker of prior exposure to HBV but also as an indicator suggestive of actually progressing occult HBV infection[5].

According to recent studies that up to 20% of individuals with occult HBV carriage evidenced by HBV-DNA detection could be non-reactive for anti-HBc or any other serological indicator of exposure to HBV. It is to be noted that the detection of naturally

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

acquired antibodies to HBsAg (anti-HBs) does not exclude the existence of occult infection [6].

In Libya many studies on occult HBV were performed on blood donors in different region of the country with different study samples [7, 8, 9, 10, 11]. However, the present study is to estimate the occurrence of occult HBV infection among people, seeking pre-employment viral checkup in Tripoli.

Objectives: To identify and estimate the frequency of occult HBV infections among selected individuals for employment in Tripoli, Libya.

MATERIALS AND METHODS

Study design, site and population

Blood samples were obtained from 400 individuals who were initially selected for employment in Tripoli. The Saint James Hospital was the site for pre-employment health checkup for these 400 selected individuals. Samples were analyzed for HBsAg and anti-HBc antibody alone or in combination with anti-HBs (anti-HBs < 10 mIU/ml) were investigated further for the presence of HBV-DNA by PCR.

Data was analyzed using SPSS computer software (Version 19, SPSS Inc.). Variables in the study such as, age, gender and nationality were examined. Data was compiled and compared to previous studies from Libya and some regional & international countries.

Molecular and biochemical Analysis

Equipments used in Serological Analysis

HBsAg screening was performed using an automated Enzyme Linked Immunosorbent Assay (ELISA). (Dialab®). And anti-HBc and anti-HBs was performed using Chemilluminescent Enzyme Immuno assay using Immulite 1000 system (A full-automated apparatus).

HBV-DNA by Real Time PCR; DNA extraction was performed using (Robo-Gene HBV Quantification Kit Germany). HBV Genotyping was performed using INNO-LIPA technique (INNOGENETICS N.V. Germany).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Blood serum samples analyzed by ELISA:

Hepatitis B surface antigen.

The study included 400 cases to be evaluated for HBV infections by ELISA. All found to be HBsAg negative healthy individuals who attended Saint James laboratory to perform routine pre-employment viral checkup.

Total hepatitis B core antibodies (anti-HBc):

Sixty seven (67) samples show anti-HBc positive results (which is tested by duplicate ELISA serology and confirmed by chemiluminescent immunoassay), giving an overall prevalence of 16.8% for anti-HBc antibody.

Anti-HBs by chemiluminescent immunoassay:

All anti-HBc positive samples (67) were tested for anti-HBs by Immulite automated system (chemiluminescent immunoassay) all 67 were positive.

HBV-DNA screening by Real time PCR:

All 67 samples that were anti-HBc positive, again all these positive sample tested with the quantitative real –time PCR. Three samples were found to be HBV-DNA positive. The occurrence of HBV-DNA positive samples in anti-HBc positive cases (67) represented a percentage of 4.5%.

HBV-Genotyping:

The three samples HBV- DNA positive by Real Time PCR were further genotyped by INNO-LIPA HBV Genotyping protocol and all the three samples gave no result as the quantity of the samples DNA were insufficient.

RESULT:

The 400 samples were evaluated for HBV infections. All the samples stands HBsAg negative based on ELISA. All these healthy individuals attended Saint James laboratory to perform routine pre-employment viral checkup

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Later, all 400 samples were analyzed again for anti-HBc. It is found that 67 samples were positive by indicating 16.8% prevalence of anti-HBc positive cases among tested individuals. Again for more confirmation all 67 Anti-HBc positive samples were analyzed with the quantitative real-time PCR. Three samples out of 67 samples from this analysis were found to be HBV-DNA positive, which was calculated and found to be 4.5%.

DISCUSSION

The HBsAg detection is the common diagnostic procedure for screening HBV infection and is routinely conducted during pre-employment checkup in Libya. Our HBV screening investigations for 400 individual have shown zero percent HBsAg positive. But all that negative samples did not show negative for anti HBc antibody. Our investigations observed 16.8% anti-HBc positive cases i.e 67 individual were anti-HBc positive out of 400 HBsAg negative samples. The percentage rates of anti-HBc positive cases among HBsAg negative cases are found to be very high in our investigation report i.e 16.8% in comparison to other similar study reported in the world with different endemic areas of HBV infection such as in Egypt, 10.96% anti HBc positive cases were detected [12] among HBsAg negative individuals. In Italy 4.85% anti HBc positive [13] were detected, and some similar report also found in Libya where samples were from blood donors[7, 8, 9, 10, 11]. The tendency of high prevalence of HBc positive were also observed in some other country such as Oman, (20.5%) [14], in Spain (21.8%) [15], in Japan (27.7%) [16].

In another line of investigation we have investigated that about 4.5% HBV-DNA positive i.e 3 HBV-DNA positive out of 67 HBc positive cases and 64 were found to be HBV-DNA negative. The percentages of HBV- DNA positive (4.5 %) in Libya is found to be less than Egypt that is found to be 11.54% [12]. This investigation clearly indicated that some individual possessed active HBV-DNA in their blood and may be a potential source of HBV infection.

Farther we try to identify the genotypes of HBV-DNA positive samples by using INNO-LIPA Genotyping protocol. But we failed to detect their genotypes due to insufficient amount of DNA to perform this test.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

CONCLUSION

The breakthrough of pre-employment health checkup was significant events. The result may indicate an acute or chronic infection. In some patients anti-HBc may be the only serological marker for the detection of past infection in patients with chronic inactive HBV. A proportion of pre-employment individuals with HBV-DNA in their blood and may be a potential source of HBV infection. The implementation of anti-HBc and PCR analysis in healthy people for viral infection screening would help to detect HBV carriers, and will improve the pre-employment test protocol.

REFERENCES

Kenneth,WL., Jeffrey,TK. 2004. Hepatitis B. American Family Physician 69: 75. *(Online Journal). www.aafp.org/afp* . Accessed on 20 March 2008.

Michalak,TI., Pham,TNQ., Mulrooney, PM. 2007. Molecular diagnosis of occult hepatitis C and hepatitis B virus infection. *Future Virol* 2:451-465.

Schaefer, S. 2005. Hepatitis B virus: significance of genotypes. *J. ViralHepat.* 12:111–124.

Lyerla R. 1998. preventing the spread of hepatitis B. Corrections Today. p. 60.

Perz,F., Armstrong,G . 2006. The contributions of hepatitis B virus and hepatitis C virus infections to cirrhosis and primary liver cancer worldwide. *J. Hepatol.* 45:529–538.

Seeger, C., Mason,W. 2000. Hepatitis B virus Microbiology and Molecular Biology Review, 64: 51-68.

Faisal Ismail et al (2009). 2nd Infectious and Endemic Diseases Scientific Conference organized by the Libyan National Centre for Infectious Diseases Prevention & Control, May 15-18 2009, Tripoli, Libya

Faisal Ismail et al. (2010) Serological and Molecular Characterization of Total Hepatitis B Core Antibodies in Blood Donors in Tripoli, Libya. The Libyan Journal of Infectious Diseases. Vol. 4 No. 1

M. KaledShambesh, E. Franka, F. Ismail, N. Gebril K. Azabi: Significance of Screening Anti-HBc Among Libyan Blood Donor: A Preliminary Study. BBTS Annual Conference 2014, Harrogate Convention Centre; 09/2014

Mohamed Shambesh, EzzadinFranka, Faisal Ismail, NagiGebril, KamelAzabi, FatmaAmar(2015): Anti-HBc and HBV-DNA among Blood Donors in North Africa; Western Libya. International Blood Research & Reviews 3(4):152-159. DOI:10.9734/IBRR/2015/18364

Mohamed Kaled A. Shambesh, EzzadinAreafFranka, Faisal Fathalla Ismail and Malik AbdurrazagElosta.(2016) Occult Hepatitis B Virus Infection among Blood Donors; North Middle Libya. International Blood Research &Reviews, ISSN: 2321-7219,Vol.:6, Issue: 2

El-Zayadi, AR., Ibrahim,EH., Badran,HM., Shemis,MA. 2008. Anti –HBc screening in Egyptian blood donors reduces the risk of hepatitis B virus transmission. *J. Hepatol.* 18(1) : 55-61.

Paola, M., Mauro,G., Raffaele, B. 2007. Italian blood donors with anti-HBc and occult hepatitis B virus infection. *Haematology Journal.* 92(12):1664-1670.

Kaminski,G., Alnaqdy,A., Nograles,J. 2006. Evidence of occult hepatitis B virus infection among omani blood donors. *Med PrincPract* . 15(5):368-72.

Zhang Y-Y., Hansson, B.G., Kuo, L.S., Widell, A., Nordenfelt, E.1993. Hepatitis B virus DNA in serum and liver is commonly found in Chinese patients with chronic liver disease despite the presence of antibodies to HBsAg. Hepatology .17: 538–544.

Marusawa, H., Osaki, Y., Kimura, T. 1999. High prevalence of anti-hepatitis B virus serological markers in patients with hepatitis C virus related chronic liver disease in Japan. *Gut*. 45: 284–288

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Value of skin biopsy as a diagnostic procedure in dermatology in Benghazi, Libya

Safa Elfaituri, Ibtisam Elmangoush. Dermatology Department, Medical faculty, Benghazi University. Fatma Emaetig. Pathology Department, Medical faculty, Benghazi University

Abstract:

Introduction & objectives: The diagnosis of skin diseases is based primarily on clinical information. However, the clinical diagnosis of skin diseases may be challenging, as the clinical information and appearance of skin lesions invariably overlap. Evidence for a correct diagnosis may be lacking without histopathologic examination.

The role of dermatopathology has expanded in the past decades from routine histology to involve immunopathology, ultrastructural, and molecular biological techniques.

The aim of this study was to test the value of skin biopsy as a diagnostic procedure in the final diagnosis of variable skin disorders in Benghazi, Libya.

Materials and Methods: Over a period of 4 years; 200 patients were seen by consultant dermatologists in Jumhoria hospital skin department-Benghazi, Libya, for them a skin biopsy was performed to establish the diagnosis. Specimens were subjected to routine histopathological examinations by general pathologists then reviewed clinically and pathologically by the dermatologist. There was a direct communication between the dermatologist and pathologist to obtain final diagnosis after clinicopathological correlation and to plan for further workup.

Results: Pathological diagnosis was consistent with one of the clinical differential diagnoses in 82%, gave a new diagnosis in 6% and was non-diagnostic in 12 %. After clinicopathological reviewing of the cases; concordance between pathological and final diagnosis occurred in 58% whereas clinicopathological correlation gave the diagnosis in 18%. In 24% further investigations were required; special stains were needed in 7 %, immunofluorescent studies in 9%, electron microscopy in 2%, immunohistochemistry in 6% and molecular biological technique was required in 3 %.

Conclusions:

Dermatopathology is one of the most powerful diagnostic tools in clinical dermatology, considering the clinicopathologic correlation as a crucial step in the diagnostic process.

Dermatopathology must be coupled with other techniques as immunofluorescence, immunohistochemistry, electron microscopy and molecular pathology to make the exact diagnosis of some skin diseases.

Introduction and objectives:

Although most skin diseases can be diagnosed with simple visual inspection, the clinical appearance of skin lesions may overlap mandating skin biopsy and histopathologic examination. (1)

The dermatologist is responsible for obtaining the biopsy and submitting it to the pathology laboratory together with clinical information and clinical differential diagnoses, (2-5) where

microscopic examination, description and interpretation of skin biopsy carried out by a pathologist. The dermatologist has to interpret the histological report and put it in a clinical context. The integration of clinical information in conjunction with the pathological findings plays an important role in the diagnosis of many skin disorders (3, 7). However, in other situation it may not be possible to differentiate entities with overlapping clinical and histopathological features. Immunofluorescence,immunohistochemistry, electron microscopy and molecular pathology may be essential techniques providing a useful diagnostic aid for definitive diagnosis of such skin diseases. (5, 6)

The aim of this study was to test the value of skin biopsy as a diagnostic procedure in the final diagnosis of variable skin disorders in Benghazi, Libya.

Materials and Methods:

Over a period of 4 years; 200 patients were seen by consultant dermatologists in Jumhori hospital skin department-Benghazi, Libya, for them a skin biopsy was performed to establish the diagnosis. Clinical differential diagnoses along with a brief history and clinical description was provided with the request of histopathology.

Skin specimens were subjected to histopathological examinations by randomly selected general pathologists; the specimens were processed and then stained with Haematoxylin and Eosin. Special stains were used when requested and available to identify agents causing the condition (e.g. fungi) or specific substances deposited in the skin (e.g. amyloid).

All histological specimens were reviewed by the dermatologist. There was a direct communication between the dermatologist and pathologist for discussion to obtain final diagnosis after clinicopathological correlation and to plan for further workup and special tests if required like immunohistochemistry, immunofluorescence and PCR .

Results:

Two hundred cases were studied clinically and pathologically. They included various skin disorders; inflammatory and neoplastic. (Table 1)

Pathological diagnosis matched one of the clinical differential diagnoses in 82%, gave a new diagnosis in 6% and was non-diagnostic in 12 %. (Figure 1)

Out of the 12% where the histopathological reports were non-diagnostic; the histopathology of 5% could only provide a pattern analysis; as granulomatous and interface lichnoid reaction and in 7% only a descriptive report with non-specific features had been issued. After clinicopathological reviewing of the cases; definite final diagnosis could be sited in 76%; concordance between pathological and final diagnosis occurred in 58% whereas clinicopathological correlation gave the diagnosis in 18%.

Out of the 6% new pathological diagnosis, only 1% was accepted.

Figure 2 demonstrate the results after clinicopathological correlation and special tests.

Reaching definite diagnoses in 24% were not possible without certain technique; special stains were needed in 7 %, immunofluorescent studies in 9%, electron microscopy in 2%, immunohistochemistry in 6% and molecular biological technique was required in 3 %. (Figure 3)

Unfortunately these diagnostic tests were not available in Benghazi pathological laboratories, special stain was done for 2%, IHC for 1%, whereas in the remaining 21% we could not sit a final diagnosis due to the unavailability of the required techniques.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Category:	Diseases:	Cases number:
Papulosquamous	Lichen planus	23
	Psoriasis	14
	Pityriasis rosea	2
	Pityriasis rubra pilaris	3
Dermatitis	Contact dermatitis	2
	Discoid eczema	2
	Nodular prurigo	5
	Stasis dermatitis	1
Neoplasia	Basal cell carcinoma	7
	Squamous cell carcinoma	2
	Kaposi sarcoma	1
Pilosebaceous diseases	Rosacea	7
	Demodex infection	4
	Acne	2
	Lupus milari dissaminatus facii	1
Benign tumours	Seborrheic keratoses	3
	Syringoma	3
	leomyoma	1
Vascular	Vasculitis	5
	Pigmented purpura	1
	Purpur fulminans	1
Connective tissue	Scleroderma	1
	Lupus erythematosus	8
Infections	Scabies	4
	Leishmania	2
Pigment disorders	Ashy dermatosis	2

2017/ 1/30م

جامعة طرابلس
كلية الطب

	Post inflammatory.	2
	Lentigo	2
	Beckers melanosis	1
	Reticulate pigmentation	2
Miscellaneous	Xanthogranuloma	5
	Perforating collagenosis	9
	Others	29
Further investigations needed for final diagnosis		42
Total		200

Table 1: Various skin disorder seen in the study
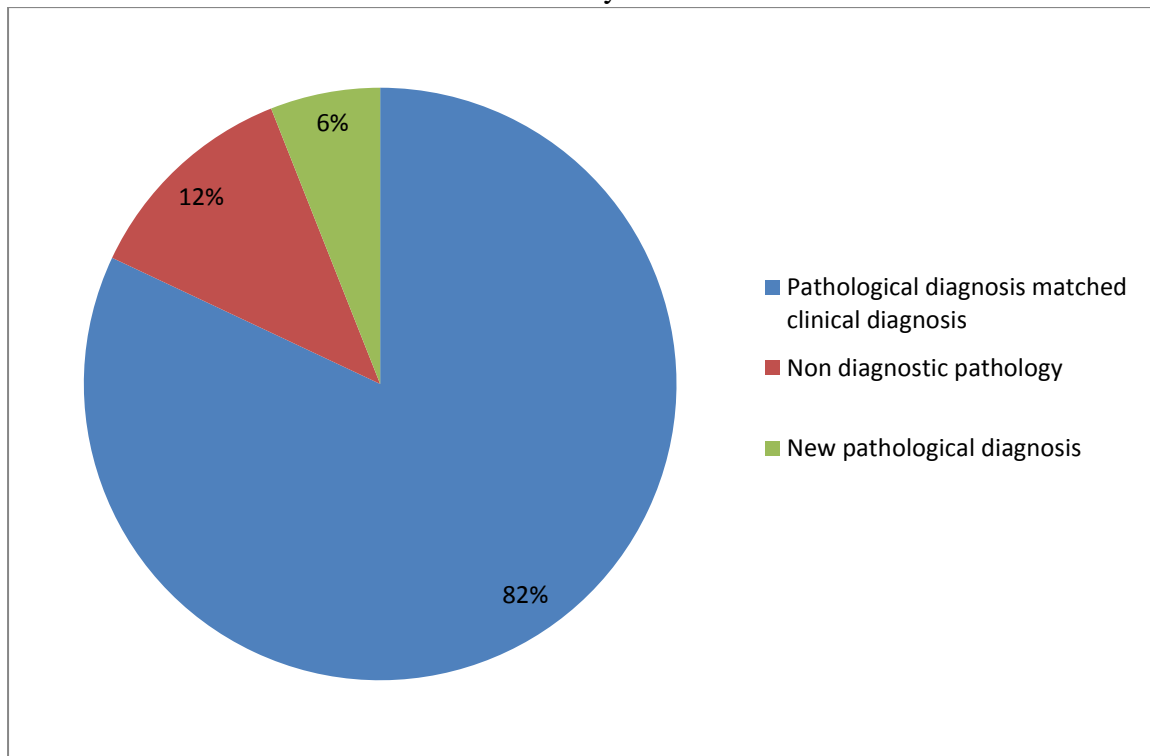
Figure 1: Initial histopathological outcome of the 200 skin biopsies.
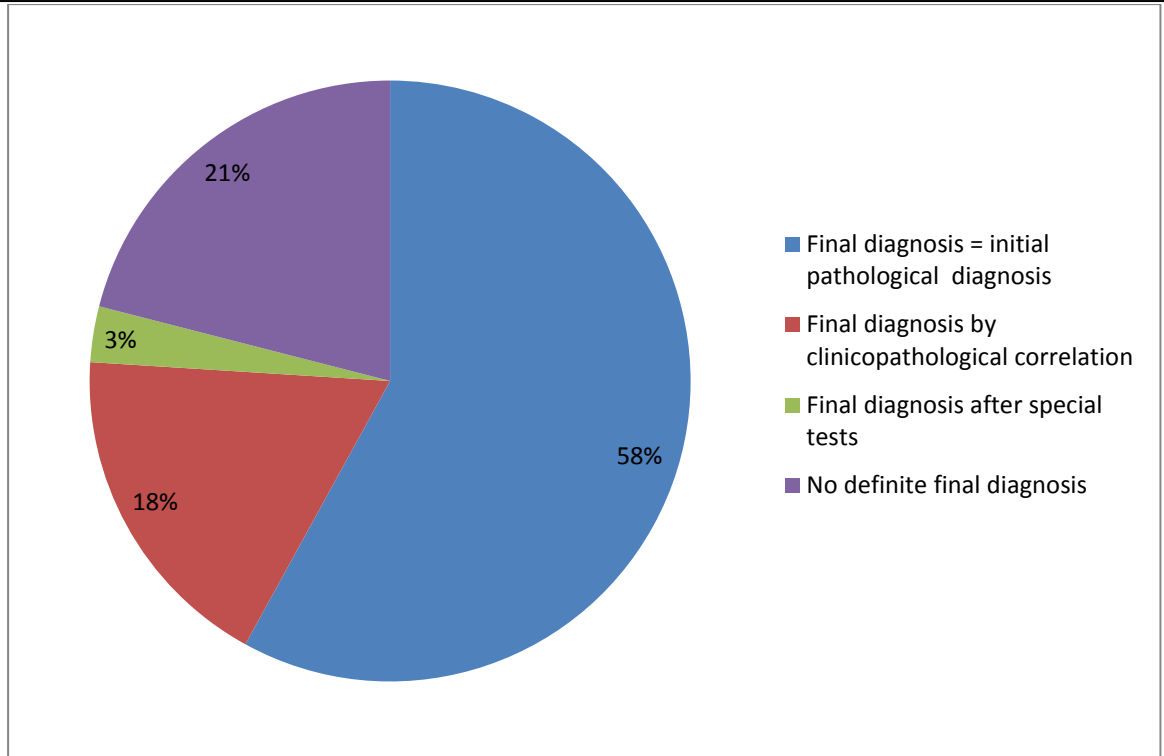
Figure 2: Results in figure 1 after clinicopathological correlation and special tests.
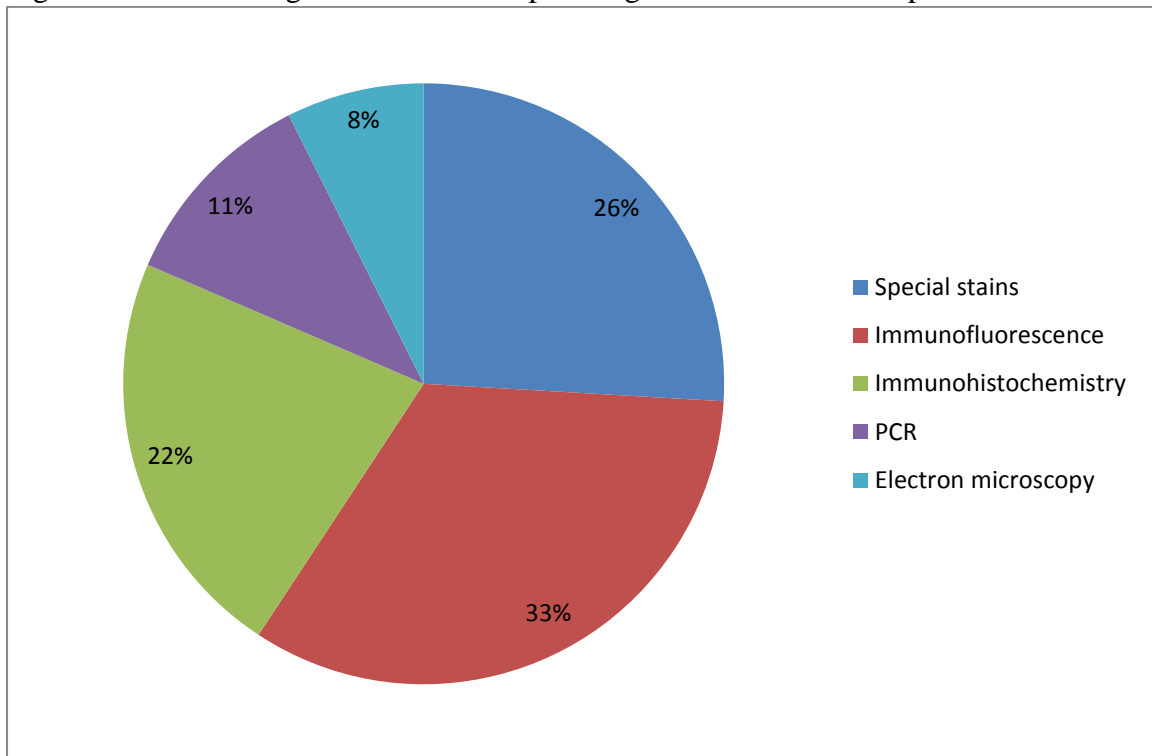
Figure 3: Techniques needed to reach definite diagnoses.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
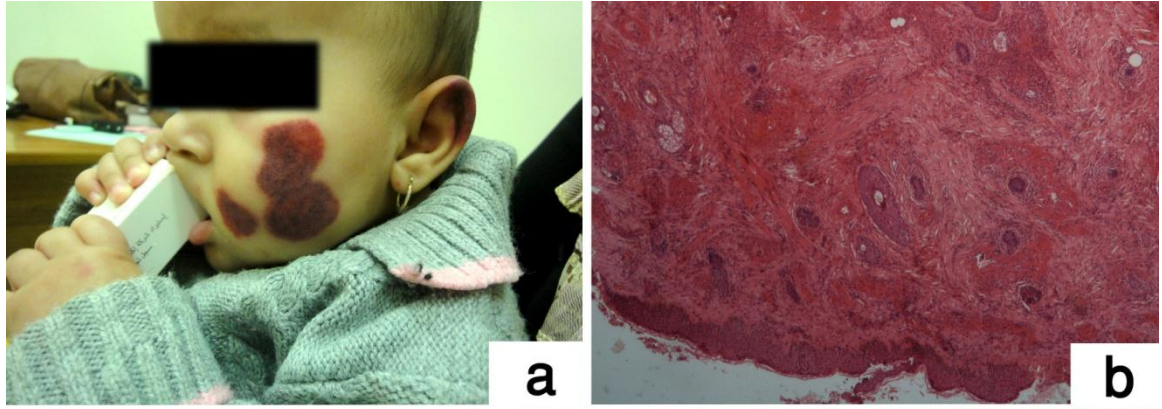
Figure 4: A case with a final diagnosis matches pathological diagnosis
(a) Clinical diagnosis was hemorrhgic oedema of infancy. (b) Histopathology was vasculitis
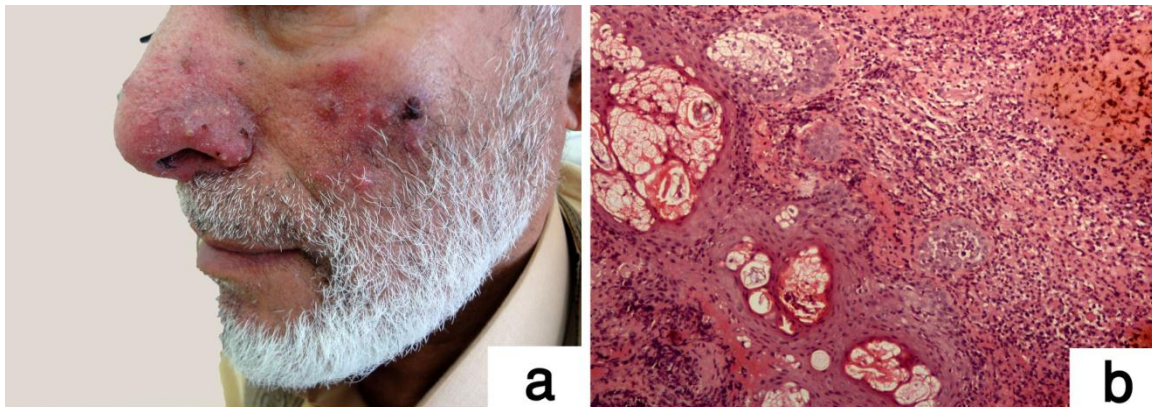
Figure 5: A case where final diagnosis reached by clinicopathological correlation
(a) Clinical diagnosis was rosacea. (b) pathology was non specific inflammation.
After correlation, final diagnosis was Demodicidosis.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
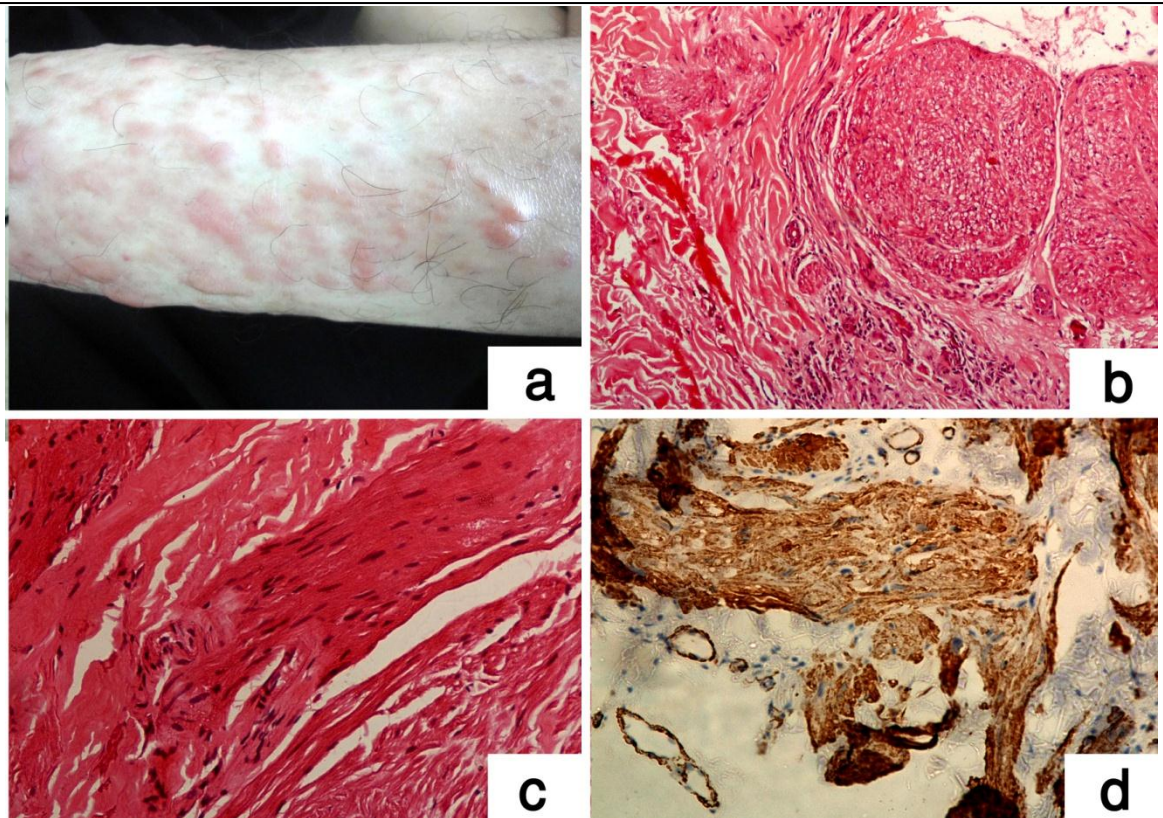
Figure 6: A case where final diagnosis was confirmed by immunohistochemistry.
(a) Clinical diagnosis was leiomyoma. (b& c) smooth muscle bundles cutted transversely and longitudinally. (d) Immunohistochemical stains show the tumor is positive for smooth muscle actin, Final Diagnosis was leiomyoma

Discussion:

The skin biopsy is the most important single diagnostic technique in dermatology. It plays a significant role in the diagnosis of cutaneous tumors as well as inflammatory skin diseases. (5, 8, 9, 10)

In this study 200 cases were studied clinically and pathologically. They included various skin disorders; inflammatory and neoplastic. Our results showed that clinicopathological concordance between submitting clinician and biopsy results occurred in 82% but after clinicopathologic correlation concordance between biopsy result and final diagnosis occurred in only 58%. The histological diagnosis of cutaneous diseases can be confusing, even for the most experienced pathologist and the initial pathological report may be incorrect because many diverse inflammatory skin diseases share the same basic inflammatory process. In view of this complexity and commonality, many histopathological reports used the term consistent with rather than confirming a specific diagnosis. (10) The histopathologist was not able to confirm the clinical diagnosis offered by the dermatologist or to provide a specific diagnosis in 12%, in 7% only a descriptive report could be issued, this could be due to unsuitable site, technique or time of skin biopsy (1) or visible changes may be non-characteristic and may not permit a diagnosis. (4,5) The histopathology of the remaining 5% describe only the pattern; as granulomatous and interface lichnoid reaction as many diverse inflammatory skin diseases

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

share the same basic pattern, and the difference between two conditions can be very subtle because the skin responds to numerous and diverse kinds of injury in a few limited ways.(10)

Based on histopathological picture, the pathologist gave a new diagnosis which was not considered clinically in 6%; after clinical-pathological correlation, the dermatologist accept the pathological diagnosis as final diagnosis in two cases but other initial pathological diagnoses were rejected as they were away from the clinical context. This emphasizes the limitations of pure histological diagnostics and the importance of clinical-histological correlation as a crucial step in the diagnostic process. (5, 8, 10)

Our study showed that in 18%, the final diagnosis obtained only after clinicopathological correlation. Several studies tested the value of clinicopathologic correlation in the histopathologic diagnosis of skin disorders including Cerroni L .etal., Kutzner H. etal. Massone et al. and Berman B etal. Studies , they concluded that the precision of a microscopic diagnosis is significantly increased by thorough knowledge of the clinical information. (11,12,13,14)

Although the majority of skin biopsies are successfully processed using formalin fixation and stained with haematoxylin & eosin, occasionally special stains are required for the diagnosis. These stains include Ziehl-Neelsen for mycobacteria, gram stain for bacteria, Verhoeff-van Gieson staining for elastic and collagen fibers and Congo red to detect amyloidosis.(15) In this study special stains were required in 7% of the specimens, in many occasions they were not available, Giemsa stain was done for 4 patients. Although the pathological pattern may be suggestive for diagnosis for example the granulomatous pattern is consisting with mycobacterial infection, deep fungal as well as leishmania infection, identification of the organism is mandatory for diagnosis and starting suitable therapy. The diagnostic value of dermatopathology in the past decades was enhanced by techniques as immunofluorescence, immunohistochemistry, electron microscopy and molecular pathology. These techniques are expensive and require an experienced staff (10, 16) The direct immunofluorescence (IF) is a method of determining the location of antigen or antibody in a tissue section by the pattern of fluorescence resulting when the specimen is exposed to the specific antibody or antigen labeled with a fluorochrome. It is rapid and reliable techniques and it has extensively developed and applied widely in recent years to support clinical and pathological diagnosis of vesiculo - bullous diseases, connective tissue disorders and vasculitides. (17, 18, 19) Pathology labs in Benghazi lack immunopathology techniques which was needed for diagnosis of 9% of cases, majority were vesiculo - bullous diseases.

Immunohistochemical (IHC) or the use of immunostaining of cellular antigen to detect abnormal cells is very helpful tool in diagnosing various malignant tumors, especially lymphoma and melanoma. There has been a wide expansion in this field and many newly cellular markers were detected. (20) In this study IHC was required for diagnosis in 12 cases; 2 cases was done including leiomyoma and kaposi sarcoma as their IHC was available. Diagnosis of other diseases as lymphoma, histiocytosis, neurofibroma, dermatofibrosarcoma could not be confirmed as their IHC markers were not available.

Ultrastructure study by electron microscopy may be helpful in certain diseases as mycosis fungoides, and histiocytosis. (10) Absence of facility for ultrastructure studies in our pathology labs made definite diagnosis impossible in 2% .

The new technology, polymerase chain reaction (PCR), use chemical reaction to amplify DNA, either fragmented or intact. A defined DNA fragment can be amplified a million fold in a few hours and DNA can be amplified from fixed pathologic specimens. (21) PCR based molecular techniques has a substantial role in the diagnosis of infectious processes in dermatopathology. (16, 22) PCR was required for diagnosis of 3 % of our specimens. Unavailability of PCR testing of skin specimens, had made the diagnosis and management of such cases difficult.

IF, IHC and PCR assays have the great potential to provide important new information to challenging cases, and help to improve diagnostic accuracy particularly in cases in which conventional histopathology is ambiguous. (23) Absence of these ancillary methods in Benghazi pathology labs have reduced the diagnostic value of dermatopathology.

Conclusions:

Dermatopathology is one of the most powerful diagnostic tools in clinical dermatology, considering the clinicopathologic correlation as a crucial step in the diagnostic process. Dermatopathology must be coupled with other essential techniques as immunofluorescence, immunohistochemistry, electron microscopy and molecular pathology to make the exact diagnosis of some skin diseases.

Recommendation: Given the importance of IF, IHC, PCR examination of skin biopsies , it is very important to create these facilities in pathology laboratories in Benghazi. This will greatly improve confidence in diagnosis of various cutaneous disorders, and there by also improve therapy and finally outcome in these conditions.

References:

1. Sina B, Kao GF, Deng AC, etal. Skin biopsy for inflammatory and common neoplastic skin diseases: optimum time, best location and preferred techniques. A critical review.J Cutan Pathol. 2009; 36(5):505-10.

2. Rajaratnam R, Smith AG, Biswas A, etal. The value of skin biopsy in inflammatory dermatoses. Am J Dermatopathol. 2009; 31(4):350-3.

3. Metze D. From skin biopsy to diagnosis. Hautarzt. 2007 Sep; 58(9):735-45.

4. Anderson EB, Draft KS, Lee RA, etal. Update in dermatopathology. Am J Clin Pathol. 2006; 125 Suppl: S50-70.

5. Kerl H, Cerio R, Burg G,etal . Dermatopathology .European Journal of Dermatology. 2009; 19(5) 536-7

6. Yung A. Dermatopathology. DermNet NZ. ©2222 2011 NZDSI

7. Brinster NK. Dermatopathology for the surgical pathologist: a pattern based approach to the diagnosis of inflammatory skin disorders (part I). Adv Anat Pathol. 2008; 15(2):76-96.

8. Kerl H, Stadler R. Dermatopathology in German-speaking Europe. Developments and perspectives. Hautarzt. 2007 Sep; 58(9):730-4.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

9. Megahed M, Kind P, Schaller J. Dermatohistology laboratory. Hautarzt. 2006; 57(9):792-800.

10. Alsaad KO, Ghazarian D. My approach to superficial inflammatory dermatoses. J Clin Pathol. 2005; 58(12): 1233–1241.

11.Cerroni L, Argenyi Z, Cerio R, etal. Influence of evaluation of clinical pictures on the histopathologic diagnosis of inflammatory skin disorders. J Am Acad Dermatol. 2010 Oct; 63(4):647-52.

12. Kutzner H, Kempf W, Schärer L, etal. Optimizing dermatopathologic diagnosis with digital photography and internet. The significance of clinicopathologic correlation. Hautarzt. 2007 Sep; 58(9):760-8.

13. Massone C, Soyer HP, Lozzi GP, et al. Feasibility and diagnostic agreement in teledermatopathology using a virtual slide system. HumPathol 2007; 38:546-54.

14. Berman B, Elgart GW, Burdick AE. Dermatopathology via a stillimage telemedicine system: diagnostic concordance with direct microscopy. Telemed J 1997; 3:27-32.

15. Hiatt K M, Smoller B R. Special Stains in Dermatopathology. Dermatopathology: The Basics 2009, pp 63-73

16.Ruocco E1, Baroni A, Donnarumma G., etal. Diagnostic procedures in dermatology. Clin Dermatol. 2011; 29(5):548-56

17. Arvind Babu R S, Chandrasekar P, Chandra K L, etal. Immunofluorescence and its application in dermatopathology with oral manifestations: Revisited. J Orofac Sci 2013;5:2-8

18. Chhabra S, Minz RW, Saikia B. Immunofluorescence in dermatology. Indian J Dermatol Venereol Leprol 2012;78:677-91

19. Huilgol S C, Bhogal B S, Black M M. Immunofluorescence of the immunobullous disorders part one : Methodology. Indian J Dermatol Venereol Leprol 1995;61:187-95

20. Palit A, Inamadar A C. Immunohistochemistry: relevance in dermatology. Indian J Dermatol. 2011; 56(6): 629–640.

21. Penneys N S, Leonardi C.. Polymerase chain reaction: relevance for dermatopathology Journal of Cutaneous Pathology. 1991; 18(1): 3–7

22. Swick BL. Polymerase chain reaction-based molecular diagnosis of cutaneous infections in dermatopathology. Semin Cutan Med Surg. 2012;31(4):241-6.

23. Braun-Falco M1, Schempp W, Weyers W. Molecular diagnosis in dermatopathology: what makes sense, and what doesn't. Exp Dermatol. 2009 ;18(1):12-23

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Extra Pulmonary Tuberculosis And Pulmonary Tuberculosis With Other Pathology Among Al-Kwafia Tb Hospital In The City Of Benghazi 2000-2007

Saleh Ahmed Mursi* and Jassim Al-Ajzan**

ABSTRACT

Background   Extra pulmonary Tuberculosis and other pathology accompanied TB of the lung were recorded in different studies in other countries.

Method   Depend on data for TB patients attended Al-Kwafia TB Hospital in the city of Benghazi during 2000-2007.

Results   10.7% of the Lung TB cases with other diseases more in the city of Benghazi and among non-Libyan patients. The main diseases accompanied TB Lung are pleural effusion, AIDS and hepatitis B.

ConclusionThe findings of extrapulmonary tuberculosis in this study are less than the finding in other study in other countries.

Keywords: Extrapulmonary TB, Pulmonary TB with other Pathology.

Introduction

Tuberculosis is re-emerging disease. Current estimate suggest between 2002-2020 1000 million people will become newly infected and 150 million will contact the disease and 36 million will die[1]. The majority of these cases are likely to occur in the world's poorest nation.

Extrapulmonary TB account for about 20% of all cases. The most common sites affected are lymph nodes, bone sites and serous membrane but the most serious form of spread are disseminated TB and TB meningitis[2]. Tuberculosis is one of the main causes of pleural effusion with exudates type of fluid which is usually amber in colour[2].

TB meningitis was common in developing countries and is seen more frequently as a secondary infection in patients with AIDS[3]. TB has become the leading cause of death among people with HIV while infection with HIV is the most potent risk factor a latent TB infection[4].

It is estimated that the incidence of hepatitis surface antigen among TB patients was higher than internal clinic[5].

Material and Methods

Data for all TB patients admitted to Al-Kwafia TB Hospital during 2000-2007, the data analyzed according to sex, age, place of living, site of tuberculosis and the presence of other pathology.

Results

10.7% of all lung TB cases with other diseases (Table 1, Fig. 1). 11.5% among Libyan patients and 9% among non-Libyan patients (Table 2 and Table 3).

The ratio of TB cases with other diseases in the city of Benghazi to those patients lived outside the city of Benghazi was 1.8% (Table 4, Fig. 4).

The main diseases accompany TB of the lung among Libyan and non-Libyan patient (Table 5 & 6, Fig. 5 & 6) were:

TB other then lung tissue among Libyan patients was 52.2% and 30.25% among non-Libyan patients.

TB with pleural effusion was 20% among Libyan patients and 18.6% among non-Libyan patients.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

TB with AIDS was 13.3% among Libyan patients and 30.25% among non-Libyan patients.

TB with hepatitis B was 5.6% among Libyan patient and 11.6% among non-Libyan patients.

TB with hepatitis C was 3.35% among Libyan patients and 9.3% among non-Libyan patients.

The ratio of TB cases with other disease among male Libyan patients to non-Libyan male patients was 1.28% (Table 7, Fig. 7).

The ratio of TB cases with other diseases among female Libyan patients to non-Libyan female patients was 3.4% (Table 7).

The main age group with other diseases in addition to lung TB both in males and females patients as 26-45 years (Fig. 8 & Fig. 9).

Table 1 & Fig. 1: Registered TB cases in and out the city of Benghazi during 2000-2007 in Al-Kwafia TB Hospital in the city of Benghazi

Ser. No.	Type	No.	Percentage
	All lung TB only among Libyan and non-Libyan patients	2212	89.3
	Lung TB with other diseases among Libyan and non-Libyan patients	266	10.7
Total		2478	100

Figure 1

www.uot.edu.ly

2017/ 1/30م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
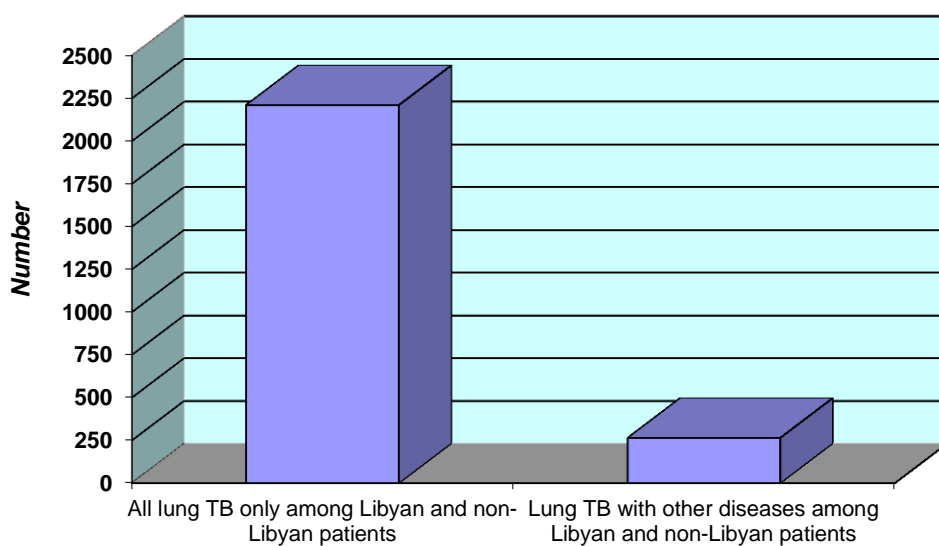
Table 2 & Fig. 2: Registered TB cases among Libyan patients in and out the city of Benghazi during 2000-2007 in Al-Kwafia TB Hospital in the city of Benghazi

Ser. No.	Type	No.	Percentage
	Lung TB only among Libyan patients	690	88.5
	Lung TB with other diseases among	90	11.5
Total		780	100
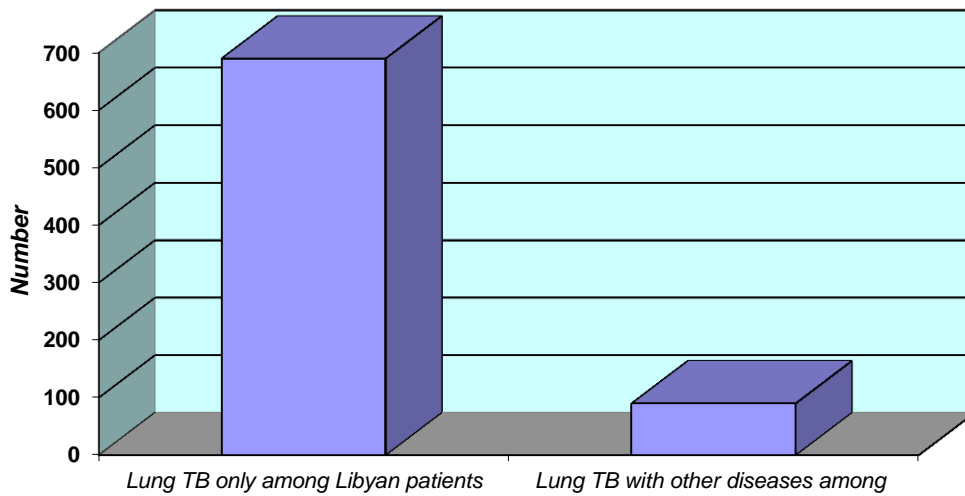
Figure 2

Table 3 & Fig. 3: Registered TB cases among non-Libyan patients in and out the city of Benghazi during 2000-2007 in Al-Kwafia TB Hospital in the city of Benghazi

Ser. No.	Type	No.	Percentage
	Lung TB only among non-Libyan patients	416	90.6
	Lung TB with other diseases among non-Libyan patients	43	9.14
Total		459	100

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
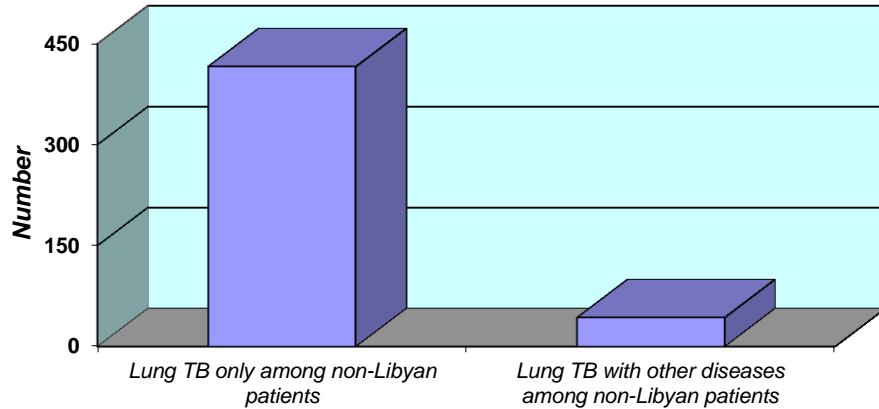
Figure 3

Table 4 & Fig. 4: Registered TB cases with other disease in and out the city of Benghazi during 2000-2007 in Al-Kwafia TB Hospital in the city of Benghazi

Ser. No.	Type	No.	Percentage	Ratio
	TB cases with other lung diseases in the city of Benghazi	86	64.7	
	TB cases with other lung diseases outside the city of Benghazi	47	35.8	1.8
Total		133	100	

Figure 4

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
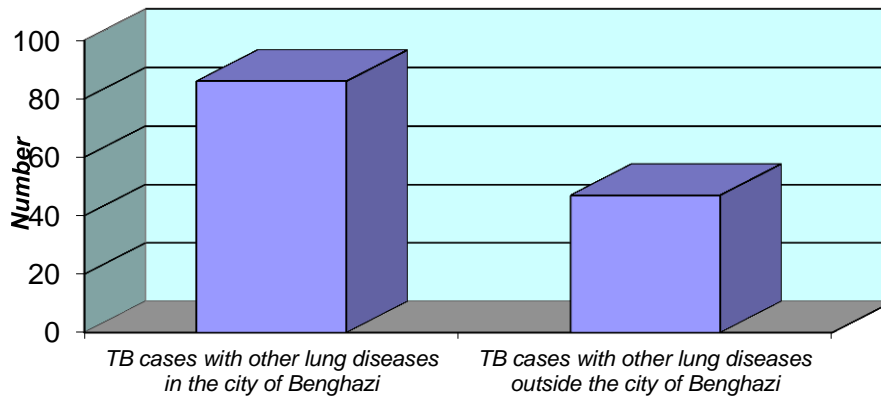
Table 5 & Fig. 5: Registered diseases accompany TB Lung among Libyan patients (males and females) in and out the city of Benghazi during 2000-2007 in Al-Kwafia TB Hospital in the city of Benghazi

Ser. No.	Type	No.	Percentage
	TB outside lung tissue	47	52.2
	TB + pleural effusion	18	20
	TB + AIDS	12	13.3
	TB + Hepatitis B	5	5.6
	TB + Tumour	4	4.45
	TB + Hepatitis C	3	3.35
	TB + Asthma	1	1.1
Total		90	100

Figure 5

2017 /1/30م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
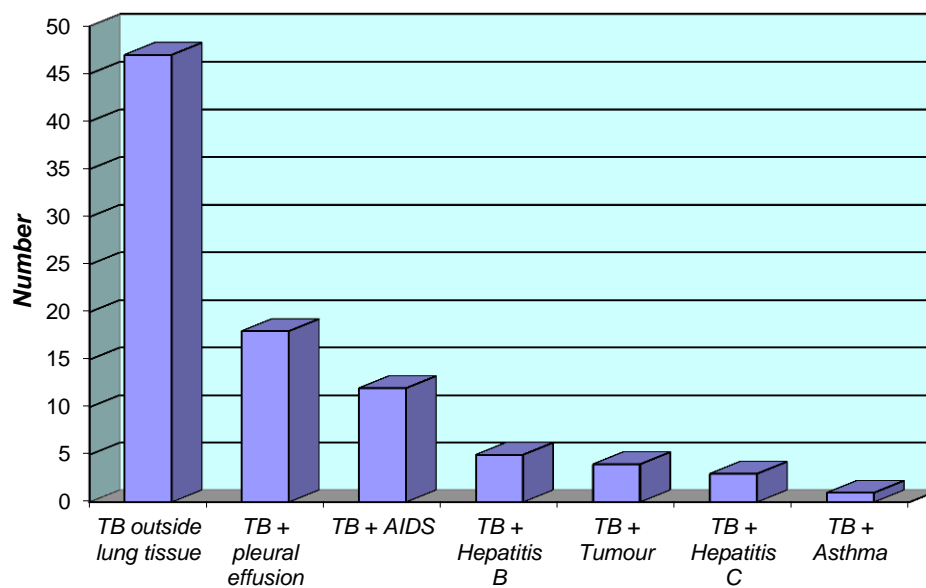
Table 6 & Fig. 6: Registered diseases accompany TB Lung among Libyan patients (males and females) in and out the city of Benghazi during 2000-2007 in Al-Kwafia TB Hospital in the city of Benghazi

Ser. No.	Type	No.	Percentage
	TB outside lung tissue	13	30.25
	TB + AIDS	13	30.25
	TB + Pleural effusion	8	18.6
	TB + Hepatitis B	5	11.6
	TB + Hepatitis C	4	9.3
Total		43	100
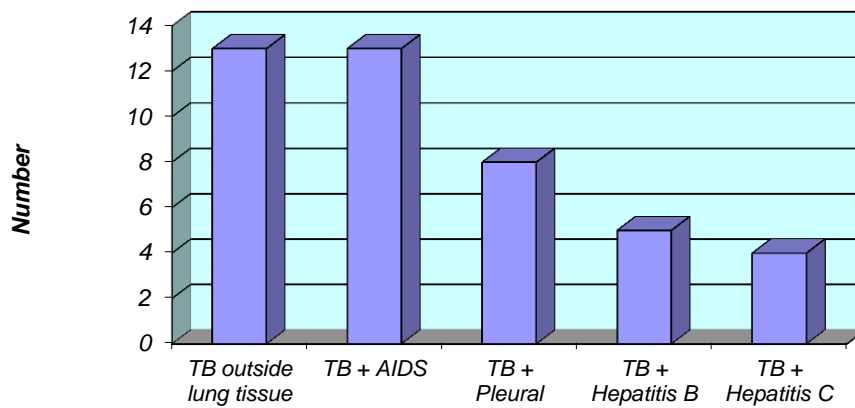
Figure 6

Table 7 & Fig. 7: Registered diseases other than Lung TB in some male and female patients among Libyan and non-Libyan in and out the city of Benghazi during 2000-2007 in Al-Kwafia TB Hospital in the city of Benghazi

Ser. No.	Type	Male			Female		
		No. %	%	Ratio	No.	%	Ratio
	Libyan	40	56.3		38	77.5	
	Non-Libyan	31	43.7	1.28	11	22.5	3.4
Total		71	100		49	100	

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
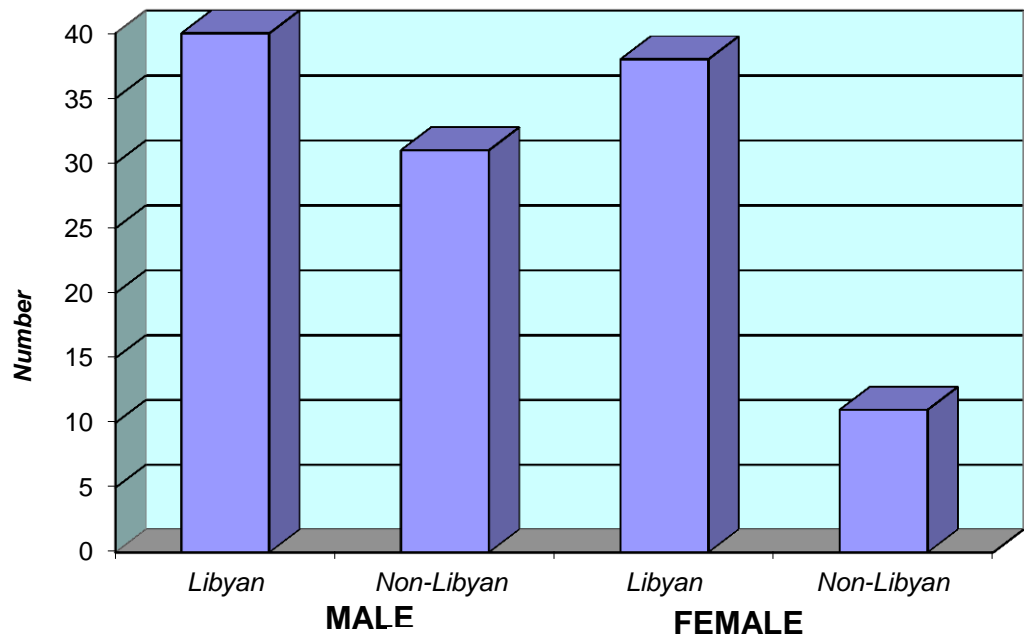
Figure 7

Discussion and Conclusion:

The main sites of extrapulmonary tuberculosis are lymph nodes, gastro-intestinal, bones and genitourinary system[6]. In this study 19.4% of Lung TB with other diseases among Libyan patients and 11.2% among non-Libyan patients and the ratio of extrapulmonary TB of those living in the city of Benghazi to those living outside the city of Benghazi was 1.8%. Extrapulmonary tuberculosis account of 20% in other study in other country[1].

Approximately one-third of 36 million HIV infected persons in the world are coinfected with tuberculosis, 75% if them lived in sub-Sahara Africa[7]. Patients with HIV are at greater risk of reactivating latent of acquired TB from open contact[6]. Tuberculosis was diagnosed in 37% of HIV cases who were admitted to Tripoli Medical Centre, and extrapulmonary tuberculosis in 52% of them[8]. It is estimated that the prevalence of HIV in Libya among the general public a bout 0.18%[9]. In this study 12.4% of TB cases with AIDS among Libyan TB cases and 16.7% among non-Libyan TB patients.

Pleural effusion may be unilateral or bilateral. This term used when serous fluid accumulates in the pleural space. TB is the main second causes of pleural effusion. In this study 18.5% of the TB cases with pleural effusion among Libyan patients and 25% among non-Libyan patients. Tuberculosis pleural effusion is one-fifth most common form of extrapulmonary tuberculosis for detection of TB pleural effusion[9].

Viral hepatitis is almost always caused by one of cytomegalovirus, Epstein-Barr viruses and herpes simplex viruses. Chronic hepatitis B infection affect about 300 million people around the world. Chronic carrier rate of the virus following infection vary from 10-20% in Asia, Africa, Middle East and Pacific Island[2]. Infection with hepatitis C occur in about 70-80% of patients and this is usually life long. In this study 6.2% of hepatitis B and 1.5% of hepatitis C among TB Libyan patients. The ratio were 8.3% of hepatitis B and C among non-Libyan patients. The incidence of hepatitis surface antigen among TB was higher than internal clinic in a recent study[5].

The prevalence of HCV and HBV in the general population in Libya among the general public[10] was 1.19% and 2.5% respectively. Pulmonary manifestation of chronic hepatitis C virus infection are frequently under diagnosed among TB patients in a recent study[11]. High rate of TB and hepatitis B among population with HIV/AIDS patients in other study.

The ratio of TB cases with other diseases among Libyan and non-Libyan male patients was and among Libyan and non-Libyan female patients were 1.28 and 3.4 respectively.

The main age group with other diseases in addition to lung TB both in males and female patients in this study were 26-45 years f age.

References

Sharma, S.K. and Mohan, A.: Extrapulmonary Tuberculosis. Indian Journal of Medical Research. 2004:120; P316-353.

Christopher Haslett, et al.: Davidson's Principles and Practice of Medicine. London: Churchill Living, 2002.

Arya, OP and Hart, CA. Sexually transmitted infection and AIDS in the tropics. Oxford/New York: CABI: 1998.

Niger, J. Count levels and pattern of respiratory complication of HIV seropositive patients in Calabar, Nigeria. Physiol Science: 2007:22 (1-2); P93-7.

Fill, WD and Neuman, M. HBs-Antigenemia in patient with pulmonary tuberculosis. Wien Med. Wiochenschr. 1980:30; 130 (12): P399-41.

WWW.LungUK.org.

WWW.aapcho.org.

Abdunabi Ahmad Rayes and Suhir Al-Hooni. Morbidity and Mortality of HIV Infection in Tripoli Medical Centre, Libya. JMJ 2008: Volume 8(2): P126-131.

Porcel, JM. Tuberculosis Pleural Effusion. Lung: 2009: 187(5); P263-70.

Mohammed Koha, et al. Prevalence of Hepatitis B, C and HIV in patients presenting for surgery. JMJ 2008:8: 2, P137-139.

Erturk, A. et al. Pulmonary alteration in patients with chronic HCV infection. Dig. Liver Diseases: 2006; 38(9), P673-6.

جامعة طرابلس
كلية الطب

Vitamin D–deficiency rickets among children at Benghazi pediatric Hospital.

*Ekram A. Barakat Ben Saoud   ** Muftah Abull Hamid El Falah.

*Family & Community Medicine, Faculty of medicine, Benghazi University. ibarakatb@yahoo.co.uk

** Endocrinologist Benghazi pediatric Hospital Medicine, Benghazi University.

Abstract

Background: Rickets is a condition associated with bone-deformity due to inadequate mineralization in growing bones. It is the most common non communicable disease of children in the developing world and is characterized by a failure to mineralize newly formed bone in the growth plates of long bones. Rickets in the world mostly stems from poor exposure to sun or nutritional insufficiency, while some cases relate to hereditary syndromes, renal disease, or use of medication.

Objectives : to assess the epidemiological, clinical characteristic of rickets children and identify risk factors that contribute to rickets at Benghazi pediatric Hospital.

Patients and Methods: Descriptive case- series study was conducted at Benghazi pediatric Hospital, during two years period by questionnaires the data from medical records of patients attending the nutritional clinic & gastrology unit, the questionnaires based on American Academy of pediatrics. Data set included age, sex, residence, age at diagnosis, associated co- morbidity, history of breastfeeding, or bottle fed or both. History of immunization and history to exposure to sun, the present complains, the type of treatment. The investigations such as calcium, phosphrous & Alkaline phosphatase. Descriptive statistics of some parameters were calculated using Statistical program SPSS.

Results & conclusions: The study revealed the majority of children were range 3 -10 months 66. 6% Male to female ratio was 1.4 :1, children 62.5 % had poor exposure to sun. 38.3 % of children had exclusive breast fed & 48.3% on both bottle & breast fed. The diagnosis of cases mainly clinical and radiological; Poor exposure to sun was found to be a significant risk factor for Rickets although of sunny weather and the low vitamin D of mothers pre-pregnancy or nutrient deficiencies could be a risk factors for Rickets of children. Strongly recommend to encourage mother to expose their infants to sun and supplementing all breastfed infants with vitamin D until they are weaned of vitamin D fortified formula and vitamin D drops as prophylaxis for infants if there is limitation to sun exposure.

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Key words: Rickets, , clinical characteristics , risk factors & treatment .

Introduction:

Definition: Rickets (RD) is the most common non-communicable disease of children in the developing world

RD is characterized by a failure to mineralize newly formed bone in the growth plates of long bones It is metabolic Bone Disease resulting in abnormal mineralization of the growing skeleton cause inadequate levels of calcium or phosphorous (both) for mineralization (1,2).

Rickets is a condition associated with bone-deformity due to inadequate mineralization in growing bones . While some cases relate to hereditary syndromes, renal disease, or use of medication, rickets in the world mostly stems from nutritional insufficiency (3). Rickets is most commonly seen in children with relatively more pigmented skin, who are exclusively breastfed (4).

Primary Rickets: Lack of vitamin D - the main cause of rickets.. Ultraviolet light (from sunlight) helps our skin cells convert vitamin D from an inactive into an active state. Not have enough vitamin D, calcium that we get from the food we eat is not absorbed properly, causing hypocalcemia to develop. Hypocalcemia results in deformities of bones and teeth, as well as neuromuscular problems (4).

Risk factors for rickets also include:

Sunlight - children who do not get enough sunlight are more dependent on excellent nutrition to getting enough vitamin D**.**

Poverty & Malnutrition - rickets is more common in areas of the world where severe droughts and starvation occur**.**

Dark skin: Dark skin doesn't react as strongly to sunshine as does lighter skin, so it produces less vitaminD

Mother's vitamin D deficiency during pregnancy: A baby born to a mother with severe vitamin D deficiency can be born with signs of rickets or develop them within a few months after birth.

Premature birth: Babies born before their due dates are more likely to develop rickets.

Medications: Certain types of anti-seizure medications and antiretroviral medications, used to treat HIV infections, appear to interfere with the body's ability to use vitamin D

Exclusive breast-feeding: Breast milk doesn't contain enough vitamin D to prevent rickets. Babies who are exclusively breast-fed should receive vitamin D drops (5).

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Secondary Rickets: vitamin D deficiency may be secondary to other disorders. In vitamin D Resistant rickets (familial hypophosphataemic rickets, a sex-linked dominant Condition) there is thought to be a defect in renal tubular transport of phosphate. Rickets also complicates more general disorders of tubular function, like fanconi Syndrome, renal tubular acidosis and cystinosis. Some renal, hepatic, liver and intestinal diseases can interfere with the way the body absorbs and metabolizes minerals and vitamins, resulting in rickets (6).

Nutritional Rickets: is an endemic problem in many developing countries and has re-emerged in a number of developed countries. Vitamin D deficiency has again become an epidemic in children, and rickets has become a global health issue. (7). The following foods to be rich on vitamin D : eggs yolks, fish oils, some fortified dairy products, such as milks yogurt, and margarine and some soymilk products that have vitamin D added & cereals, bread (2,5). Breast milk is not normally a significant source of vitamin D for the infant and remains unchanged with supplementation at least up to 2,000 IU/day. Existing evidence suggests that vitamin D nutriture does not appear to affect the maternal processes of bone resorption that occur during lactation, nor its restoration post-lactation (5,1).

Symptoms & signs of rickets: May include

Skeletal deformity such as (genu varum) or (genu valgum) in. Toddler or there may be spinal, pelvic or

Widening wrists, and Harrizon's groove - a horizontal line is visible at the lower margin of the thorax, where the diaphragm attaches to the ribs. The child's physical growth retardation is present but not severe.
Low calcium blood levels (hypcalcemia). Soft skull (craniotabes).

Costochondral joints are prominent; large beads show up under the skin of the rib cage, Uncontrolled muscle spasms, which may affect the entire body (tetany). The other classical features are delayed closure of the anterior fontanelle, frontal skull bossing, a rickety rosary & swollen wrists (1).

Diagnosis: **Blood tests** - serum calcium may reveal low levels of calcium and phosphorus. Serum alkaline phosphates levels may be high. X-rays - wide, X- rays of the wrists will confirm the diagnosis. The metaphysis expanded and cupped, calcification is diminished ,and the appearance of the secondary centre of ossification in the epiphyses is delayed Syndrome., and .Bone biopsy - rarely used (1,2,7).

Treatments : Vitamin D supplementation,. Until serum alkaline phosphatase level and skeletal deformities return to normal. Calcium should also be supplemented. Additionally, recommending a diet rich in calcium is advisable (9). The patient's dietary intake of calcium, phosphates and vitamin D is increased. This may involve

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

exposure to sunlight (ultraviolet B light), consuming fish oils. If enough ultraviolet B light exposure is available and used, as well as consuming adequate amounts of dietary and phosphorus, rickets can usually be reversed and prevented., So regular sunlight exposure can prevent vitamin D deficiency, but the safe exposure time for children is unknown. The (World Health Organization WHO) recommends 400 IUs (international units) of vitamin D a day for babies and children. If the rickets is caused by bad diet the patient should be given daily calcium and vit D supplements, an annual vitamin D injection, as well as being encouraged to eat vitamin D rich foods. Other medical conditions - if the rickets has an underlying medical cause, such as kidney disease, that disease needs to be treated and controlled . Treatment of vitamin D deficiency involves giving ergocalciferol or cholecalciferol for 3 months (1000 IU/day if < 1 month of age; 3000 IU/day if 1–12 months of age; 5000 IU/day if > 12 months of age). High-dose bolus therapy (300 000–500 000 IU) should be considered for children over 12 months of age if compliance or absorption issues are suspected [8].

Prevention of rickets : A supplementary intake of vitamin D to prevent vitamin D deficiency, at-risk children should receive 400 IU vitamin D daily; if compliance is poor, an annual dose of 150 000 IU may be considered. . Also may involve enriching milk, baby food and some other food products, the administration of a daily vitamin D supplement, and massive doses of vitamin D when it is impossible for socioeconomic reasons to provide a vitamin supplement. The best way to prevent rickets is to expose the infant/child to the sun. While exposure to sunlight is a good source of vitamin D, it is important not to over do it - excess sunlight exposure can lead to sunburn and eventually skin cancer [8].

Patients and Methods : Descriptive case- series study was conducted at Benghazi pediatric by questionnaires based on published literature of rickets of American Academy of pediatrics.

Settings: The gastroenterology unit and nutritional clinic at the Benghazi Paediatric Hospital. A convenient sample including (120) rickets children were included in the study, data were collected by questionnaires while children were admitted to the unit or during the follow up of the nutritional clinic, and from medical records of patients attending the nutritional clinic.

Data collection and analysis: Data were collected during the period of two years . Data set included age, sex, residence, age of diagnosis, associated co- morbidity, history of breastfeeding, or bottle fed or both. History of immunization and history to exposure to sun, the present complains. and finally thetype of treatment.

Investigations such as calcium, phosphrous & Alkaline phosphatase. Descriptive statistics such as minimum, maximum, mean & standard deviation were calculated using Statistical program SPSS.

2017 /1/30م

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Objectives: to assess the epidemiological, clinical characteristic of rickets children and identify

risk factors that contribute to rickets at Benghazi pediatric Hospital..

Table (1) : Summary of demographic and clinical characteristics, details of 120 child with rickets Hospital at Benghazi.			
Characteristics/Parameters	Details	Number	Percentage
Age of patients	Months 3 - 10	80	66.6
	Months 11 -18	36	30
	Months 18 >	4	3.3
Type of feeding & immunization	Breast feeding	47	39.1
	Bottle feeding	16	13.3
	Both Breast feeding & Bottle	58	48.3
	Immunization complete up to age	117	97.5
Exposure to sun .	Good	10	8.3
	Poor	75	62.5
	No	35	29.1
Signs & Symptoms	Frontal skull bossing or Delayed closure of the anterior fontanelle or leg bowing	40	33.3
	Swollen wide wrists	44	36.6
	dental defects	8	6.6
	Convulsion & Rickety rosary	28	23.3
Management Oral Vitamin D		8	6.6
I M injection vitamin D		55	45.8
Iron, folic acid, multi vitamin or Calcium		57	47.5
Rickets diagnosed clinically and ridologically or accidentally or delayed walk or convulsion or with co- morbidities such as gastroentritis , cealic disease, cow milk allergy, failure to thrive & wheeze chest.			
Most of children delivered full term normal delivery only very few cases are premature.			

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Fig (1) : Distribution of patients according to gender.
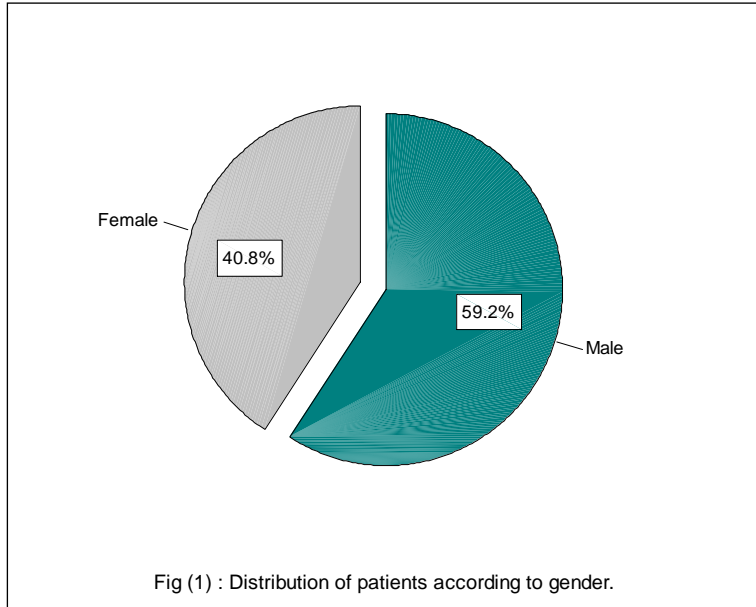
Table (2) : Descriptive statistics of some parameters of children with rickets N=120				
Investigation	Min	Max	Mean	Std.dev
Ca	1.2	11.5	8.508	1.75572
Ph	2.9	9.2	5.2575	1.78007
Alkaline phosphatase	120	1141	445.32	232.467
Hb	8.5	16.6	11.725	1.77287

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
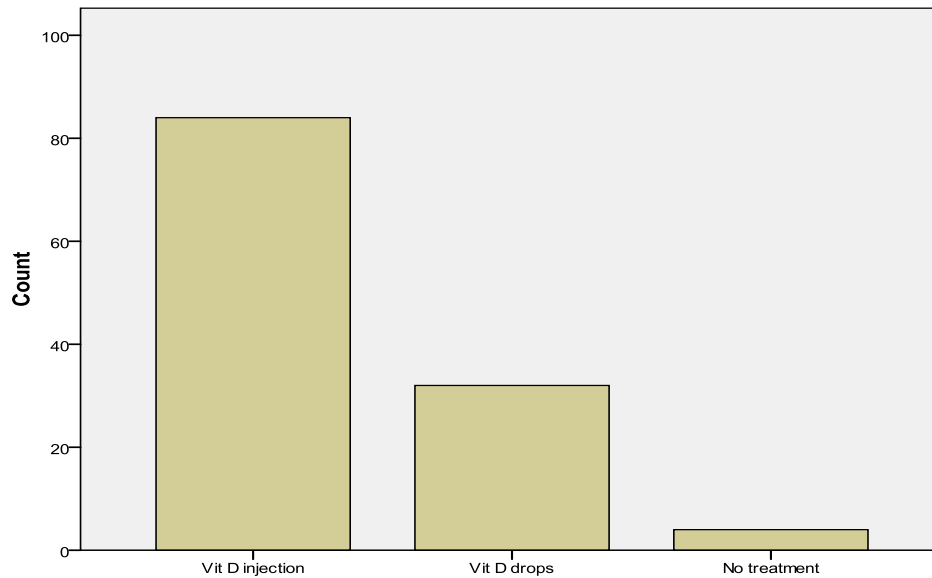
Fig (2): Distrbution of patients according to treatment

Discussion: one- hundred and twenty children diagnosed as rickets included in the present study were, those who fulfilled the following criteria: nationality; registered in the administration of the Hospital , and having a file; resident, most of patients were Libyan expect two patients. The patient's ages ranged between 3 months – 24 months'. The majority of cases 66.6% with age group between 3- 10 months.

A similar study conducted at Tripoli medical center by Elgadi revealed that the children with rickets were 94% of children ages between 3 months – 12 months and became less when age is increased p <o.oo1, males more affected than females and more common in first siblings (9). Same results in our study males represent 59. 2% of cases, M: F ratio1.4: 1, furthermore, this study was demonstrate that the lower birth weight (less than 2.5 kg) only in 16 child out of 103 mother known their children birth weight and most of children delivered full term normal delivery only very few cases are premature and delivered by caesarean section. When compared with another study for Vitamin D deficiency has been associated with a four-fold increased risk of primary caesarean section (10). However, other studies. Maternal vitamin D levels have been shown to positively correlate with birth weight centile. In a study from Holland, women with vitamin D deficiency had a 2-4 -fold increased risk of having an small gestational age baby, in contrast to other studies demonstrated no relationship between maternal vitamin D levels in the first trimester and birth weight but did demonstrate that low vitamin D levels in late pregnancy were associated with reduced intrauterine long bone growth and lower gestational age at delivery (11). Type of feeding Breast feeding or Bottle or both were reported in this study 39. 1 %, 13. 3% &

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

48. 3 % respectively. A. Catharine Ross and et al study revealed that the breast milk is not normally a significant source of vitamin D for the infant. Existing evidence suggests that vitamin D nutriture does not appear to affect the maternal processes of bone resorption that occur during lactation, nor its restoration post-lactation. (11). The present study demonstrated that the patients with rickets had poor exposure to sun in 62. 5% of children and good in only 8. 3% of cases and no exposure to sun light in 29.1% . Recent reports have noted cases not only from regions with more limited sunshine, such as New Zealand, the United Kingdom and the United States, but also from sunnier regions such as Africa, Saudi Arabia and Australia (12). It has, however, also been suggested that the true cause of rickets might have been wet-nursing (use of mother's substitutes for nursing infants) by women with calcium-poor breast milk . By the late 1990s, evidence accumulated that low intake of dietary calcium was, indeed, important in the pathogenesis of rickets . In fact, calcium insufficiency was even suspected to contribute to some apparent vitamin D deficiency-related rickets seen in North America (13).

The co- morbidities with vitamin D deficiency in this study such as gastroentritis , wheeze chest, cealic disease, failure to thrive & cow milk allergy this is consistent with studies showed that there was associated with wheeze chest in 5 % of the cases, this could be due to low vitamin D in breast milk, same finding in (13).

 In addition, a study reported that malnutrition & poverty are risk factors for rickets (5). Another similar study, demonstrated that the Low maternal vitamin D intake in pregnancy is associated with wheeze and asthma in the offspring. Likewise, a prospective study done in Egypt by Salama and his colleague in 2004 revealed that the all mothers of babies with hypocalcaemic seizures had severe vitamin D deficiency and reported that the there is an important relationship was found between hypo-calcemia seizures in rachitic breast fed infant and maternal vit D deficiency. Assay of Vitamin D for breast fed infants and their mothers should be considered in cases of infantile hypo- calciumic seizures, Supplementation of Vitamin D for mothers and their breast fed infant is important to prevent rickets and hypocacemic seizures in breastfed infant (14). Furthermore, the neonate is at risk of hypocalcaemic tetany consequent on maternal hypovitaminosis D. Calcium levels are normal in utero when maternal vitamin D is insufficient. Vitamin D deficiency is common in northern Europe, especially in women with pigmented skin. Vitamin D deficiency is three times more common in the winter and spring compared to the summer and autumn in the UK. In a London antenatal population, a vitamin D level of less than 25 nmol/l was found more in of Indian Asian women, Middle Eastern women and of black women and Caucasian women. In Prepregnancy obesity has been associated with lower levels of vitamin D in both

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

pregnant women and their neonates (10). Most of cases in Tripoli study diagnosed clinically and ridologically and the cause of rickets could be related to less exposure to sun light and nutrient deficiencies. Rickets cases shown seasonal variation with increase in spring and less in autumn and the incidence decreased when babies start having normal family diet. (9), same results in our study which demonstrated that the less exposure to sun is the leading factor for rickets and all the cases dig nosed clinically and by X rays for wrist .

Regarding the clinical characteristics of rickets children 33. 3 % had frontal skull bossing or Delayed closure of the anterior fontanelle or leg bowing, and 36. 6 % of children had wide wrists were the most significant symptom and confirm the diagnosis by x rays. 6.6% of them had dental defect and 23. 3% of children with convulsion and rachitic rosary which indicated severe vitamin D deficiency. In an Australian study, hypovitaminosis D was found in of neonates. Vitamin D deficiency is a major cause of hypocalcaemic seizures in neonates and infants. Hypocalcaemia is not uncommon in neonates and is a potentially severe problem. Mothers of babies who suffer hypocalcaemic seizures are more likely to be vitamin D deficient than mothers of babies who do not associated with wheeze and asthma in the offspring. Moreover, mother's vitamin D deficiency during pregnancy: A baby born to a mother with severe vitamin D deficiency can be born with signs of rickets or develop them within a few months after birth (10,15,16).

In our study more nearly 85% of children received vit D injection IM with good respond. Researchers comparing a single intramuscular dose (600,000 IU) of vitamin D to a lower daily oral dosage (2,000 IU) for four weeks found that patients who received the intramuscular dose responded promptly without hypervitaminosis, whereas 40 percent of infants who received the oral dosages had no or minimal response. The physician must determine the best treatment strategy for each patient on a case-by-case basis. For example, if compliance is a major concern, the single intramuscular dose may be more appropriate (17,18).

The most important factor for the development of vitamin D deficiency in infants is maternal vitamin D status. If they are moderately to severely vitamin D deficient, pregnant women should be treated with 3000–5000 IU daily until the serum 25-OHD concentration is over 50nmol/L. These preparations should not contain vitamin A, which may lead to fetal toxicity. The American Academy of Pediatrics recommends supplementing all breastfed infants with vitamin D until they are weaned to 500mL per day of vitamin D fortified formula (17,18).

Conclusion: The study revealed that the majority of children were range 3 months -10 months. The diagnosis of cases mainly clinical and radiological; Poor exposure to sun was found to be a significant risk factor for

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Rickets although of sunny weather and the low vitamin D of mothers pre-pregnancy or nutrient deficiencies could be a risk factors for Rickets of children .

Recommendation: Measures for prevention of rickets, firstly, we suggest screening performed at early age. screening should be done as early as the first year if there is a high suspicion that the child has unrecognized rickets. Secondly, All pregnant women, should screening for vitamin D deficiency. Finally, we strongly recommend to encourage mother to expose their infants to sun and supplementing all breastfed infants with vitamin D until they are weaned of vitamin D fortified formula and vitamin D drops as prophylaxis for infants if there is limitation to sun exposure.

References

Braithwaite, R. Freeman, C. L. Greenwood and et al . The aetiology of rickets-like lower limb deformities in Malawian children 2016; 27:2367–2372.

Behrman Rechard E, kliegman Robert M, Arvin Ann M. Nelson Text book of pediatrics. 5th ed USA W.B. Saunderas.1996; 1516-1519.

Craviari, T., Pettifor J. M , Thacher T. D. and et al. The Rickets Convergence Group Rickets An Overview and Future Directions, with Special Reference to Bangladesh J Health Popul Nutr 2008;26(1):112-121.

Smith, R. , Asian Rickets and Osteomalacia Quarterly Journal of Medicine. 1990; New Series 76, No. 281, pp. 899-901.

Holick, M. F., Resurrection of vitamin D deficiency and rickets. The Journal of Clinical Investigation http://www.jci.org Volume 116 Number 8 August 2006 ;.2063-2072.

Hull David, Johnston Derek I. Essential pediatrics, 3rd ed. Churchill Livingstone : 1996; 189, 190.

Milner Anthony D, Hull David. Hospital Pediatrics, 3rd ed.UK: Churchill Livingstone, 1998; 264-267.

Craig Munns, Margaret R Zacharin, Christine P Rodda and et al. Prevention and treatment of infant and childhood vitamin D deficiency in Australia and New Zealand: a consensus statement. Med J August 2006; 185: 268-272.

Elgadi Mohamed Omer, Youesif Khalid Ali. Rickets among Libyan children in Tripoli. Abstract book for Libyan Board medical Specialties conference 2009; p51. www..lbmlibya.org.

Scientific Impact Paper. Vitamin D in Pregnancy. Royal College of Obstetricians an d Gynaecologists. No. 43 June 2014; p 2-11.

A, Cathrine Ross, Christinel L. Taylor, Annl. Yaktine & Heather B. Del Valle. Dietary Reference Intakes for Calcium and Vitamin D. The National Academies Press. Program Associate Suggested citation: IOM (Institute of Medicine). 2011 Washington DC.www.nap.edu.

Ward , L. M., Gaboury, I., Ladhani, M. and et al. vitamin D–deficiency rickets among children in Canada CMAJ 2007;177(2):161-6.

Camargo CA Jr, Rifas-Shiman SL, Litonjua AA, Rich-Edwards JW, Weiss ST, Gold DR, et al. Maternal intake of vitamin D during pregnancy and risk of recurrent wheeze in children at 3 y of age. Am J Clin Nutr 2007;85:788–95

Salama MM, El-Sakka AS. Hypocalcemic seizures in breastfed infants with rickets secondary to severe maternal vitamin D deficiency. Pakistan Journal of biological sciences. 2010;13(9): 437–42.

Mehrotra P, Marwaha RK, Aneja S, Seth A, Singla BM, Ashraf G, et al. Hypovitaminosis D and hypocalcemic seizures in infancy. Indian Pediatr 2010;47:581–6.

Pettifor J. M., Vitamin D &/or calcium deficiency rickets in infants & children: a global perspective .Indian J Med Res, 2008; March 127(1) 245-249.

Lawrence M. Gartner & Frank R. Greer. American Academy of pediatrics. Clinical report. Prevention of Rickets and Vitamin D Deficiency: New Guidelines for Vitamin D Intake. Pediatrics 2003; April . 4 (111) : 37-44.

Al-Jurayyan N.A. M , Abdullah N.A Rushaid N. A & Abdulaziz N.A.   Rickekts and rickets and Osteomalacia in Saudi: The need for a   National preventive program. European Journal of research in medical sciences. 2015; 3(1) 21-26. www.idpublications.org

Publishing, UK Page 21 www.idpublications.orgProgressive Academic Publishing, UK Page 21 www.idpublications.org

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

المخاطر الكيميائية في المختبرات الطبية بمستشفى علي عمر عسكر-

اسبيعة ـ ليبيا

" دراسة حالة "

د. ابوبكر علي ابوشيته   أ.ابراهيم إمحمد حدود

المعهد العالي للسلامة والصحة المهنية

قسم السلامة المهنية

Ibrahim_hadud @ yahoo.com   Abushita@yahoo.com

ihadud@oshc.org-ly

Abstract

This research study was conducted in 2016 at Omar Askar Hospital in Essbea. The purpose of this study was aimed at assessing the extent of the efficiency of the occupational health & safety procedures in the protection from the chemical hazards at the clinical laboratories. The researchers carried out some descriptive and analytical instrument in order to collect the required data. As a result, a questionnaire was designed accordingly and was made up of three dimensions as follows: dealing with the chemical substances, the emergency procedures against chemical substances, training and awareness. This, in turn, includes 27 items on the questionnaire. The subjects of the study targeted were 19 employees at the clinical laboratories of the hospital. The findings of the study revealed that those employees at the hospital were not warned against the dangerous use of the chemical substances. Also, they were not given enough information about the hazards of the chemical substances. Inside the laboratories, there were no records of these hazardous substances used. Also, there was no information brochure nor safety precautions guide about the use of each chemical substance which was estimated at 9.78%. Also, the study showed that there was no periodical inspection inside the laboratories in order to ensure the commitment to follow the occupational safety conditions which was rated at 1.63%. Also, there were no emergency exits nor any indications of their whereabouts. There did not seem to exist any emergency equipment, for instance, there was no shower or first aids kit. The study also showed there were no aids to warn of people and make them aware of the hazardous use of the chemical substances, for instance, some

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

guides, posters, awareness sessions, workshops or similar, which was estimated at 2.84%. Also, the study found that most employees were not given any training courses in the area of occupational safety and how to use fire extinguishers properly which was recorded at 2.84%. .About 21% of the employees were already exposed to some accidents as a result of their contact with the chemical substances. The study therefore, came up with some important recommendations in increasing the degree of awareness of the occupational health and safety procedures in clinical laboratories.

Keywords:

Occupational health & safety, Medical laboratories, chemical hazards, workplace accident.

ملخص

اجريت الدراسة سنة 2016 و هدفت الى تقييم مدى فعالية اجراءات السلامة و الصحة المهنية للوقاية من مخاطر المواد الكيميائية في المختبرات الطبية بمستشفى على عمر عسكر بمدينة اسبيعة , وقام الباحثان باستخدام المنهج الوصفي التحليلي لجمع البيانات اللازمة ,حيث تم اعداد استبانة مكونة من ثلاثة ابعاد ,وهي التعامل مع المواد الكيميائية و إجراءات الطوارئ الخاصة بالمواد الكيميائية و التوعية والتدريب و (27فقرة , وتكون مجتمع الدراسة من العاملين في المختبرات بمستشفى على عمر عسكر و قد بلغ حجم العينة 19 شخصاً.تشمل)

واوضحت نتائج الدراسة انه لا يتم تزويد العاملين بالمختبرات الطبية بالمعلومات الكافية عن مخاطر المواد الكيميائية المستخدمة داخل المختبر , كما انه لا تتوفر سجلات للمواد و لا صحيفة بيانات السلامة الخاصة بكل مادة كيميائية بنسبة 78.9%, كما تبين انه لا يتم التفتيش الدوري على المختبرات للوقوف على الألتزام بشروط السلامة المهنية بنسبة 63.1%, و اتضح عدم وجود مخارج طوارئ خاصة بالمختبر و لا على اشارات و علامات تدل على أماكن تواجدها و ان معدات الطوارئ مثل نافورة غسل العبون و دش السلامة و صندوق الاسعافات الأولية غير متوفرة, وبينت الدراسة غياب و سائل هامة للتوعية العاملين بمخاطر المواد الكيميائية مثل الملصقات و اللوحات الإرشادية و حلقات النقاش و وورش العمل بنسبة 84.2% , كما ان معظم العاملين لم يسبق لهم الحصول على دورات تدريبية في مجال السلامة المهنية و كيفية استخدام معدات الإطفاء بنسبة 84.2%, كما ان حوالي 21% من العاملين سبق لهم التعرض لإصابة عمل نتيجة التعامل مع المواد الكيميائية.

و خلصت الدراسة الى العديد من التوصيات الهامة التى من شأنها المساهمة في زيادة الوعي بمجال السلامة و الصحة المهنية في المختبرات الطبية .

الكلمات الدلالية :-

السلامة والصحة المهنية ، المختبرات الطبية ، مخاطر المواد الكيميائية ، حوادث و إصابات العمل.

مقدمة

إن التوسع في إنتاج كميات هائلة من المواد الكيميائية و إزدياد عدد هذه المركبات سنوياً يرجع إلى التوسع الصناعي في العالم و خاصة في مجال الصناعات الكيميائية مثل صناعة الادوية و البلاستيك و المبيدات وغيرها.

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

وبحسب احصائيات منظمة العمل الدولية يُستخدم حوالي 100الف مادة كيميائية على نطاق عالمي و يزداد هذا العدد سنوياً,

ويبلغ الإنتاج العالمي من هذه المواد حوالي 400 مليون طن , كما تسبب المواد الكيميائية في وفاة حوالي 834 الف عامل سنويا , وتبلغ نسبة

السرطانات المهنية 34% من مجمل أسباب الوفيات المرتبطة بالعمل[1].

بها من إطباء و ممرضين و فني مختبرات لعدة مخاطر مهنية منها تعتبر المستشفيات من أكثر بيئات العمل خطورة و يتعرض العاملون

الفيزيائية مثل (الحرارة, الضوضاء, الاضاة,....), و مخاطر اجهاد مهني (مناولة مستمرة, كثرة الوقوف,....), ومخاطر كهربائية و ميكانيكية , و

لعل مخاطر المواد الكيميائية هي الأكثر تواجد و الأشد خطورة , وتسجل سنوياً على مستوى العالم في المستشفيات حوالى 35 مليون إصابة

, و سجلت في الولايات المتحدة سنة 2011 بكافة المستشفيات حوالي 253.700 إصابة عمل أي بمعدل 6,8 اصابة لكل 100 عامل و [2]عمل

هو ضعف المعدل المسجل في القطاع الصناعي, أدت 58.000 من هذه الإصابات الى تغيب أكثر من 3 أيام عمل , وكلفت كل هذه الإصابات

حوالي 2 مليار دولار [3].

و إجريت دراسة سنة 2007 في المستشفى الجامعي بجزر الهند الغربية و شملت 200 عامل بما فيهم فنيوا المختبرات , حيث أكد 61% من

فني المختبرات ان لهم دراية كافية بإحتياطات السلامة المهنية في المختبر, بينما كان 39% منهم غير متأكدين من ذلك و تعرض 26% من

فني المختبرات لاصابات عمل و يتعرض 42% منهم بأستمرار للمواد الكيميائية[4].

و أوضحت دراسة إجريت في المستشفى الجامعي بطهران سنة 2015 على 230 عامل ان 41.3% منهم وصلت المواد الكيميائية الى عيونهم ,

16.3%[5] من العاملين تعرضوا لإستنشاق أبخرة مواد كيميائية و 34.4% تعرضوا لإصابة عمل بسبب الزجاج المكسور من شرائح العينات

واشارت دراسة اجريت بالمستشفى الطبي احمد اباد بالهند سنة 2011 حول دور التدريب في زيادة الوعي بممارسات السلامة المهنية في

المختبرات الطبية وشملت 81 فني مختبر ان الوعي بممارسات السلامة المهنية زاد حيث المعرفة بأمور السلامة المهنية من 82% قبل التدريب

الى 89% بعد التدريب, بينما زادت المعرفة باهمية معدات الوقاية من 79% الى 82% بعد التدريب, و المعرفة بمخاطر المواد الكيميائية زادت

من 37% الى 72% بعد التدريب[6].

و اجريت دراسة بين سنتي 2011 و 2012 على 10 مختبرات طبية من مجمل 21 مختبر بولاية أروميا في أثيوبيا وشملت 100 عامل

بالمختبرات , 82% منهم اكدوا بعدم وجود مصلقات ارشادية تدل على مخاطر المواد الكيميائية, و90% كان اعتقادهم ان مساحة المختبر غير

كافية مما يتسبب في ازدحام و عدم راحة, جميعهم اي 100% كانت اجابتهم عدم وجود خطة واضحة للسلامة و الصحة المهنية و ان

المختبرات لا توجد بها كتيبات ارشادية خاصة بتعليمات و ارشادات السلامة المهنية , و30% فقط من هده المختبرات لها مشرف سلامة و

صحة مهنية[7].

و اوضحت دراسة اجريت بالمختبرات الطبية في المستشفيات الخاصة بالهند سنة 2012 و شملت 200 فني مختبر للوقوف على مدى وعيهم

باجراءات السلامة المهنية و الاحتياطات الضرورية للوقاية داخل المختبرات ان 17.5% فقط لديهم معرفة كافية بمخاطر المواد الكيميائية

المستعملة داخل المختبر, 45.6% منهم يقومون بالاكل و الشرب داخل المختبر , 47% يخزنون اطعمة و مشروبات في ثلاجات المختبر,

12.6%[8] يقومون بالتدخين داخل المختب

و بينت دراسة اجريت في تنزانيا سنة 2008 على 14 مستشفى و شملت 430 عامل , ان كل العاملين قيد الدراسة لم يتلقوا اي

تدريب في مجال السلامة المهنية , 6 مستشفيات فقط (42.9%) لديها مشرف سلامة مهنية, 90% من المعلومات حول المخاطر المهنية كان

مصدرها حلقات النقاش و ورش العمل, برامج السلامة المهنية كانت غائبة عن معظم المستشفيات[9].

المخاطر الكيميائية في المختبرات الطبية

المخاطر الكيميائية من اهم التجديات التي تواجه العاملين في المختبرات الطبية و تتواجد المادة الكيميائية في المختبرات في عدة حالات تعد

وهي:-

ا – صلبة : وهي التي لها حجم و شكل ثابت كالمعادن و الفلزات

ب – سائلة: وهي التي لها حجم ثابت و شكل متغير مثل المديبات و الاحماض

ج – غازية: وهي التي لها حجم و شكل غير ثابت مثل الأمونيا و أول اكسيد الكربون

العوامل المساعدة على جدوث المخاطر الكيميائية:

1 – خواص المادة الطبيعية و الكيميائية, كلما زادت سرعة تبخر المادة زاد ضررها, وكذلك كلما كان للمادة قدرة على الذوبان السريع في سوائل

الجسم كلما كان ضررها أكبر.

2 – درجة تركيز المادة في بيئة العمل, كلما كان تركيز المادة الكيميائية في بيئة العمل أعلى من الحدود المسموح بها كلما زادت خطورتها.

3 – مدة التعرض للمادة الكيميائية, كلما زادت مدة التعرض للمادة الكيميائية في بيئة العمل كلما زادت الخطورة المحتملة من المادة.

4 – قابلية المادة للترسب داخل الجسم, يقوم الجسم عادة بالتخلص من المواد الغريبة بشكل طبيعي , الا ان بعض المواد الكيميائية مثل المعادن

الثقيلة (الرصاص, الزنبق,...) يترسب جزء منها في أعضاء الجسم بشكل تراكمي الى الحد الذي يشكل خطر صحي على العاملين.

5 - حجم جسيمات المادة الكيميائية, كلما كان حجم جسيمات المادة أصغر تزداد خطورتها بسبب سهولة دخولها للجسم.

6 – الخصائص الفردية للشخص المتعرض للمادة, هناك فروقات فردية تزيد من تأثير المادة على الجسم مثل السن فالصغار اكثر تأثر من الكبار,

و النساء أكثر تأثر من الرجال, بالإضافة الى العوامل الأخرى مثل مقدار الجهد المبذول وسرعة التنفس و الوضع الصحي للشخص المتعرض.

7 – طريقة دخول المادة الكيميائية الجسم, و يتم دخول المادة لجسم الانسان بالطرق الأتية:-

أ – عن طريق الجهاز التنفسي "استنشاقاً" , وهي الطريق الاكثر شيوعاً و خطورة و يصل معدل إمتصاص هذه المواد في الجهاز التنفسي

حوالي 80 – 90%.

ب – عن طريق الجلد " امتصاصاً" , و هي الطريق الثاني من حيث الخطورة و الأنتشار , و مما يزيد من تأثير المادة أرتفاع درجة الحرارة في

بيئة العمل ووجود جروح أو خدوش في الجلد و يبلغ معدل إمتصاص المادة عن طريق الجلد بين 10 – 15%.

ج – عن طريق الجهاز الهظمي "ابتلاعاً ", و هذا يحدث عند تناول الاطعمة داخل بيئة العمل الملوثة أو عن طريق الخطأ و عدم اتباع ارشادات

السلامة المهنية في نظافة الأيدى و ارتداء معدات الوقاية و يبلغ معدل امتصاص المادة عن طريق الجهاز الهظمي حوالي 1 – 2%.

أهمية الدراسة

تكمن أهمية الدراسة في حماية العنصر البشري الذي يعد أهم عناصر الانتاج و هذا يجب ان يكون الهدف الرئيسي لكل مؤسسة , وبأعتبار أن

المستشفيات عموماً و المختبرات الطبية خصوصاً من أكثر أماكن العمل خطورة لتعدد المخاطر المهنية بها و اخطرها و اكثرها انتشاراً هي

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

مخاطر المود الكيميائية , و التعرف على واقع السلامة المهنية و مدى وعي العاملين بمخاطر المواد المستخدمة و كيفية

التصرف في حالة الطوارئ و دور التدريب في هذا الجانب و ذلك لمساعدة الادارات في تطوير برامج وقاية لحماية العاملين و الحد من الاخطار

و توفير بيئة عمل امنة.

أهدف الدراسة

1 – التعرف على مدى وعي العاملين في المختبرات الطبية بمخاطر المواد الكيميائية المستخدمة و كيفية التعامل معها حسب اسس وقواعد

السلامة المهنية.

2 – معرفة مدى توفر وسائل الوقاية و الطوارئ و ألتزام العاملين في المختبرات بكيفية التصرف عند حوث حالات الطوارئ

3 – الوقوف على توفر وسائل التوعية و التدريب في المختبرات.

طريقة العمل

أداة الدراسة :ـ تم الاعتماد على الدراسة الميدانية , كما تم استخدام المقابلة و الملاحظة و استخدام اسلوب الاستبيان كأداة اساسية لجمع

البيانات اللازمة لتحقيق اهداف الدراسة, وتم تصميم الاستبيان بعد الاطلاع أدبيات الدراسة و الإطار النظري و الدراسات السابقة ذات الصلة

, كل هذه العوامل ساعدت في بناء اداة الدراسة.[11 , 10]بموضوع الدراسة و بعض نماذح إستبيانات معدة من منظمات دولية

وقد تكون الاستبيان من جزئين :ـ

الجزء الاول , و يتعلق بالخصائص الشخصية و الوظيفية لافراد عينة الدراسة ممثلة في العمر, سنوات الخبرة , و المؤهل العلمي.

و الجزء الثاني جاء موزعاً على (3) محاور (ابعاد) وزعت حسب الاتي :

البعد (المحور) الاول يحتوي على (10) فقرات , تناول مدى وعي العاملين بخطورة المواد الكيميائية المستخدمة في المختبر

البعد (المحور) الثاني يحتوي على (9المختبر في حدوث طارئ عند التصرف بكيفية العاملين وعي مدى تناول , فقرات)

البعد (المحور) الثالث يحتوي على (8) فقرات , تناول دور التوعية و التدريب في سلامة العاملين بالمختبر

صدق أداة الدراسة :ـ لتعرف على مدى صدق أداة الدراسة في قياس ما وضعت لإجله و شموله لكل العناصر التي يجب أن تدخل في التحليل ,

ووضوح الفقرات و المفردات و تكون مفهومة لكل من يستخدمها , تم عرض الاستبيان بصورة مبدئية على مجموعة من اعضاء هيئة التدريس

بالمعهد و أبدوا ملاحظاتهم و اقترحاتهم حول محتويات الإستبيان و تم اخذها في الإعتبار, كما تم توزيع عينة استطلاعية عددها 5 استبيان على

فنيين من المختبر لإختبار الإتساق الداخلي و ثبات اللإستبيان

عينة الدراسة

تكون مجتمع الدراسة من فني المختبرات الطبية بمستشفى علي عمر عسكر بمدينة اسبيعة و البالغ عددهم 60 شخص, وقد قام الباحثان

بأستخدام الطريقة العشوائية الطبقية , و بعد التأكد من صدق و سلامة الاستبيان للاختبار تم توزيع عدد 20 استبيان , وتم استبعاد استبيان واحد

لعدم جدية الاجابة من قيل المبحوث.

الحدود المكانية و الزمنية :-

أقتصرت الدراسة على المختبرات الطبية بمستشفى على عمر عسكر بمدينة , وكانت في الفترة الزمنية بين شهري 3-8/2016

النتائج و المناقشة

الدراسة: مجتمع وسمات خصائص

تميزت مفردات العينة بمجموعة من الصفات الديموغرافية، والجداول التالية تبين خصائص وسمات عينة الدراسة كما يلي :-

الجدول رقم (1) يوضح توزيع افراد العينة جسب المؤهل

ت	المؤهل العلمي	العدد	النسبة
1	دبلوم متوسط	0	0%
2	دبلوم عالي	8	42.10%
3	بكالوريوس	11	57.89%
4	ماجستير	0	0%
5	المجموع	19	100%

من الجدول رقم (1) نلاحظ ان كل أفراد عينة الدراسة هم من حملة الشهادات العليا, فكان 42.1% من حملة الدبلوم العالي و 57.89% من حملة البكالوريوس , وهذا مؤشر جيد يعكس الثقة في اجابات أفراد العينة

الجدول رقم (2) يوضح توزيع أفراد العينة حسب العمر

الجدول رقم (2) يبين ان 57.89% من أفراد عينة الدراسة هم من الفئة العمرية بين 20 – 30 سنة , و 31.57% منهم هم من الفئة العمرية 31 – 40%

ت	العمـــر	العدد	النسبة
1	20 - 30	11	57.89%
2	31 - 40	6	31.57%
3	41 ـفما فوق	2	10.52%
4	المجموع	19	100%

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

لجدول رقم (3) يوضح توزيع أفراد العينة حسب سنوات الخبرة

النسبة	العدد	سنوات الخبرة	ت
78.94%	15	1-10	1
15.78%	3	11-20	2
5.26%	1	21-فما فوق	3
100%	19	المجموع	4

من الجدول رقم (3) نلاحظ ان معظم أفراد العينة 78.94% لديهم خبرة أقل من عشرة سنوات , وحوالي 21% فقط منهم لديهم خبرة اكثر من

عشرة سنوات

www.uot.edu.ly

30/1/ 2017م

جامعة طرابلس
كلية الطب

محاور الدراسة :-

النسبة	المجموع	النسبة	لا	النسبة	نعم	الســـــــــــؤال	ت
100%	19	42.1%	8	57.8%	11	هل تعلم ماهي المخاطر الكيميائية الموجودة بالمختبر	1
100%	19	68.4%	13	31.5%	6	هل يتم التخلص من بقايا المواد الكيميائية بالطريقة الصحيحة	2
100%	19	57.8%	11	42.1%	8	هل يتم تنظيف مكان العمل بصورة فورية من المواد الكيميائية المنسكبة	3
100%	19	68.4%	13	31.5%	6	هل توجد سجلات توضح أنواع و خواص المواد الكيميائية الموجودة بالمختبر	4
100%	19	84.2%	16	15.8%	3	هل كل العبوات الكيميائية عليها الملصقات التحذيرية المناسبة و الواضحة	5
100%	19	68.4%	13	31.5%	6	من وجهة نظرك هل يتم مراعاة خواص كل مادة عند التداول والتخزين للمواد الكيميائية	6
100%	19	57.8%	11	42.1%	8	هل تعلم تعليمات وقواعد السلامة الخاصة بكل مادة كيميائية في المختبر	7
100%	19	73.6%	14	26.3%	5	من وجهة نظرك هل يتم تطبيق إجراءات السلامة الخاصة بالمواد الكيميائية داخل المختبر	8
100%	19	78.9%	15	21.0%	4	هل تعرضت لاصابة عمل نتيجة التعامل مع المواد الكيميائية خلال فترة عملك داخل المختبر	9
100%	19	63.1%	12	36.8%	7	هل يتم التفتيش الدوري على المواد الكيميائية الموجود في المختبر	10

الجدول رقم (4) يوضح اجابة أفراد العينة عن الأسئلة المتعلقة بالتعامل مع المواد الكيميائية

من الجدول رقم (4) الخاص بالمحور الاول المتعلق بالتعامل مع المواد الكيميائية داخل المختبر نلاحظ ان نسبة عالية من العاملين في المختبر 78.9% سبق لهم التعرض لإصابة عمل , و ان ما نسبته 73.6 منهم يعتقد انه لا يتم تطبيق اجراءات السلامة عند التعامل مع المواد الكيميائية , كما ان احد الامور الهامة هو عدم التفتيش الدوري على المواد المستخدمة بالمختبر كما يعتقد 63.1% من العاملين بالمختبر , ويرى 68.4% منهم ان التخزين و التداول للمواد الكيميائية لا يتم بشكل جيد و لا توجد سجلات توضح انواع و خواص المواد المستعملة و التخلص من بقايا المواد الكيميائية لا يتم بالطريقة الصحيحة , كما يرى 57.8% من العاملين بالمختبر انه لا يتم تنظيف مكان العمل مباشرة فور حدوث

إنسكاب للمواد الكيميائية داخل المختبر و انه ليس لديهم معرفة كافية بتعليمات و قواعد التعامل مع كل مادة كيميائية مستعملة

داخل المختبر , ويرى معظم

العاملين بالمختبر 84.2% ان العبوات الكيميائية المستعملة بالمختبر لا توجد عليها علامات مناسبة وواضحة .

الجدول رقم (5) يوضح اجابة أفراد العينة عن الأسئلة المتعلقة بمدى وعي العاملين بكيفية التصرف عند حدوث طارئ في المختبر

من الجدول رقم (5)الخاص بالمحور الثاني المتعلق بمدى وعي العاملين بكيفية التصرف عند حدوث طارئ في المختبر نلاحظ , ان معظم

العاملين بالمختبر 94.4% يرى ان التهوية ليست جيدة و لاتوجد اجهزة لطرد الغازات و الابخرة , كما يرى 89.4% منهم انه لا يوجد صندوق

للاسعافات الاولية لاستخدامه في حالة حدوث طارئ , و عدم توفر تجهيزات طوارئ مهمة في المختبر وهي دش للطواري ونافورة غسل

النسبة	المجموع	النسبة	لا	النسبة	نعم	الســـــــــــؤال	ت
100%	19	84.2%	16	15.7%	3	هل يوجد مخرج للطواري وعلامات توضح اتجاه الاخلاء في حالة وقوع حادث	1
100%	19	73.6%	14	26.3%	5	هل وسائل الاتصال و الارقام الخاصة بالطوارئ موجودة في مكان قريب من باب المختبر	2
100%	19	42.1%	8	57.8%	11	هل تعلم كيفية التصرف في حالة وقوع حادث او إصابة داخل العمل	3
100%	19	62.6%	10	47.3%	9	هل يوجد كواشف الحريق داخل المختبر	4
100%	19	89.4%	17	10.5%	2	هل يوجد بالمختبر صندوق الاسعافات الأولية	5
100%	19	84.2%	16	15.7%	3	هل يوجد دش للطواري ونافورة غسل العينين في حالة انسكاب الكيماويات على الجسم او العين	6
100%	19	21.0%	4	78.9%	15	هل تتوفر معدات الحماية الشخصية الخاصة بحالات الطوارئ في المختبر	7
100%	19	36.8%	7	63.1%	12	هل توجد معدات للإطفاء في حالة نشوب حريق	8
100%	19	94.7%	18	5.2%	1	هل توجد أجهزة لطرد الغازات والابخرة الضارة وتهوية المختبر بشكل مناسب	9

العينين و كذلك عدم و جود مخرج للطواري وعلامات توضح إتجاه الاخلاء في حالة وقوع حادث كما يؤكد ذلك 84.2% من العاملين في

المختبر, أما كيفية تصرف العاملين عند حدوث طارئ

فانهم غير متأكدين من أنفسهم حيث أجاب 57.8% فقط ان لديهم دراية , و أكد 63.1% منهم انه توجد معدات للاطفاء

لاستعمالها في حالة الطوارئ, وكذلك اكد معظمهم 78.9% انه توجد معدات وقاية شخصية

الجدول رقم (6) يوضح اجابة أفراد العينة عن الأسئلة المتعلقة بالتوعية والتدريب

من الجدول رقم (6) الخاص بالمحور الثاني المتعلق بالتوعية و التدريب نلاحظ ان نسبة عالية من العاملين داخل المختبر84.2% لم يسبق لهم

الحصول على دورات تدريبية في مجال السلامة المهنية , و كذلك ما نسبته 89.4% من العاملين في المختبر لا يتم تدريبهم على كيفية استخدام

النسبة	المجموع	النسبة	لا	النسبة	نعم	الســـــــــــــــؤال	ت
100%	19	73.6%	14	26.3%	5	يوجد ملصقات و لوحات تحذيرية في اماكن واضحة و مرئية لتوعية العاملين بالسلامة المهنية داخل المختبر	1
100%	19	84.2%	16	15.7%	3	هل سبق لك الحصول على دورات تدريبية في مجال السلامة والصحة المهنية	2
100%	19	78.9%	15	21.0%	4	هل يتم توعيتكم بشكل كافي بالمخاطر الموجودة بالمختبر وكيفية الوقاية منها	3
100%	19	89.4%	17	10.5%	2	هل تم تدريبكم على طريقة استخدام معدات الإطفاء والقيام بالإسعاف الاولي والاخلاء	4
100%	19	78.9%	15	21.0%	4	هل تتوفر منشورات و كتيبات ارشادية حول المخاطر الكيميائية داخل المختبر	5
100%	19	84.2%	7	15.7%	3	هل يتم عقد حلقات نقاش أو ورش عمل حول مخاطر المواد الكيميائية داخل المختبر	6
100%	19	78.9%	15	21.0%	4	هل توجد صحيفة بيانات السلامة لكل مادة كيميائية في المختبر	7
100%	19	89.4%	17	10.5%	2	هل يتم اجراء الكشف الطبي الدوري للعاملين لاكتشاف أي تأثير صحي للمواد الكيميائية	8

معدات الاطفاء و الاسعافات و الاخلاء في حالة الطوارئ و هذا يدل على ضعف الاهتمام بمجال التدريب , و يرى 78.9% من العاملين في

المختبر انه لا يتم توعيتهم بشكل كافي بالمخاطر المهنية داخل المختبر و لا تتوفر منشورات و كتيبات ارشادية حول المخاطر الكيميائية بالمختبر

و انه لا توجد صحيفة بيانات السلامة لكل مادة كيميائية يمكن الرجوع لها وقت الحاجة, كما انه لا يتم عقد حلقات نقاش و وورش عمل حول

مخاطر المواد الكيميائية داخل المختبر و كيفية الوقاية منها هدا ما يراه 84.2% من العاملين داخل المختبر, و اكد 73.6% منهم انه لا توجد

ملصقات و لوحات تحديرية كوسيلة مهمة للتوعية في مجال السلامة المهنية.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

المناقشة

من خلال إستعراض النتائج يتضح أن كل أفراد عينة الدراسة هم من حملة الشهادات العليا و هي الدبلوم العالي و البكالوريس و هذا مؤشر جيد على الثقة في اجاباتهم, كما كانت الفئة العمرية بين 20 – 30 سنة هي الاكثر تمثيلاً بين أفراد العينة بنسبة 57.9%, و كانت خبرتهم بين 1 – 10 سنوات .

بالنسبة للمحورالاول المتعلق بالتعامل مع المواد الكيميائية داخل المختبر فان أفراد العينة يرون انه لا توجد سجلات توضح انواع و خواص المواد الكيميائية بنسبة 68.4% وهذا يجعل التعامل مع هذه المواد يتسم بالخطورة لغياب المعلومات الضرورية التي توضح خطورة المواد والطرق الامنة لتعامل معها, كما ان معظم العبوات الكيميائية المستعملة داخل المختبر لا توجد ملصقات تحذيرية حسب راي 84.2% من العاملين مما يجعلها مصدر خطر لامكانية حدوث اخطاء عند استعمالها, و يرى 68.4% من العاملين بالمختبرانه لا يتم خزن المواد الكيميائية في الاماكن المخصصة لها و مرعاة كل مادة في عمليات الخزن و التداول مما قد يتسبب في حوادث و اصابات عمل مثل الانسكابات و الحرائق, و لا يتم تنظيف مكان العمل بصورة فورية من المواد الكيميائية المنسكبة حسب رأي 57.8% مما يسمح بتبخر هذه المواد و امكانية استنشاقها من العاملين و تاثيرها عليهم , وكل هذه الظروف في المختبرات ادت الى اصابة نسبة 21% من العاملين وهي نسبة لا يستهان بها.

بالنسبة للمحور الثاني المتعلق بمدى و عي العاملين بكيفية التصرف في حالات الطوارئ بالمختبر, فإن نسبة 84.2% من العاملين يرون انه لاتوجد مخارج طوارئ واضحة المعالم و عليها إشارات تدل على إتجاه الإخلاء, وهذا قد يتسبب في إرتباك للعاملين في حالة الطوارئ و يؤخر خروجهم بأمان من مناطق الخطر, كما أن تجهيزات و معدات الطوارئ مثل نافورة غسل العيون و دش الطوارئ و صندوق الإسعافات الأولية لا تتوفر بشكل جيد حسب رأي حوالي 80% من العاملين و عدم وجود هذه التجهيزات بالمختبر غير مقبول لدورها الهام في تقليل التاثيرات الصحية للمواد الكيميائية في حالة وصولها للجسم, ويرى 94.7% من العاملين أنه لا تتوفر أجهزة لطرد الغازات و الأبخرة مما يجعل التهوية غير جيدة مما يزيد من فرصة دخول المواد الكيميائية للجسم وبالتالي تاثيراتها, و الإيجابي في هذا المحور هو توفر معدات الإطفاء و الإنذار داخل المختبر.

بالنسبة للمحور الثالث المتعلق بالتوعية و التدريب , فإن نسبة 73.6%من العاملين يؤكدون عدم وجود ملصقات و لوحات تحذيرية عن المخاطر و بشكل واضح ومرئي و هذا لا يتماشى و شروط السلامة المهنية لما لهذه الوسائل من دور فعال في تنبيه العاملين بالمخاطر وزيادة الوعي بها, و لم يحصل 84.2% من العاملين على دورات تدريبية في مجال السلامة المهنية , وهذا تقصير لما للتدريب من دور مهم في زيادة وعي العاملين بالمخاطر وكيفية حماية أنفسهم و زملأهم من هذه المخاطر, و بالرغم من توفر معدات الإطفاء الا أن 89.4% من العاملين لم يتلقوا دورات تدريبية على كيفية إستخدام هذه المعدات , وهذا يجعل صعوبة في سرعة السيطرة على مخاطر الحرائق مما يزيد من إحتمالية الخسائر البشرية والمادية, و يؤكد 78.9% من العاملين عدم توفر منشورات و كتيبات إرشادية حول المخاطر الكيميائية و هي وسائل مهمة للتوعية و تعطي تفاصيل هامة عن المواد و خواصها وكيفية الوقاية منها, كما انه لا تم عقد حلقات نقاش وورش عمل حول مخاطر المواد الكيميائية حسب رأي 84.2% من العاملين, و هذا لا يعطي للعاملين فرص التحاورو النقاش مع المختصين للتعرف على هذه المخاطر و الأساليب الصحيحة للتعامل معها, كما ان صحيفة بيانات السلامة لكل مادة كيميائية غير متوفرة كما يرى 78.9 من العاملين وهي وسيلة هامة و مصدر مهم للحصول على المعلومات حول مخاطر المادة وإحتياطات السلامة عند التعامل معها, كما انه لا يتم إجراء الكشوفات الطبية الدورية

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

كما يؤكد 89.4% من العاملين , و هذا إجراء مهم للكشف عن التأثيرات الصحية للمواد الكيميائية قبل إستفحال الامر و تحوله

لمرض مهني كما تنص عليه التشريعات الوطنية و الدولية.

الاستنتاجات

من خلال الدراسة التي تمت على مخاطر المواد الكيميائية بالمختبرات الطبية تم الحصول على عدة نتائج هامة في هذا المجال كان أهمها كان الأتي

-:

1 – لا يتم تزويد العاملين بالمختبرات الطبية بالمعلومات الكافية عن مخاطر المواد الكيميائية المستخدمة داخل المختبر.

2 – لا تتوفر سجلات للمواد الكيميائية تحتوي معلومات عن خواصها و مخاطرها و طرق التعامل معها.

3 – لا يتم إجراء التفتيش الدوري للمختبرات الطبية للوقوف على مدى الإلتزام بشروط السلامة المهنية عند التعامل مع المواد الكيميائية.

4 – عدم توفر مخارج طوارئ و علامات و اشارات تدل على اتجاهات الاخلاء لاتباعها في حالة حدوث طارئ.

5 – عدم توفر معدات طوارئ داخل المختبر مثل دش الطواري ونافورة غسل العينين و صندوق اسعافات.

6 – نسبة عالية من العاملين بالمختبر لم يسبق لهم الحصول على دورات تدريبية في مجال السلامة المهنية.

7 – التوعية بالمخاطر المهنية و خاصة المخاطر الكيميائية ضعيف و يحتاج الى المزيد من الجهد.

التوصيات

1 – وضع خطة واضحة بالتعاون بين مسؤلي السلامة المهنية و العاملين بالمختبر تحدد كيفية التعامل السليم مع المواد الكيميائية

2 – توفير سجلات تحتوي كل المعلومات الخاصة بالمواد الكيميائية محددا مخاطرها و الطرق السليمة لتعامل معها.

3 – اجراء تفتيش دوري على المختبرات وفق قوائم معدة مسبقة على كل ما له علاقة بمخاطر المواد الكيميائية و مدى توفر

4 – وضع خطة للطوارئ واضحة المعالم للالتزام بها وقت حدوث الطارئ , وتدريب العاملين على تطبيقها بين كل فترة و اخرى

5 – توفير كل معدات و تجهيزات الطوارئ مثل دش الطواري ونافورة غسل العينين و صندوق اسعافات و عدة السيطرة على المواد الكيميائية المنسكبة.

6 - وضع خطة تدريبية سنوية و فق إحتياجات العاملين بالمختبر لرفع من كفائتهم في مجال التعامل مع المواد الكيميائية وفق اسس السلامة المهنية.

7 – الاستفادة من كل وسائل التوعية المتاحة مثل الندوات وورش العمل و حلقات النقاش و الكتيبات الارشادية و الملصقات بهدف زيادة التوعية لدي العاملين بالمختبر من مخاطر المواد الكيميائية .

8 – الاهتمام بجانب الصحة المهنية و اجراء الكشوفات الدورية على العاملين بالمختبرات للتأكد من سلامتهم من اي تأثيرات صحية نتيجة التعامل مع المواد الكيميائية.

شكر وعرفان

المراجع

[1] World Day for safety and health at work28 April 2013

www.ilo.org/safework

[2] M.Honda et al , Sharps Injuries among Nurses in a Thai Regional Hospital: Prevalence and Risk Factors. International Journal of Occupational of and Environmental Medicine. Vol.2 no 4.4011. pp. 215 – 223.

[3] Facts about Hospital Worker Safety. September 2013 .www.osha.gov

[4] KURT VAZ et al. Prevalence of Injuries and Reporting of Accidents Among Health Care Workers at The University Hospital of The West Indies.

International Journal of Occupational Medicine and Environmental Health 2010; 23(2):133 – 143

[5] Pouran Raeissi et al. Occupational Accidents among Hospital Staff. Client-Centered Nursing Care. May 2015. Volume 1. Number 2.

[6] Hansa M Goswami et al. A Study on Knowledge, Attitude and Practice of Laboratory safety Measures among Paramedical Staff of Laboratory Services. National Journal of Community Medicine Vol 2 Issue 3 Oct-Dec 2011.

[7] Tsegaye S et al. Survey of Safety Practices among Hospital Laboratories in Oromia Regional State, Ethiopia. Ethiop J Health Sci. Vol. 24, No. 4 October 2014

[8] Jitendra Zaveri, Jigna Karia. Attitude, and practice of universal work Precautions amongst medical laboratory technicians. National Journal of Medical Research. Volume 2 Issue 1 Jan – March 2012 ISSN 2249 4995

[9] S.V. MANYELE.et al. The status of occupational safety among health service providers in hospitals in Tanzania. Tanzania Journal of Health Research Volume 10, No. 3, July 2008

[10] Checklist for the prevention of accidents in laboratories .European Agency for Safety and Health at Work - http://osha.europa.eu

[11] World Health Organization .Hospital emergency response checklist. 2011

www.who.org

جامعة طرابلس

كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع

جامعة طرابلس

دراسة حوادث واصابات العمل في مصنع اسمنت سوق الخميس إمسيحل ـ ليبيا

" دراسة حالة "

كد. ابوبكر علي ابوشيته   أ.ابراهيم إمحمد حدود

المعهد العالي للسلامة والصحة المهنية

قسم السلامة المهنية

Ibrahim_hadud @ yahoo.com   Abushita@yahoo.com

ihadud@oshc.org-ly

Abstract

The concept of occupational health & safety has always been one of the main underpinnings to support the national economy due to its instrumental role in protecting the employees responsible for production in all workplaces from work accidents and casualties. These types of casualties could be attributed to many workplace factors which may lead to heavy costs for both the injured person and the institution as well as the home country per se.

As a consequence, this phenomenon entailed the researcher to conduct some research to study those types of accidents and also to find out their main causes. The aim of which was to come up with an effective program for occupational health and safety measures in order to minimize work accidents and put an end to those casualties accordingly.

This study was carried out at Souq AlKhamise Emsehel factory for cement production in 2014 in Libya. The research goals of this study were twofold, first to find out the main factors leading to those work accidents and casualties. Secondly, to investigate the effects of these accidents and tracking down their indications back in 2012 and 2013. Finally, to suggest some recommendations in order to find solutions so as to minimize such work accidents resulting in casualties.

This study, therefore, concluded that the main causes of work place accidents were mainly falling from high places, tripping over things and slipping over wet

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

grounds which were estimated at 35.2%. Also, casualties resulting from accidents at maintenance works were rated at 29.4%. The study also concluded that most work accidents and casualties were minor and were recorded at 55.8%. Obviously, the maintenance department at the factory itself had the greatest number of casualties which were registered at 30.2%. The production department had the second biggest number of casualties rated at 29.4%. The frequency rate of casualties reached almost 11.2 cases per every million hours of work and then it gradually increased by 7.4 number of casualties in 2013.

Keywords:

Occupational health & safety, Workplace accident, Workplace casualties

The frequency rate of casualties, the rate of the severity of casualties

ملخص

تعتبر السلامة والصحة المهنية من الروافد الأساسية التي تدعم الاقتصاد الوطني، لدورها الهام في حماية عناصر الإنتاج في جميع مواقع العمل وفي مقدمتها العنصر البشري من حوادث وإصابات العمل لمالها من تكاليف باهظة للشخص المصاب والمؤسسة والدولة ؛ وهذا يتطلب دراسة هذه الحوادث والوقوف على مسبباتها الأساسية ودراسة مؤشراتها لوضع برامج سلامة مهنية فعالة للعمل علي الحد منها.

أجريت هذه الدراسة على مصنع اسمنت سوق الخميس امسيحل في ليبيا سنة 2014م. وكانت الأهداف الرئيسية لها التعرف على العوامل المؤدية لحوادث وإصابات العمل ودراسة مؤشراتها لسنوات 2012–2013 واقتراح التوصيات التي من شأنها مساعدة المؤسسة على وضع حلول للحد من حوادث وإصابات العمل.

وخلصت الدراسة إن الأسباب الرئيسية لإصابات العمل هي سقوط أشياء من أعلي والتعثر والانزلاق بنسبة 35.2% و كانت أكبر نسبة إصابات أثناء عملية الصيانة 29.4% وأن معظم الإصابات كانت بسيطة بنسبة 55.8% وكان قسم الصيانة وقعت به أكبر نسبة إصابات 30.2% يليه قسم الإنتاج بنسبة 29.4% وان معدل تكرار الإصابات بلغ 11.2 إصابة لكل مليون ساعة عمل وانخفض 7.4 إصابة لسنة 2013م.

الكلمات الدلالية :–

السلامة والصحة المهنية ، حادث العمل ، إصابة العمل ، معدل تكرار الإصابة ، معدل شدة الإصابة.

مقدمة

أن الهدف الرئيسي للسلامة والصحة المهنية هو الحفاظ على عناصر الإنتاج وفي مقدمتها العنصر البشري حيث يعد الثروة الحقيقية والمحور الأساسي للإنتاج في مواقع العمل المختلفة ، فالأجهزة والمعدات والالآت مهما بلغت درجة تطورها وتعقيدها ستبقى غير مفيدة إذا لم يتوافر العنصر البشري الذي يشغلها ويوظفها ويصونها ، وبما أن هذا العنصر على هذه الدرجة من الأهمية فإنه من الضروري أن تتوافر له ظروف العمل الآمنة والمناسبة لأداء العمل .

ومن حق أي إنسان أن يعمل في ظروف عمل أمنة كما تنص على ذلك المعاهدات والمواثيق الدولية لحقوق الإنسان كما ورد في المادة "7" من المعاهدة الدولية لحقوق الإنسان .[1]

وكذلك ما ورد في إعلان سيول بشأن السلامة والصحة المهنية في سنة 2008 والذي تنص المادة "6" فيه التأكيد على حق العمال في بيئة عمل أمنة وصحية .[2]

وأحد أهم المشاكل الرئيسية التي تواجه العاملين والمسئولين في جميع المؤسسات بمختلف أنشطتها الاقتصادية هي حوادث وإصابات العمل، ويعرف حادث العمل "هو ذلك الحدث الذي يقع دون سابق معرفة أو توقع وقد ينتج عنه أضرار تصيب الأفراد أو الممتلكات أو كل ذلك معا أو بعضه أما إصابته العمل فهي الضرر الصحي الذي يلحق بالشخص نتيجة حادث العمل[3]

وتشير إحصائيات منظمة العمل الدولية إلي تعرض العاملين على مستوي العالم لحوالي 270 مليون حادث عمل ، و160 مليون إصابة مرضية مرتبطة بالعمل ينتج عن ذلك وفاة حوالي 2.3 مليون شخص سنويا ، وتكلف حوادث وإصابات العمل 4% من الناتج المحلي العالمي سنوياً أي حوالي 2.8 تريليون

جامعة طرابلس
كلية الطب

دولار . ويشمل ذلك التكاليف المباشرة مثل تكاليف العلاج الطبي للمصابين ، والتعويضات واستبدال الأجهزة والمعدات التالفة أو التكاليف غير المباشرة مثل وقت العمل الضائع نتيجة الحوادث وسؤ سمعة المؤسسة ، وعدم الالتزام بالعقود ، ففي الولايات المتحدة بلغت هذه التكاليف سنة 2011 حوالي 250 بليون دولار وفي دول الاتحاد الاوروبي لنفس السنة بلغت 45 بليون يورو وفي كوريا الجنوبية بلغت 7 ، (وبالنظر إلي الإحصائيات السابقة يتبين لنا مدى خطورة المشكلة والحاجة الماسة إلي [4]أدراك أهميتها والبحث عن حلول لها) بليون دولار .

وتعزى معظم الدراسات والأبحاث أن 88% من أسباب حوادث وإصابات العمل إلي الأفعال والتصرفات [5،6،7.]الخطرة ، و 10% هي أسباب مادية في بيئة العمل و 2 % مصدرها أسباب طارئة .

وتكمن الأسباب الشخصية لحوادث وإصابات العمل في قلة الوعي والتدريب وعدم الالتزام بتعليمات السلامة والأسباب المادية إلي سؤ تصميم بيئة العمل وقلة الصيانة وعدم اختيار الآلات التي تتوفر بها شروط السلامة الجيدة.

والتعرف على حوادث العمل ودراسة مسبباتها وكيفية حدوثها هي الخطوة الأولي ونقطة الانطلاق في فهم وادراك طبيعة تلك الحوادث كجزء هام من ثقافة السلامة المهنية داخل المؤسسة ووضع استراتيجيات الوقاية مثل طرق الوقاية الهندسية والإدارية والشخصية ووضع برامج السلامة تهتم بحماية العامل والآلة وبيئة العمل وبالتالي الحد من هذه الحوادث والإصابات والتقليل منها إلي أدني مستوي حتي تتمكن المؤسسة من النجاح والتطور .

وتعد صناعة الاسمنت من الصناعات الحيوية في العالم لعلاقتها المباشرة والفعالة بعملية التنمية ، لكون مادتها " الاسمنت " من الأساسيات التي تقوم عليها المشاريع التنموية الصناعية والعمرانية والخدمية [8]ويستخدم منه سنويا 3000 مليون طن متري علي مستوى العالم.

ويتعرض العاملون في هذه الصناعة إلي مخاطر مهنية عديدة تسبب في حوادث وإصابات عمل [9]يمكن تصنيفها كالآتي:-

أ. مخاطر مهنية عامة منها :-

تصرفات عمل غير سليمة ، خلل في بيئة العمل ، أجهزة عمل غير سليمة ، عدم توفر معدات وقاية شخصية

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

ب. مخاطر مهينة خلال مراحل إنتاج الاسمنت منها :-

سيور النقل ، المواد الخام ، عمليات طحن المواد ، الأفران ، استعمال مواد خطرة ، تحميل وتسليم المنتج النهائي

ج. مخاطر خاصة ببيئة العمل منها :-غبار ، ضوضاء ، حرارة ، حرائق .

وأشارت مبادرة الاستدامة في الاسمنت التي تعمل تحت إشراف مجلس التجارة العالمي للتنمية المستدامة وتشمل 24 شركة عالمية لها مصانع في أكثر من 100 دولة وتنتج حوالي نصف الانتاج العالمي .في تقريرها لسنة 2013 إن الأسباب الرئيسية لحوادث وإصابات العمل في هذه الصناعة تمثلت في الانزلاق والتعثر 29% ، سقوط أشياء وأجسام 19% وان أكثر أعضاء والجسم عرضة للإصابات اليد والذراع 32% .والقدم والساق 25% كما أوضح التقرير أن معدل تكرار الإصابات أنخفض من 8,3 سنة 2005 إلي 2,9 سنة 2010 [8].

وأجريت دراسة في مصنع ابوجا للإسمنت في نيجريا سنة 2012 على 271 عامل وكان 96.7 % من العمال مدركين بأن عملهم خطر و 98.9% لديهم الرغبة في معرفة المزيد من المعلومات عن الإخطار المهنية[10] و16.6% منهم تعرض لإصابة في نفس السنة .

أوضحت دراسـة أجريت على 4 مصانع للإسمنت في بنغلاديش سنة 2010 ، ان 82% من الإصابـات كانت في أعضاء الجسم (الأصابع ، الذراع، الأرجل ، الرأس) وأن 84% من مجمـوع الإصابات كان في الفئة العمرية 21- 25 سنة ،و 51-55 سنة [11].

وأجريت دراسة على 153 عامل في مصنع رأس الخيمة للإسمنت في دولة الإمارات العربية المتحدة سنة 2010 بينت بان 52% من العمال كانت لديهم معرفة بالإخطار التي يتعرضون لها وان 28% فقط يستعملون معدات الوقاية الشخصية [12].

وفي سنــة 2014 أوضحت دراسة في مصنع موقار للإسمنت في إثيوبيا على 498 عامل أنه وقع 52 إصابة عمل 71% منها أدخلت المستشفى و51% بقت لأكثر من يوم للعلاج ،تسببت هذه الإصابات في فقدان 1356 يوم عمل [13].

كما أوضحت دراسة في مصنع كارور للإسمنت بالهند سنة 2015 على 319 عامل بأنه كلما زادت خبرة العامل ومستواه التعليمي زاد فهمه والتزامه بقواعد السلامة المهنية [14].

وعلي المستوى المحلي أجريت عدت دراسات على مصانع الاسمنت في ليبيا بهدف دراسة جوانب السلامة المهنية بهذه المؤسسات ونذكر منها على سبيل المثال لا الحصر دراسة حمزة الاربد حول حوادث واصابات في مصنع سوق الخميس ، وتبين من نتائج الدراسة أن معدل [15], وأخرين تكرار الاصابات بلغ 5,7 سنة 2005 وارتفع إلي 8,7 سنة 2008 ؛ وفي دراسة ربيع الاوجلي وأخرون حول حوادث واصابات العمل في مصنع اسمنت بنغازي أوضحت هذه الدراسة ان معدل تكرار [16] , الاصابات بلغ 8,4 سنة 2008 وارتفع قليلاً سنة 2010 ليبلغ 8,8 بينما توزعت الاصابات حسب فصول السنة لتكون 28% منها في فصل الشتاء و22% في فصل الربيع و 30% في فصل الصيف و 20% حول اتجاه حوادث العمل في مصنع [17]في فصل الخريف وفي دراسة أخره لمروان الشريف وأخرون زليتن للإسمنت بينت هذه الدراسة أن معدل تكرار الاصابات بلغ 9,3 لسنة 2008 وكان معدل شدة الاصابة لنفس السنة 63 وانخفض معدل تكرار الحوادث إلي 6,8 لسنة 2010 وبلغ معدل شدة الاصابة 52 وتوزعت شدة الاصابات بين 74% للإصابات البسيطة و 26% للإصابات المتوسطة وتوزعت حسب الاسباب إلي 31 % من الاصابات بسبب التعثر والانزلاق و 29 % بسبب سقوط اشياء من أعلى و19% اثناء عملية الصيانة .

أهداف الدراسة :–

تقيم مستوي السلامة المهنية في المصانع قيد الدراسة من خلال :–

1– دراسة العوامل المؤدية لحوادث وإصابات العمل مثل (المسببات ، نوع الإصابة ، مكان الإصابة بالجسم ، مكان العمل) .

2– دراسة مؤشرات حوادث وإصابات العمل (معدل تكرار الإصابة ، معدل شدة الإصابة ، معدل الأيام الضائعة)

3– اقتراح توصيات للإجراءات التصحيحية للمصنع قيد الدراسة للحد من حوادث و اصابات العمل.

المواد وطريقة العمل

أجريت الدراسة سنة 2014 بمصنع الاسمنت سوق الخميس إمسيحل . ليبيا.

وبعد الانتهاء من الإجراءات الإدارية والحصول على تصاريح الدخول للمصنع تم تجميع البيانات الخاصة بالدارسة لسنتي(2014،2013) من سجلات حوادث وإصابات العمل من الأقسام المعنية وتم

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

تصنيفها حسب (العوامل المسببة للحوادث وشدة الإصابات والأقسام ، وأشهر السنة)

وحساب معدلات التكرار والشدة والأيام الضائعة لكل مليون ساعة عمل حسب للاصابات باستخدام

المقاييس الاحصائية العالمية المستخدمة من قبل الهيئات والمؤسسات في مجال السلامة والصحة المهنية

:-[20,19,18]وفقاً للمعادلات الاتية

1) معدلات تكرار الإصابة = عدد الاصابات × 1000.000 اصابة / مليون ساعة عمل

عدد العاملين × عدد ساعات العمل الفعلية × عدد ايام العمل الفعلية في السنة

- عدد الاصابات : عدد الإصابات المسجلة في السنة

- عدد العاملين : كما ورد في سجلات المصنع

- عدد ساعات العمل الفعلية : عدد ساعات العمل اليومي وهي 8 ساعات .

- عدد ايام العمل الفعلية في السنة : وهي 300 يوم بعد طرح الإجازات الأسبوعية والعطل الوطنية والدينية من عدد ايام السنة التقويمية .

2) معدل شدة الاصابة = عدد ايام العمل المفقودة بسبب الاصابة × 1000.000 يوم ضائع / مليون ساعة عمل

عدد العاملين × عدد ساعات العمل الفعلية × عدد ايام العمل الفعلية في السنة

- عدد ايام العمل المفقودة بسبب الاصابة : مجموع ايام العمل المفقودة لكل الاصابات في السنة .

3) معدل ايام العمل الضائعة لكل أصابة = معدل شدة الاصابة / معدل تكرار الاصابة   يوم ضائع لكل اصابة

نسبة الإصابة = عدد الإصابات في السنة / مجموع عدد الإصابات × 100

نسبة الإصابة بين العمال = عدد الإصابات في السنة / مجموع عدد العاملين × 100

النتائج والمناقشة

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

من خلال الدراسة تم الحصول على النتائج الآتية :-

جدول رقم (1) يبين توزيع نسبة الإصابات خلال سنوات الدراسة

نسبة الإصابات	عدد الإصابات	السنة
58.82%	20	2012
41.17%	14	2013
100%	34	المجموع

$$نسبة الإصابة = \frac{عدد الإصابات في السنة}{مجموع عدد الإصابات} \times 100$$

من الجدول رقم (1) يتضح أنه :-

نسبة الإصابات بلغت58.82% في سنة 2012 سنة اما في سنة 2013 فقد انخفضت إلي 41.17%

جدول رقم (2) يوضح نسبة الإصابة بين العمال خلال سنوات الدراسة

نسبة المصابين	عدد الاصابات مصنع سوق الخميس	عدد العاملين بمصنع سوق الخميس	السنة
2.7%	20	740	2012
1.79%	14	780	2013

$$نسبة الإصابة بين العمال = \frac{عدد الإصابات في السنة}{مجموع عدد العاملين} \times 100$$

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

من الجدول رقم (2) يتضح أن نسبة المصابين بين العمال في سنوات الدراسة كانت 2.7% في سنة 2012 وانخفضت الى1.79% سنة 2013.

جدول رقم (3) يبين توزيع الإصابات حسب المسببات خلال سنوات الدراسة

النسبة	عدد الإصابات	سبب الإصابة	ت
35.29%	12	سقوط أشياء من أعلى	1
35.29%	12	التعثر والانزلاق	2
29.4%	10	إثناء عملية الصيانة	3
–	–	حوادث سير	4
100%	34	المجموع	

من الجدول رقم (3) يلاحظ أن الأسباب الرئيسية للإصابات كانت سقوط أشياء من أعلى حيث بلغت في

35.29% ، تم سبب الانزلاق والتعثر حيث كانت النسبة 35.29% يأتي بعدها سبب عملية الصيانة بنسبة 29.4% وذلك لحاجة المستمرة لها و عدم إتباع قواعد السلامة المهنية في هده العملية وقدم المصنع حيث تم افتتاحه سنة 1976م.

جدول رقم (4) يوضح توزيع الإصابات حسب شدتها خلال سنوات الدراسة

النسبة	عدد الإصابات	شدة الإصابة

%55.8	19	بسيطة
%29.4	10	متوسطة
%14.7	5	بليغة
–	–	وفاة
%100	34	المجموع

من الجدول رقم (4) يلاحظ أن النسبة الأكبر للإصابات كانت بسيطة حيث بلغت 55.8% و تمثلت معظمها في جروح بسيطة لليد و الرجل او وصول الغبار للعين، ثم نسبة الإصابات المتوسطة حيث كانت 29.4% و تمثل معظمها في إصابات الأرجل و الرأس ، تلتها نسبة الإصابات البليغة حيث كانت 14.7% و تمثلت في كسور مضاعفة في الرجل و الم في الظهر نتيجة سقوط ، ولم تسجل أية إصابة وفاة خلال سنوات الدراسة.

جدول رقم (5) يبين توزيع الإصابات حسب الأقسام خلال سنوات الدراسة

النسبة	عدد الإصابات	القسم	ت
%29.4	10	الإنتاج	1
%38.23	13	الصيانة	2
%14.7	5	الأمن والسلامة	3
%17.6	6	المحاجر والكسارات	4
%100	34	المجموع	

الجدول رقم (5) يوضح أن قسم الصيانة به أكبر نسبة من الإصابات حيث بلغت 38.23% للحاجة المستمرة لعملية الصيانة بسبب عمر المصنع الذي يبلغ حوالي 40 سنة , ثم يأتى بعد ذلك قسم الانتاج حيث بلغت النسبة 29.4% وذلك لتعدد النشاطات داخل هذا القسم.

www.uot.edu.ly

30/1/ 2017م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جدول رقم (6) يبين توزيع الإصابات على فصول للسنة خلال سنوات الدراسة

النسبة	عدد الإصابات	الفصل
50%	17	الشتاء
29.4%	10	الربيع
2.9%	1	الصيف
17.6%	6	الخريف
100%	34	المجموع

من الجدول رقم (6) نلاحظ أنه في مصنع سوق الخميس حدثت أكثر الإصابات 50% في فصل الشتاء يأتي بعده فصل الربيع نسبة 29.4 % .

جدول رقم (7) يبين معدلات الشدة والتكرار والأيام الضائعة للإصابات بمصنع سوق الخميس لسنوات الدراسة

معدل الأيام الضائعة لكل إصابة	معدل تكرار الإصابة	معدل شدة الإصابة	عدد الأيام الضائعة	عدد الإصابات	عدد العاملين	السنوات
13	11.26	146.95	261	20	740	2012
10.72	7.47	80.12	150	14	780	2013

الجدول رقم (7) يوضح أنه في سنة 2012 كان معد شدة الإصابة 146.95 يوم مفقود لكل مليون ساعة عمل بينما تكرار الإصابة كان 11.26 إصابة لكل مليون ساعة عمل وانخفض هذا المعدل في

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

سنة 2013 ليصبح شدة الإصابة 80.12 يوم مفقود لكل مليون ساعة عمل ومعدل تكرار الإصابة بلغ 7.47 إصابة لكل مليون ساعة عمل وكذلك انخفض معدل الأيام المفقودة ليصبح 10.72 يوم مفقود لكل إصابة.

ومن خلال مقارنة مقاييس السلامة وهي معدل تكرار وشدة الإصابة والأيام الضائعة لكل إصابة في مصنع اسمنت سوق الخميس يتضح أنه بلغ معدل تكرار الإصابة 11.26 لسنة 2012 وانخفض إلي 7.4 لسنة 2013 وهو ضمن معدلات المصانع المحلية ولكنها أعلي منها على المستوى العالمي كما ورد في المرجع رقم (8) حيث بلغ معدل تكرار الإصابة 2.9 إصابة لكل مليون ساعة عمل لسنة 2010.

الاستنتاجات :–

1– الأسباب الرئيسية لإصابات العمل هي :–

سقوط الأشياء والتعثر والانزلاق

2– معظم إصابات العمل كانت بسيطة ومتوسطة

3– أكثر إصابات العمل وقعت في قسمي الصيانة والإنتاج

4– فصل الربيع هو أكثر فصول السنة وقعت به إصابات عمل

5– معدل تكرار وشدة الإصابات هو أعلي من ما هو عليه في المؤسسات المناظرة في العالم .

التوصيات

1– الاهتمام المستمر بنظافة وترتيب بيئة العمل وإزالة كل المخلفات وتنظيف بقايا الزيوت والشحوم للحد من التعثر والانزلاق

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

2- توفير معدات الوقاية الشخصية خاصة معدات حماية الرأس وتدريب العاملين على كيفية استعمالها وصيانتها.

3- وضع برامج لتدريب العاملين حسب تخصصاتهم وكيفية استعمال تصاريح العمل في الصيانة لما للتدريب من دور هام في زيادة وعى العاملين بأهمية السلامة المهنية .

4- الاهتمام بسجلات حوادث وإصابات العمل وتحليل هذه البيانات بشكل دوري لمساهمتها في المساعدة على اتخاذ الإجراءات الوقائية المناسبة

5- وضع سياسة سلامة مهنية تهدف إلي الخفض التدريجي لمعدل تكرار وشدة إصابات العمل.

المراجع العربية

[1] تعزيز وحماية " 2012/6/2 " 21 الجمعية العامة للأمم المتحدة, مجلس حقوق الإنسان الدورة
A/HRC/21/48حقوق الإنسان المدنية السياسية ، الاقتصادية ، الاجتماعية والثقافية

[2] إعلان سيئول بشأن السلامة و الصحة المهنية في بيئة العمل
2008www.seouldeclaraton.org

[3] د. عبد القادر فرج طه "سيكولوجية حوادث وإصابات العمل" – مكتبة الخانجي للنشر . القاهرة.
1979.

[15]2009 حمزة الأربد و آخرون " مشروع تخرج " تقييم مستوى السلامة في مصنع اسمنت بنغازي
غير منشور لنيل درجة الدبلوم العالي مقدم إلي قسم السلامة المهنية – المعهد العالي للسلامة والصحة
المهنية.

[16] ربيع اوجلي وأخرون 2010 " تقييم مستوي السلامة بمصنع اسمنت سوق الخميس" مشروع تخرج
غير منشور لنيل درجة الدبلوم العالي مقدم إلي قسم السلامة المهنية المعهد العالي للسلامة والصحة
المهنية.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري بطرابلس - قسم الأسرة والمجتمع

مروان الشريف وآخرون 2011 " دراسة حوادث واصابات العمل بمصنع اسمنت زليتن [17]

" مشروع تخرج غير منشور لنيل درجة الدبلوم العالي مقدم إلي قسم السلامة والصحة المهنية "المعهد العالي للسلامة والصحة المهنية.

زكي شاكر ، بشير شليبك مدخل إلي علم الإحصاء التحليلي لمتخصصي السلامة والصحة المهنية [18] – دار مكتبة الشعب . مصراته 2008.

المراجع الانجليزية

[4]World Day for safety and health at work28 April 2013
www.ilo.org/safeday

[5]Penjman Shaseme. Application of domino theory to prevent accident-

Journal of Mechanical and civil engineering vol6 (2013), PP 72-67

[6]Siva Prasad, Nihal Siddiqui .A review an accident pyramid and its empirical interpretation, International journal of scientific and Research publication. (2015) vol.5 .pp. 2250 -2253.

[7]Nor Mahat. Et al, integration of accident causation: Development of Accident Causation theories.

Australian journal of Basic and Applied Sciences 9(22), 2015, pp. (123-129)

[9]Meenesh kumara Tomar, Study of occupational health, safety and environmental Aspects in cement manufacturing industry in India

Journal of environments and earth science2014.vol 4 .no 9.

[8]cement sustainability initiative (csi) safety in the cement industry 2013
www.wbcsdcement.org.

[10]Omotosh Musa et al .Occupational hazard awareness and safety practices among cement factory workers at obajana Nigeria

Elixir international journal 47(2012), 9013-9018.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

[11]Salma Iqbal et al, Identification of Occupational jury among the workers of selected cement industries in Bangladesh, journal of chemical Engineering 2010, vol, che.25.no.1,

[12]Hafiz O .Ahemd, Mark S .Smith, Knowledge and practices related to occupational hazards among cement workers in United Arab Emirates, journal Egypt public   health assoc2010 vol 85, no3.

[13]Mulu Gebretadik, Assessment of occupational injury among mugher cement Factory workers , Ethiopia, Addis Ababa university , school of public health 2014

[14]Dr.G. Yoganandan and G. Sivasamy ,

Health and Safety Measures in Chettinad Cement Corporation Limited,

Karur.India

Bonfring International Journal of Data Mining, Vol. 5, No. 1, February 2015

[19]Guide on the Harmonization of Labour Inspection Statistic, International Labour Organization2016.www.ilo.org

[20]International Association of Oil and Gas Producers, Glossary of HSE terms.2013www.ogp.org.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشرى طرابلس - قسم الأسرة والمجتمع

دراسة الوعي الصحي البيئي لدى طاقم التمريض في مستشفيات مدينة بنغازي

ميلود العماري, مفتاح الفيتوري, صالح مرسي. كلية الصحة العامة, كلية الطب جامعة بنغازي

المـــــقدمـــــــــــــــــــة

أكثر المخاطر التي يتعرض لها الفريق الطبي في المستشفيات و المرافق الصحية هي إصابات و جروح الإبر و الأدوات الحادة من مشارط و شرائح و زجاج مكسور ملوثة بسوائل و دماء المرضى أصبح هاجس يهدد العاملين في المجال الصحي في كل دول العالم المتقدمة و النامية , وما ينتج عنها من عدوى بأحد أمراض فيروسات الدم والايدز و تليف الكبد .

تعتبر شريحة التمريض أكثر تعرضا للإصابة؛ نتيجة احتكاكهن المباشر بالمرضى في صالات الإيواء , وحجرة سحب العينات , و حجرة العمليات , و حجرة المعالجة , و التعامل اليومي على مدى ثمانية ساعات مع سوائل و أنسجة و دماء المرضى الملوثة (Hazardous agent) .

حسب تقرير أمريكي لوكالة حماية البيئة لحالات الجروح الناتجة بسبب الأدوات الحادة أن هناك حوالي 17-22 ألف ممرضة بالمستشفيات تتعرض كل سنة لحوادث الجروح

(الوخز) من مواد حادة , و العدد يفوق ذلك بالنسبة للممرضات العاملات خارج المستشفيات مثل المنازل و بيوت الرعاية و غيرها , حيث تصل الإصابة بهدد الشريحة إلى 28-48 ألف إصابة[1] .

وهذه الدراسة ستتحدث عن نسبة حدوث الإصابة لطاقم التمريض في مستشفيات مدينة بنغازي ، والسبب الرئيسي لها .

يعتبر طاقم التمريض هو خط الدفاع الأول لمواجهة الأخطار الصحية المهنية والإصابات بالأدوات الحادة ، ومن هذا المنطلق يجب أن يكون طاقم التمريض علي دراية كاملة بأنواع ومخاطر الأدوات الحادة ، وكيفية التعامل معها داخل المرافق الصحية ، خاصة خلال العناية بالمرضي مما ينتج يوميا عن ذلك كميات كبيرة من المخلفات الطبية التي تحتوي علي الإبر والقطن وشاش ومشارط وبقايا العينات الملوثة بسوائل الجسم المختلفة ، فهي تحتوي علي مسببات المرض من بكتيريا وفيروسات وفطريات وغيرها من الملوثات[2] .

Page 181

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

هذه الأعداد الكبيرة من الإصابات المسجلة جعلت الوسط الطبي في العالم وعلي اعلي المستويات إلى اتخاذ إجراءات للحد من تلك الإصابات ، فظهرت عدة منظمات عالمية تهدف إلى توعية العاملين علي انسب الطرق للوقاية من حوادث الوخز بالإبر والمواد الحادة ومن هذه الهيئات الشبكة العالمية للحقن المأمون التابعة لمنظمة الصحة العالمية وغيرها الكثير من الهيئات والمنظمات . (safe injection global network) .

كما أقيمت عدة دراسات عن حدوث إصابات الوخز بالإبر ، منها دراسة في اوغندة سنة 2002 علي مائة وثمانين من العاملين بالصحة حيث أصيب كل عامل بإصابتين ،

ومعظم الحالات كان السبب الكبير فيها تحرك المريض و إعادة الغطاء للإبرة [3] .

وفي سنة 1996 م ازدادت الحالات إلى 51 حالة إصابة وكان معظمهم من طاقم التمريض ، أما بالنسبة لفيروسات التهاب الكبد الوبائي , فالحالة أسوء بكثير حسب تقرير (EPA) ، اشارت ان هناك سنويا ما بين 162-321 حالة اصابة بفيروس التهاب الكبد الوبائي البائي بسبب الادوات الحادة والابر لطاقم التمريض الذي يصل الي 300.000 حالة في السنة الواحدة[4] .

تقوم هذه الدراسة حول الوعي الصحي البيئي لطاقم التمريض في المستشفيات الايوائية في مدينة بنغازي , وحيث اخذت عينة لكي نوضح الصورة التي تبين كيفية التعامل مع هذه الادوات الحادة ومدى ادراك طاقم التمريض باهمية هذه المشكلة من خلال العمل اليومي .

ومن خلال عرض الاخطار الناتجة من الاصابات الحادة نلاحظ ان هناك جانب كبير من المسئولية في التعامل مع هذا النوع من الاصابات يختص به عنصر التثقيف الصحي والذي تكون احدي اهدافه الاساسية ايصال المعلومات الصحية بالطريقة الصحيحة , خصوصا لطاقم التمريض ومعرفة خطورة الاصابة بالامراض او الحوادث بالوخز بالابر والادوات الحادة والحفاظ علي ارتداء معدات الوقاية من القفازات والكمامات وغيرها .

اكد المشرع الليبي علي اهمية الصحة البيئية والمهنية وذلك بالاهتمام بالرعاية الصحية للعاملين بقطاع الصحة في ليبيا علي وجه الخصوص وذلك باجراء فحوصات طبية دورية , وتحصين العاملين ضد الامراض المعدية والاهتمام ببيئة العمل لتجنب مخاطر المهن الطبية , وذلك كما ورد في القانون الصحي الليبي رقم 106 لسنة 1973 م ولائحته التنفيذية [5] .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

الاهداف

معرفة الوعي الصحي البيئي لدى طاقم التمريض في مستشفيات مدينة بنغازي اتجاه امكانية الاصابة بالوخز بالابر .

معرفة اكثر مكان عمل حدثت فيه الاصابة بوخز الابر والطرق المتبعة عند حدوث الاصابة بالادوات الحادة .

الدراسات السابقة

من الضروري علي كل العاملين بالرعاية الصحية معرفة كافة الاجراءات والتدابير والاحتياطات الوقائية التي يتم اتخاذها للحد من خطر الاصابة بوخز الابر اثناء اداء العمل وبناءا علي ذلك اشارت عدة منظمات ودراسات الي ضرورة امتلاك العاملين (طاقم التمريض) بشكل خاص الوعي والدراية الكاملة حول المخاطر المهنية .

كما اشارت منظمة الصحة العالمية الي ان 2 مليون من العاملين بالرعاية الصحية معرضون سنويا لخطر الاصابة , بحيث بينت ان فرصة التعرض للاصابة بالمرض الكبد الوبائي (B) 6- 30 لكل 100 شخص , وفرصة التعرض للكبد الوبائي (C) 3- 100 شخص وفرصة التعرض لمرض الايدز 1 لكل 300 شخص , حيث لوحظ تناقص العدوي بمرض الكبد الوبائي (B) نتيجة الاصابة بوخز الابر باعداد كبيرة وذلك بعد تجرع التطعيم المضاد لهذا المرض , حيث خلال سنة 1973 م كانت عدد حالات العدوي 000 . 17 حالة ايجابية , وبعد اجراء تطعيم خلال عدة سنوات لطاقم الرعاية الصحية وجدت 800 حالة في سنة 1995 م من المتعرضين للعدوي من اجمالي الاصابات[6] .

واشارت دراسة اخري للعاملين بالصحة في الولايات الامريكية سنة 1991 م وكانت في مستشفيين في ولاية فرجينيا بسعة 800 و900 سرير اثبتت ان102 طبيب حدثت لهم 43 حالة لحوادث وخز الابر خلال تسعة اشهر بمعدل 57 . 0 وخزة ابرة لكل طبيب اما بالنسبة للممرضات من عدد 54 حدثت 31 حالة وخز خلال خمسة اشهر بمعدل 83 . 0 وخزه لكل ممرضة في السنة[7] .

وقد سجلت منظمة الصحة العالمية حالات الاصابة بوخز الابر وذلك خلال الدراسات التي اجريت في فرنسا والولايات المتحدة الامريكية واليابان , ففي فرنسا عام 1992 م , في احدي مستشفياتها اصيب شخصان بالعدوي بمرض فقدان المناعة المكتسبة (الايدز) اثناء نقلهم للمخلفات الطبية , اما في امريكا عام 1994 م في احدي المستشفيات اصيب 39 شخص بعدوي مرض الايدز , وكانت الحالات كالاتي :-

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ــ قسم الأسرة والمجتمع

جامعة طرابلس

32 حالة منهم اصيب بالايدز نتيجة لتعرضهم للوخز بالابر .

حالة واحدة منهم اصيب بالايدز نتيجة لتعرضه للوخز بشفرة ملوثة .

حالة واحدة نتيجة التعرض لانابيب زجاجية مكسورة .

حاتة واحدة نتيجة التعرض للادوات الحادة .

4 حالات نتيجة لتعرضهم للدم والسوائل المخاطية لاشخاص مصابين بالايدز .

وفي اليابان ــ ولم تذكر السنة ــ قالت منظمة الصحة العالمية ان نسبة الاصابة بالايدز وفيروس الكبد البائي والجيمي نتيجة التعرض للوخز بالابر كالاتي :-

0. 3 % من الاصابة بمرض الايدز (HIV) .

3 % من الاصابة بفيروس الكبد (HBV) .

3-5 % من الاصابة بفيروس الكبد (HCV) [8].

وقد اجريت دراسة اخري لحالات جروح الوخز بالابر للعاملين بالصحة في بريطانية شملت عشرة مستشفيات في منطقة مانشستر حيث سجلت 2646 اصابة خلال سبع سنوات من 1992 وحتي سنة 1999 م [9].

وهناك دراسة في منطقة وسيكس واكسفورد في بريطانية اشارت للحدوث 1102 حالة وخز بمادة حادة منها 115 طبيب , 697 ممرضة , 106 من الطاقم الطبي المساعد , بمعدل 9-44 اصابة لكل 1000 موظف بالصحة [10].

حصر لحالات الاصابة بجروح الابر في طلاب كلية الطب (137 طالب بالسنة الرابعة , منهم 8 طلبة حدث لهم اصابات من 2-4 مرات) كانت النتائج كالاتي :-

17 % من الاصابات بسبب الابر الملوثة (الاكثر خطورة) .

70 % من الاصابات خلال العمليات الجراحية بسبب ابر الخياطة .

13 % من الاصابات بسبب ابر غير ملوثة .

المتدربين في مجال الطوارئ والاسعافات (3239 متدرب) تعرض عدد كبير منهم (40 %) لحالات وخز بمواد حادة بسبب عدة اسباب منها :-

32 % عدم تعاون المريض .

6 % العمل في اكثر من شيء في نفس الوقت.

49 % زحمة العمل .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

13 % عند اعادة غطاء الابر [11].

دراسة اخري حول حالات جروح الوخز بالابر اجريت للعاملين بالصحة في الهند سنة 1996- 1997 اشارت لتعرض عدد 65 طالب بجرح بواسطة الابر , حيث كان معظمها بسبب اعادة غطاء الابرة وبنسبة اقل الاسباب الاخرة مثل الوخز بواسطة ابر الخياطة , والنسبة العامة المسجلة لعدد الحوادث هو 1.5 حادثة وخز للطالب الواحد في الشهر وهذا المعدل يعتبر عالي [12].

دراسة اخرة لحالات جروح الوخز بالابر للعاملين بالصحة في السعودية استمرت اربع سنوات لعدد كبير من العاملين في مجال الصحة في السعودية اثبتت الاتي :-

هنالك 364 حالة تبليغ عن جرح او وخز بواسطة الة حادة .

الاصابة تختلف باختلاف التخصص فطاقم التمريض يحتوي علي 38 اصابة من الف ممرضة والطاقم الطبي المساعد علي 46 \ 1000 , وحالات اكثر تفاقم في بعض التخصصات الجراحية حيث تصل الي 66 \1000 حالة .

وكانت الاسباب وراء تلك الجروح تتفاوت كالتالي :-

18 % اصابات بسبب ترك المادة الحادة في غير المكان المناسب .

16 % بسبب التخلص منها بالطرق الغير سليمة مثل وجود ابرة في كيس القمامة .

60 % بسبب اعادة غطاء الابرة .

6 % من الاصابات بسبب محاولة تفكيك الابرة [13].

ودراسة ثانية استمرت للمدة ثلاث سنوات من 1995- 1997 في احدي عشرة مستشفي اكدت ان معظم الاصابات تحدث في النساء (الممرضات) , وهنالك علاقة واضحة بين مدة الخبرة للعاملين بالصحة والاصابات التي تحدث بينهم , وكانت اسباب حدوث تلك الاصابات كالتالي :-

43 % عند التعامل مع الحقنة.

14 % خلال التخلص من الابرة .

4 % عند اعادة غطاء الابرة

16 % عند التنظيف .

14 % عند تخيط الجروح .

9 % بسبب اخطاء الأخرين [14] [15].

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

ودراسة اخرة لحالات جروح الوخز بالابرة للعاملين بالصحة في استراليا سنة 1998 من عدد 192 من طاقم التمريض علي الاقل 76 % (146) تعرضوا لدم وسوائل المرضي وبمعدل 240 مرة حصلت حالة تعرض لكل مائة ممرضة في السنة , وكانت النتائج :-

53 % لم يتم التبليغ عن كل حوادث التعرض من قبل الممرضات.

25 % من الممرضات يعتقدن انه لايوجد خطورة من تلك الحوادث .

3 % من الممرضات يجهلن اجراءات المتبعة للتبليغ عند حدوث التعرض.

19 % من التعرض لوخز وجروح الابر لم يتم التبليغ عنها [16] .

كما اشارت دراسة اجريت في كولومبيا سنة 1999 م ان من بين 8 مليون عامل رعاية صحية حوالي 600.000 \ 800.000 يصابون بوخز الابر سنويا , حيث تبين ان لكل 100 سرير تحدث 30 اصابة , وبينت هذه الدراسة انة بالرغم من خطورة التعرض للاصابة بالامكان الحد منها وذلك عبر برنامج المراقبة الصحية [17] .

كما اجريت دراسة في المملكة السعودية سنة 2000 م , وجد ان خطر الاصابة بالادوات الحادة ووخز الابر حيث تبين من خلالها 56 % من حالات الاصابة كانت نتيجة اعادة غطاء الابرة المستخدمة [18] .

اجريت دراسة مختصرة اخرة لادارة الاحياء الدقيقة وكلية الطب في المستشفي العام بالهند خلال سنة 2001 م-2002 م , علي العاملين في بالمستشفي وجد حوالي 38 حالة اصابة منها 76.3 % اصابة كانت من الاطباء المقمين , 5.3 % اصابة للاطباء الامتياز , 10.5 % لطاقم التمريض , 2.6 % للفنيين , 5.3 % اصابة للحاضنات , حيث كانت 5 . 89 % من الاصابات عن طريق الوخز بالابر , حيث ان 60 % من الاصابات حصلت اثناء سحب الدم , 15 % اثناء وصل الاوعية الدموية , 12 % اثناء تركيب انابيب في الاوردة , 9 % اثناء اعادة الغطاء للابرة , 4 % اثناء خياطة الجروح [19] .

وقد اجريت دراسة وبائية حول اصابات الوخز بالابر للعاملين في مستشفيات السعودية سنة 2002م - 2003م حيث تبين من خلالها ان 66 % من الاصابة كانت من نصيب طاقم التمريض, 19 % من الاطباء , 15 % من عمال النظافة , وكذلك 69 % اثناء محاولة اعادة الغطاء للابرة المستخدمة و 31 % اثناء اجراء العمليات, كما تم توزيع نسب الاصابات حسب اماكن العمل كما يلي :-

2.7 % العيادات الخارجية .

5.5 % من المعامل والمختبرات .

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

13.7 % وحدة العناية المركزة .

16.4 % داخل حجرة العمليات .

19.2 % خلال اسعاف الحوادث.

42.5 % داخل اقسام المستشفيات (يقصد بها باقي اقسام الاخرة داخل المستشفيات) [20] .

مواد وطرق البحث

تصميم الدراسة   Study Design :

أجريت دراسة مقطعية Cross – Sectional Study علي طاقم التمريض في مستشفيات مدينة بنغازي.

فترة الدراسة Study Period :

من شهر 10سنة 2010 م إلي شهر 5 سنة 2011 م .

وقت الدرسة Study Time :

خلال الفترة الصباحية و المسائية.

مجموعة الدراسة Study Group :

لغرض استكمال هذة الدراسة , فقد تم اختبار العاملين في مجال التمريض بالمستشفيات العامة في داخل مدينة بنغازي , تحديدا الموجودين وقت زيارة فريق البحث , وبعد موافقتهم علي المشاركة في الدراسة .

ادوات الدراسة Study Tools :

نموذج استبيان (Questionnaires Form)
صمم نموذج استبيان لجمع معلومات عن الصفات الشخصية لطاقم التمريض : الجنس, الجنسية, العمر , والمستوى العلمي ... الخ.

كما صمم هذا النموذج لجمع المعلومات عن مدى الوعي الصحي البيئي لدى لطاقم التمريض وكيفية اتباع الاجراءات الوقائية اللازمة في حال الاصابة بالوخز بالإبر وكيفية التخلص من الإبر الملوثة .

حجم العينة Sample Size :

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

تم استخدام إسلوب المعاينة العشوائية البسيطة لسحب عينة الدراسة وتمثل نسبة العينة 25%
من حجم المجتمع المراد دراسته (طاقم التمريض في مستشفيات مدينة بنغازي) البالغ عددهم **(355).**

التدريب Training :

لغرض تفادي الخطأ أثناء تجميع البيانات , تم تدريب القائمين علي الدراسة حول كيفية وطرق تجميع
البيانات الخاصة بموضوع الدراسة وكيفية معالجتها وادخالها بجهاز الحاسوب لتحليلها احصائيا .

تحليل البيانات Data Analysis

لغرض تحليل البيانات تم تجميع وتفريغ البيانات عن طريق برنامج (SPSS) Statically Package
for Social Sciences ومن تم تنظيف وتبويب البيانات لاعداد الجداول الوصفية للبيانات باستخدام
بعض الجداول والاشكال .

النـــــــــــــــائـــــــج

شارك في الدراسة (355) من طاقم التمريض لدي مستشفيات مدينة بنغازي أي 25% من كل مستشفى
وكانت النسبة الاجمالية لعدد الذكور والاناث (13.8% , 86.2%) علي التوالي .

يبين الجدول (1) الاوصاف العامه لافراد العينة من طاقم التمريض , وكانت الفئات العمرية علي النحو
التالي :

(14-20) سنة بنسبة 1.7% , (21-30) سنة بنسبة 58% , (31-50) سنة بنسبة 34.9% , (51-فما
فوق) سنة بنسبة 5.4% .

وكان منهم 93% ليبي , و7% غير ليبي , وتتراوح مستوياتهم العلمية علي النحو التالي :-

(76%دبلوم متوسط), (20.3% دبلوم عالي), (8% بكالوريوس) ,(2.8%) غير ذلك [1].

وكانت حالتهم الاجتماعية 43.9% أعزب , 49.9%متزوج, 37% مطلق , 2.5% أرمل و تبين ان
الحالة الصحية لهم 7.9% ممتازة ,47%جيدة و5.1% أقل من ذلك كما هوموضح في الجدول رقم (1)
.وتبين من الشكل (1) اختلاف عدد ساعات العمل اليومية لطاقم التمريض وهي 6 ساعات بنسبة
(4.8%), و8 ساعات (44.2 %) , 10 ساعات (27. 3 %) , 12 ساعة (7 . 23 %) , بحيث قسموا

---

[1] الأشخاص اللذين خضعوا لدورات تدريبية قد تكون مدتها 6 أشهر أو سنة .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

حسب طبيعة العمل الي 78 % ممرضة , 6% فنية عمليات ,2.30 % فنية تخدير , 1 % علاج طبيعي , 16.6 % لم يجيبوا, كما هو موضح في الشكل (2) ,وتبين من الدراسة أن 0.3 % من طاقم التمريض اناث لهن مهنة سابقة و هي الحياكة , و 0.8 % من طقم التمريض ذكورا أعمال حرة , و كانت النسبة الأكبر هي 98.9 % لم يجيبوا .

يبين الجدول (2) مخاطر الاصابة بوخز الابر لدى طاقم التمريض حسب رأيهم , و تبين ان 37.5 % تعرضوا للاصابة أثناء مزاولة المهنة , حيث كانت الاصابة أثناء اعادة الغطاء للابرة بنسبة 15.8 % , و أثناء حركة المريض بنسبة 8.5 % , و عند التخلص من الابر بنسبة 3.4 % , و بنسبة 11 % أسباب أخرا لم تذكر(حسب اجابتهم غير معروفة) , والباقي لم يجيبوا .

يبين الشكل (3) الوعي بالأمراض الناتجة من الاصابه لدى طاقم التمريض , حيث وجد أن 74.4 % منهم يؤكدون على حدوث العدوى بالتهاب الكبد الوبائي و الايدز في حالة الاصابه بوخز الابر , و أن 7 % يؤكدون على حدوث العدوى بالتيفود و الصفراء , و 0.8 % للاصابه بالتهاب الكبد الرئوي [2], و 0.3 % بحساسية الجلد .

كما تبين في الشكل (4) عدم وجود برنامج تثقيفي منتظم داخل مستشفيات مدينة بنغازي و ذلك بنسبة 70.4 % من اجمالي العينة .

ويوضح الشكل (5) عدد الدورات و الندوات بخصوص مخاطر الاصابه بوخز الابر التي تلقاها طاقم التمريض في مستشفيات مدينة بنغازي , حيث تم اجراء دورة و ندوة واحدة بنسبة (67 % , 62.3%) على التوالي , خلال سنوات مزاولة المهنة , كما تبين أن 55.8 % يتم استخدام ملصقات كوسيلة توضيحية .

ومن أهم الاجراءات الوقائية المتبعه داخل مستشفيات مدينة بنغازي و التي من خلالها وجد أن 58.3 % من طاقم التمريض لم يتم تحصينهم ضد بعض الامراض المعدية قبل المباشرة في مزاولة المهنة كما هو موضح في الجدول رقم (3) .

الجدول رقم (4) يبين المناهج الدراسية أثناء فترة الدراسة لمخاطر التعرض للاصابة بالأدوات الحادة , حيث تبين من خلال الدراسة أن 77.7 % من طاقم التمريض تلقوا من خلال مناهجهم الدراسية مخاطر

---

[2] التهاب الكبد الرئوي هو مرض معدي حسب اعتقاد أفراد طاقم التمريض ينتقل عن طريق الوخز بالإبر , و ذلك نتيجة لقلة الوعي داخل المرافق الصحية .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

التعرض للاصابات بوخز الابر و الادوات الحادة , و كذلك نسبة 78.9 % تلقوا من خلال المناهج الدراسية طرق التخلص و الوقاية من الأدوات الحادة .

الجدول (5) يوضح الندوات التدريبية داخل المستشفيات للاصابات بالأدوات الحادة , حيث تبين من خلال الدراسة أن 27.9 % توجد لديهم دورات تدريبية داخل المستشفيات , و كذلك أكثر جهة مسئولة عن القيام بالدورات التدريبية كانت 66.8 % عن طريق المستشفيات و 55.8 % كانت البرامج التثقيفية على شكل ملصقات .

الجدول رقم (6) يبين الالتزام بالاحتياطات الوقائية للحماية من الاصابه بالأدوات الحادة و قد تبين من خلال دراستنا أن 90 % ملتزمون بالاحتياطات الوقائية الشخصية .

الجدول رقم (7) يبين مدى وعي طاقم التمريض بأخطر الاصابات التي تحدث داخل المستشفى و وجد أن نسبة 91.5 % يدركون أن أخطر الاصابات في المستشفيات هي اصابات الوخز بالابر و الأدوات الحادة كما أوضحت الدراسة أن السبب الرئيسي لحدوث الأصابة ثابت 15.8 % وهو اعادة الغطاء للابرة و 83.1 % لديهم الدراية بالاصابات التي تحدث داخل المستشفيات , كما تبين من الدراسة أن 57.7 % يعتقدون أن ارجاع غطاء الابرة بعد الاستعمال صحيح و نسبة 38 % منه خطأ .

الجدول رقم (8) يبين كيفية التخلص من الابر و الادوات الحادة حيث اوضحت الدراسه ان 58.6 % يستخدمون وعاء بلاستيك (جالون)[3] , و 19.4 % أكياس قمامة عادية , و 3.9 % أكياس خاصة .

الجدول رقم (9) يبين العلاقة بين المستوى العلمي و الوعي بكيفية التخلص من الادوات الحادة و تأثيرها السلبي لدى طاقم التمريض في مستشفيات مدينة بنغازي , حيث تبين أن 75.3 % من الحاصلين على دبلوم متوسط على دراية بكيفية التخلص من الادوات الحادة , و أن 32.14 % من الحاصلين على الدبلوم العالي ليسوا على دراية بذلك .

الجدول رقم (10) يوضح العلاقة بين المؤهل العلمي و الدرايه بالامراض التي قد تنجم عن الاصابة بالادوات الحاده و الوخز بالابر , حيث تبين ان 90.7 % من الحاصلين على الدبلوم المتوسط على درايه بالامراض التي قد تنجم عن الاصابه بالادوات الحادة و ان 35.71 % من الحاصلين على الدبلوم العالي ليس لديهم الدراية بالامراض التي قد تنجم عن الاصابه بالادوات الحادة .

---

[3] جالون بلاستك : وعاء مصنوع من مادة بلاستيكية تستخدم في بعض المستشفيات للتخلص من الإبر و الأدوات الحادة .

و عن العلاقة بين المؤهل العلمي و ارجاع غطاء الابره بعد استعمالها حيث اتضح من خلال الدراسة ان 63.5 % من الحاصلين على الدبلوم المتوسط يعتقدون ان ارجاع غطاء الابرة بعد استعمالها صحيح و ان 34 % من الحاصلين على الدبلوم العالي يعتقدون انه خطأ كما هو موضح في الجدول رقم (11).

أما بالنسبة للعلاقة بين مدة الخبرة لافراد طاقم التمريض و العوامل المساعدة لحدوث الاصابه اكد اصحاب خبره من 5 سنوات الى 10 سنوات ان 71 % من ضغط العمل هو العامل الاساسي المساعد في الاصابه , و 6 % ظروف اجتماعيه كما هو موضح في الجدول رقم (12).

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

جدول (1): يبيـن الأوصاف العامـة لأفـراد العينـة من طاقم التمـريض في مستشفيات مدينة بنغازي

الأوصاوف العامة لأفراد العينة	العدد	النسبة المئوية (100 %)
العمر:		
20-14	6	1.7
30-21	206	58
50-31	124	34.9
51 فمـا فوق	19	5.4
الجنس:		
ذكر	49	13.8
أنثى	306	86.2
الجنسيـة:		
ليبـي	330	93
غير ليبـي	25	7
المـؤهل العلمـي:		
دبلوم متوسط	270	76.1
دبلوم عالـي	72	20.3
بكالوريوس	3	0.8
غير ذلك	10	2.8
مـدة الخبرة:		
أقل مـن 5 سنوات	51	14.4
5-10 سنوات	148	41.6
15-11 سنة	105	29.6
16 فأكثر	51	14.4
الحالـة الاجتماعيـة:		
أعزب	156	43.9
متزوج	177	49.9
مطلـق	13	3.7
أرمل	9	2.5
الحالـة الصحيـة:		
ممتازة	170	47.9
جيدة	167	47
أقل من ذلك	18	5.1

شكل (1): يبيـن عـدد السـاعـات اليوميـة لطاقم التمـريض في مستشفيات مـدينة بنـغازي.

www.uot.edu.ly

2017 /1/30م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

شكل

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

(2) : يبين طبيعة العمل لدى طاقم التمريض في مستشفيات مدينة بنغازي

جدول (2): يبيـن مخـاطر الإصابـة بوخـز الإبر أثنـاء مـزاولـة المهنـة فـي مستشفيات مـدينة بنـغازي حسب رأي فئة التمريض.

مخـاطر الإصابـة بوخـز الإبر	العدد	النسبة المئوية (% 100)
التعرض لـلإصابة أثناء مزاولـة المهنـة		
نعـم	133	37.5
لا	200	56.3
لـم يجيبوا	22	6.2
الإصابـة كانت أثنـاء :		
- إعادة الغطاء لـلإبرة.	68	19.2
- أثناء حركـة المريض.	30	8.5
- عند التخلص من الإبر.	12	3.4
- غير ذلك*.	27	7.6
- لـم يجيبوا.	218	61.3
مكـان الإصابـة :		
- غرفة المريض.	44	12.3
- غرفة العلاج.	16	4.5
- بنك الـدم.	1	0.3
- غرفـة سحب الـدم.	21	5.9
- غرفـة الطوارئ.	5	1.4
- غرفـة العمليـات.	23	6.5
- جميعها.	24	6.8
- لـم يجيبوا.	221	62.3
مـوضع الإصابـة :		
- اليد اليمنى.	47	13.2
- اليد اليسرى.	51	14.4
- مكان آخر (الكف)	23	6.5
- كلتـا اليدين.	3	0.8
- لـم يجيبوا.	231	65.1

شكـل (3): يبين الوعي بالأمراض الناتجة من الإصابة لدي طاقم التمريض

www.uot.edu.ly

30 /1/ 2017م

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

شكل (4): يبـين وجـود برنـامـج تثقيفـي منتظـم داخـل مستشفيات مـدينـة بنـغازي

شكل (5): يبـين عدد نسب الدورات و النـدوات التي تلاقها طاقم التمريض في مستشفيات مدينة
بنغازي

جدول (3): يبـين أهم الإجراءات الوقائيـة المتبعـة داخل مـستشفيات مدينـة بنغازي

الإجراءات الوقائيـة المتبعـة	العدد	النسبة المئوية (100 %)
تحصين ضد الأمراض المـعديـة قبل مباشرة العمل:		
- نعـم	142	40
- لا	207	58.3
- لـم يجيبوا	6	1.7
إجراء كشف طبي دوري :		
- نعـم	35	9.9
- لا	309	87
- لـم يجيبوا	11	3.1
فتـرة الكشف :		
- كل 6 أشهـر.	11	3.1
- كل سنـة.	16	4.5
- كل سنتين.	5	1.4
- لـم يجيبوا.	323	91
امتلاك تأمين صحي :		
- نعـم	77	21.7
- لا	264	74.4
- لـم يجيبوا	14	3.9
وجود لجان مختصـة بإدارة النفايات الطبيـة :		
- نعـم	143	40.2
- لا	202	57
- تخلص شخصي.	1	0.3
- لـم يجيبوا.	9	2.5
الإجراء المتبع عند حدوث الإصابة :		
- إبلاغ الإدارة.	41	11.5
- إبلاغ المسؤول عن القسم.	71	20
- تتبـع طرق الإسعافات الأوليـة.	109	30.7
- طلب مساعدة الزمـلاء.	32	9
- كل مـا سبق.	46	13
- لـم يجيبوا	56	15.8

جـدول (4): يبـين المناهـج الـدراسيـة التـي تلقهـا طاقـم التمـريض أثنـاء فـترة الـدراسـة لمخـاطر التعرض لـلإصابـة بالأدوات الحـادة

النسبة المئوية (%)	العدد	المناهج الدراسية أثناء فترة الدراسـة
		دراسة مخاطر التعرض للإصابات بالأدوات الحـادة:
77.7	276	- نعم
18.3	65	- لا
4	14	- لم يجيب
		دراسة طرق الوقايـة من الأدوات الحادة وكيفيـة التخلص منها:
78.9	280	- نعـم
16.3	58	- لا
4.8	17	- لم يجيب
		تطبيق مـا درس أثناء العمل لطاقم التمريض:
62.5	222	- نعـم
21.4	76	- لا
16.1	57	- لم يجيب

www.uot.edu.ly

30/1/ 2017م

جــدول (5): يبيـن النـدوات العلمـية حـول التعـرض للإصابات بالأدوات الحـادة داخـل مستشفيات مـدينـة بنـغازي

النسبة المئوية (%)	العدد	الدورات التدريبية لطاقم التمريض
		وجود دورات داخل المستشفيات :
%27.9	99	نعم
%65.9	234	لا
%6.2	22	لم يجيب
		الجهات المسئولة عن قيام الدورات :
%21.1	75	المستشفى
%7.6	27	المعهد
%1.1	4	دورات خاصة
2.8	10	مركز التثقيف الصحي
%0.6	2	جميع الجهات
%66.8	237	لم يجيب
		النـدوات أو المحاضرات التثقيفيـة المستمرة داخـل المستشفى:
%24.5	87	نعم
%69.5	247	لا
% 6	21	لم يجيب
		أنواع البرامج المفروض تقدمها المستشفى لزيادة الوعي لطاقم التمريض:
% 55.8	198	ملصقات
%5.4	19	ندوات
%1.1	4	مجلات إرشادية تعليمية
%5.4	19	محاضرات
%0.8	3	نشرات شهرية سنوية
%8.2	29	لا يوجد أي برنامج
%4.8	17	جميع ما ذكر
% 18.5	66	لم يجيب

جـدول(6): يبـين مـدى الإلـتزام بالإحتياطات الوقائيـة للحمايـة مـن الإصابـة بالأدوات الحـادة داخـل مستشفيـات مـدينـة بنـغازي

النسبة المئوية	الاحتياطات الوقائية المستخدمة في المستشفيات
	استخدام الاحتياطات الوقائية للحماية من الإصابات :
%90.1	نعم
%7.3	لا
%2.6	

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

	لم يجيب
	المواد الواجب توافرها للحماية من الإصابة بالأدوات الحادة:
%28.2	القفازات
%0.3	المعطف الطبي
%0.6	النظارات الواقية
%1.7	لم يجيب
%69.3	جميع ما ذكر(القفازات و المعطف الطبي و النظارات الواقية)
	إمكانية توفرها في المستشفى:
%82.0	نعم (متوفرة)
%13.8	لا
%4.2	لم يجيب

جدول (7) يبين إعتقاد طاقم التمريض بـأن الإصابـة بالأدوات الحـادة مـن أخـطر بالمستشفى الإصابـات

النسبة المئوية (%)	الإعتقـاد و الأسـباب
	الإصابة بالأدوات الحادة من أخطر الإصابات بالمستشفى
%91.5	نعم
%7.9	لا
%0.6	لم يجيب
	السبب الرئيسي في حدوث الإصابة بالأدوات الحادة :
%65.4	ضغط العمل
%17.2	ظروف اجتماعية
%6.8	لم يجيب
%10.7	غير ذلك(أسباب أخري لم يتم ذكرها)
	الدراية بالأمراض التي قد تنجم بالإصابة بالأدوات الحادة
%83.1	نعم
%9.0	لا
%7.9	

لم يجيب	
إرجاع الغطاء لـلإبـرة بعد الإستعمال:	
صح	57.7%
خطأ	38.0%
لم يجيب	4.2%

جدول (8): يبـين كيفيـة التخلص مـن الإبـر والأدوات الحـادة لطاقـم التمـريض فـي مـستشفيات مـدينـة بنـــغازي

التخلص من الإبر والأدوات الحادة بعد الاستعمال	النسبة المئوية
جالون بلاستيك	58.6%
أكياس بلاستيك	3.9%
أكياس قمامة عادية	19.5%
زجاجة خاصة	1.4%
لم يجيب	15.5%
كل ما ذكر	1.1%

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع
Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
جامعة طرابلس

جدول (9) : يبين العلاقة بين المستوى العلمي و الوعي بكيفية التخلص من الأدوات الحادة وتأثيرها السلبي لدى طاقم التمريض في مستشفيات مدينة بنغازي .

	المجموع		الوعى بكيفية التخلص من الأدوات الحادة وتأثيرها السلبى						المستوى المؤهل العلمي
	المجموع		لم يجيبوا		لا قد تنجم عن الإصابة		الدراية بالأمراض التى		
%	العدد	%	العدد	%	العدد	%	العدد		
100	279	3.22	9	21.50	60	75.3	210		دبلوم متوسط
100	56	5.4	3	32.14	18	62.5	35		دبلوم عالى
100	8	0	0	37.5	3	62.5	5		بكالوريوس
100	12	8.33	1	8.33	1	83.34	10		غير ذلك
100	355	3.7	13	23.1	82	73.23	260		المجموع

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

	لا		نعم		لم يجيبوا		
	العدد	%	العدد	%	العدد	%	العدد	%
إرجاع غطاء للابرة بعد الإستعمال	14	5.01	253	90.7	12	4.30	279 المجموع	100
المؤهل العلمي	خطأ 20	35.71	صح 33	58.92	لم يجيب 3	5.4	56	100
	العدد 1	%	العدد 7	%	العدد 0	%	العدد 8	%
ديبلوم متوسط	93 1	33.33	177 10	63.5	9 1	3.22	279 12	100
المجموع	36	10.14	303	85.4	16	4.50	355	100

جدول (10) : يبين العلاقة بين المؤهل العلمي لطاقم التمريض و الدراية بالأمراض التي قد تنجم عن الإصابة بالأدوات الحادة .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

100	56	9	5	57.14	32	34	19	دبلوم عالي
100	8	0	0	50	4	50	4	بكالوريوس
100	12	8.33	1	67	8	25	3	غير ذلك
100	355	4	15	62	221	34	119	المجموع

جدول (11) : يبين العلاقة بين المؤهل العلمي و إرجاع غطاء الإبرة بعد الاستعمال .

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جدول (12) : يبين العلاقة بين مدة الخبرة و العوامل المساعدة في حدوث الإصابة.

المجموع		لم يجيب		أكثر من سبب		ضغط العمل		الجانب المعنوي		مشاكل مع الزملاء		ظروف اجتماعية		غير ذلك		مدة الخبرة
%	العدد	%	العدد	%	العدد	%	العدد	%	العدد	%	العدد	%	العدد	%	العدد	
100	46	2	1	24	11	63	29	7	3	2	1	2	1	0	0	أقل من 5 سنوات
100	141	0	0	20	28	71	100	2	3	0	0	6	9	1	1	5 – 10 سنوات
100	93	3.22	3	27	25	59.13	55	2.15	2	0	0	4.3	4	4.3	4	11 – 15 سنة
100	73	1.36	1	16.43	12	71.23	52	4.10	3	0	0	4.10	3	3	2	16 سنة – فأكثر
100	2	0	0	0	0	100	2	0	0	0	0	0	0	0	0	لم يجيبوا
100	355	1.4	5	21.4	76	67	238	3.09	11	0.28.	1	5	17	2	7	المجموع

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

المنـاقـشـــــة

تبين من خلال دراستنا أن نسبة حدوث الإصابة بالوخز بالابر لدى طاقم التمريض في مستشفيات مدينة بنغازي كانت 37.5 % قد تحصلوا على إصابة إثناء مزاولة المهنة , و دراسة حدثت في أستراليا سنة 1998 كانت نسبة حدوث الإصابة فيها 76 % من نصيب طاقم التمريض , و دراسة اجريت في السعودية سنة 2002-2003 بينت نسبة 66 % من حدوث الإصابة لطاقم التمريض , و دراسة أخرا في تايوان سنة 2002 كانت نسبة حدوث الإصابة 87 % لطاقم التمريض .

و لقد أوضحت هذه الدراسة أن سبب حدوث لإصابة هوا إرجاع الغطاء للإبرة بعد الاستعمال في مستشفيات مدينة بنغازي بنسبة 15.8 % , و بمقارنتها بدراسة في بريطانيا سنة 1992-1999 كان إرجاع الغطاء للإبرة بعد الاستعمال سبب حدوث الإصابة بنسبة 13 % , و بدراسة أخرى اجريت في السعودية سنة 1995-1997 كان إرجاع الغطاء للإبرة بعد الاستعمال سبب لحدوث الإصابة بنسبة 6 % أثناء حركة المريض , و عن سبب حدوث الإصابة عند التخلص من الإبره أوضحت الدراسة أنه يحدث بنسبة 8.5 % و 3.4 % على التوالي في مستشفيات مدينة بنغازي , أما في السعودية كانت سبب حدوث إثناء التخلص من الإبرة بنسبة 14 % و في بريطانيا دراسة أخرى بينت حدوث الإصابة أثناء حركة المريض و عدم تعاونه بنسبة 32 % .

ونسبة اعتقاد طاقم التمريض بأن إصابات الأدوات الحادة من أخطر الإصابات في مستشفيات مدينة بنغازي 70.4 % من المتحصلين على دبلوم متوسط , و الدراسة في أستراليا أن نسبة 75 % من طاقم التمريض يعتقدون أن لا يوجد خطورة من الاصابه بالادوات الحادة .

لقد تبين من خلال دراستنا أن اتباع طرق الإسعافات الأولية كان بنسبة 30.7 % من حدوث الإصابة بوخز الإبر و عند مقارنتها بدراسة في استراليا نجد أن 19% من المتعرضين للإصابة لم يتم التبليغ عنها في مستشفيات أستراليا , ونسبة 2 % من طاقم التمريض ليس على دراية بالإجراءات المتبعة للتبليغ عند حدوث حوادث الاصابه , و أوضحت الدراسة أن نسبة 11.5 % تم إبلاغ الإدارة عن حالات حدوث الإصابة .

و أوضحت الدراسة أن 77.7 % من طاقم التمريض تضمنت مناهجهم الدراسية عن مخاطر التعرض للإصابات بالادوات الحادة , و نسبة 78.9 % تضمنت المناهج الدراسية خلال مدة الدراسة كل طرق الوقاية من الأدوات الحادة و كيفية التخلص منها , أما عن مدى التطبيق تم دراستها أثناء العمل في

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع

جامعة طرابلس

المستشفيات بنسبة 62.5 % , 65.9 % لا يوجد دورات منتظمة داخل المستشفيات في مدينة بنغازي , نسبة 69.5 % لا يوجد ندوات و محاضرات تثقيفية مستمرة داخل المستشفيات و كذلك من خلال النتائج لقد تحصلنا على 83.1 % من طاقم التمريض لديه الدراية بالأمراض التي قد تنجم عن الاصابه بالادوات الحادة .

و تم دراسة العلاقة بين المؤهل العلمي لطاقم التمريض و الوعي بأنواع الأمراض التي قد تنجم نتيجة الاصابه بوخز الإبر , حيث تبين وجود وعي صحي بذلك بنسبة 58.3 % دبلوم متوسط , 14.6 % دبلوم عالي , بحدوث الإصابة بمرض التهاب الكبد الوبائي بنوعيه الإيدز .

كما تبين لنا عدم المعرفة الكافية بكيفية التخلص من الأدوات الطبية الحادة و مدى تأثيرها على الصحة بنسبة 50.1 % من المتحصلين على دبلوم متوسط لأفراد العينة , 14.6 % من المتحصلين على دبلوم عالي لأفراد العينة .

حيث لوحظ عدم استيفاء الإجراءات و الاحتياطيات الوقائية داخل مستشفيات مدينة بنغازي لدى طاقم التمريض , و ذلك كالتالي :-

58.3 % من طاقم التمريض لم يتم إعطاؤهم اللقاح المضاد لفيروس الكبد الوبائي البائي .

67 % من طاقم التمريض تلقوا دورة تدريبية واحدة فقط خلال مدة عمل 5 سنوات كحد أدنى .

كما أجاب 70.4 % من طاقم التمريض بعدم وجود برنامج تثقيفي منتظم داخل المستشفيات .

بين 87 % من أجمالي العينة لم يحصلوا على كشف طبي داخل المستشفيات .

و 74.4 % من طاقم التمريض لا يملكون تأمين صحي كعاملين بإحدى المرافق الصحية .

و أكد 56.9 % من طاقم التمريض أنه لا توجد لجان مختصة تشرف على التخلص من الأدوات الطبية الحادة بالمستشفيات .

نسبة البلاغات عن حدوث الإصابة كانت 22.5 % من طاقم التمريض .

الاستنتــــــاج

تعتبر الرعاية الصحية لطاقم التمريض غير مرضية نظرا لعدم استيفاء كافة الإجراءات الصحية اللازمة لوقاية العاملين في قطاع الصحة , مما أدى إلى ارتفاع احتمالية الإصابة بالأمراض المعدية أثناء مزاولة المهنة , و ساعد في احتمالية هذه الإصابة عدم الوعي الصحي البيئي الكافي و اللازم للوقاية من مخاطر المهنة .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع

جامعة طرابلس

و مما يستدعي و كما تبين من هذه الدراسة أهمية رفع درجة الوعي الصحي لدى طاقم التمريض و ضرورة الاهتمام بالصحة العامة و التأكيد على ضرورة إجراء دورات تدريبية و تثقيفية تدعم و تعزز الوعي الصحي البيئي لدى طاقم الرعاية الصحية , و خاصة طاقم التمريض .

Abstract

Awareness in environmental health to the needles stick for nursing staff in Benghazi hospital 2010 – 2011.

Aims: recognition awareness environmental health to the needle sticks injuries to the nurses' staff.

Method: cross- sectional study is conducted in Benghazi wide from December to May , randomly samples size 355 nurse staff this is conducted according to sample size determination booklet of WHO, data collection by questionnaire form distributed and filled by nurse staff.

Result: injuries of needle staff stick was 37.5 % of total sample size , must injuries was in patient room at 12.3 % and 19.2 % during recovering needle after uses.

Conclusion : Due to default in the application of personal precaution leading to increase needle stick injuries between nurses' staff in Benghazi hospital.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

التوصيات

أرشاد و تثقيف طاقم التمريض و أقامة الندوات و الدورات التي تعمل على توضيح طرق التعامل مع الإبر و الأدوات الحادة و كيفية التخلص منها .

أعطاء التطعيمات لطاقم التمريض ضد الأمراض المعدية التي تنتقل عن طريق الأدوات الحادة .

استعمال الواقيات الشخصية مثل القفازات و الكمامات أثناء مزاولة العمل .

الإلحاح على ضرورة إيجاد قوانين مباشرة تعمل على تنظيم التعامل مع الأدوات الحادة .

ضرورة إدراج التعريف بالأدوات الحادة و الطرق السليمة للتخلص منها ضمن المناهج الدراسية .

ضرورة توفير أوعية خاصة لرمي الإبر بعد الاستعمال مباشرة دون اللجوء لإرجاع الغطاء للإبرة .

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

الملاحق

ملحق (1) : مفاهيم بعض المصطلحات

ـ وكالة حماية البيئة الأمريكية (EPA) : Environmental Protection Agency in united state

ـ منظمة الصحة العالمية (WHO): World Health Organization,

الأدوات الحادة : يقصد بالأدوات الحادة أي تستخدم لقطع الجلد , أو اختراقه مثل الإبر (سواء الإبر المستخدمة في خياطة الجروح أو في الحقن) , و المشارط , و الشكاكات , و القوارير الزجاجية المكسورة , الأنابيب الشعرية المكسورة , و الشرائح الزجاجية و أغطيتها , و النهايات المكشوفة من الأسلاك المستخدمة في عيادة الأسنان .

الحالة الصحية الممتازة : يقصد بها حالة العامل في قطاع الصحة (الممرض) تكون خالية من أي مشكلة صحية (جسدية أو نفسية).

الحالة الصحية الجيدة : يقصد بها حالة العامل في قطاع الصحة (الممرض) تكون مصحوبة ببعض المشاكل الصحية كالضعف العام و الوهن و الصداع و ضعف النظر ..... الخ.

الحالة الصحية الأقل من ذلك : يقصد بها حالة العامل في قطاع الصحة (الممرض) تكون مصحوبة بإحدى الأمراض (غير معدية) أو أعاقة جسدية .

الأمراض المعدية : هي أمراض تنتج عن وجود كائنات حية دقيقة ممرضة و تشمل الفيروسات , و البكتيريا , و الفطريات الممرضة وكائنات و حدية الخلية Protozoa .

و طفيليات متعددة الخلايا و هذه الكائنات الممرضة تسبب أمراض للإنسان و الحيوان و تنتقل من الشخص المصاب إلي الشخص السليم بطرق عديدة تكون مباشرة أو غير مباشرة .

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

References

Pruss A, Circuit E, Rush brook P, safe management of wastes from health care activities, Geneva, World Health Organization (1999).

Knight VM and Bod sworth NJ perception sand practice of universal blood and body fluid precaution by registered nurse at a major Sydney teaching hospital .journal of advanced nursing. (1998) 27: 746 – 751.

Newsom DH and Kiwanuka JP. Needle stick injuries in an Ugandan teaching hospital . annals of tropical medicine and parasitological.(2002) 96: 517 – 522.

Shen C. jaggerj,person RD.. Risk of needle stick and sharp object injuries among medical student. American Journal of infection control. (1999) 27: 435- 437.

Libyan ministry of health , Public health legislation 1976

World Health Organization international council of nurses, health care worker safety: preventing needle stick injury of occupational exposure to blood borne pathogen 1995.

Stotka L an analysis of blood fluid exposure sustained by house officers medical students and nursing personal on acute – care general medical wards a prospective study. Infection control and hospital epidemiology. 12:583 – 590.(1991)

Alzahrani AJ. Essa Baitei, Minging and Yufei. Needle sticks injuries and hepatitis B virus vaccination in health care workers. Communicable Disease and public health (2000). 3:217 – 218. (1)

Alzahrani AJ. Essa Baitei, Minging and Yufei. Needle sticks injuries and hepatitis B virus vaccination in health care workers. Communicable Disease and public health (2000). 3:217 – 218. (2)

Smedley J. D. coggon, D. heap, A. Ross . Management of sharps and contamination incident in health care workers: an audit in the wessex and Oxford regions. Occupational medicine. (1995). 45:273 – 275

Lee CH.. Occupational exposures to blood among emergency medicine residents. Academic Emergency Medicine.(1999). 6: 1036 – 1043.

Varma M and G Mehta. Needles stick injuries among medical students. Journal of Indian Medical Association.(2004). 98:436 – 438.

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Me mish ZA.Almuneefin , Dillon J. Epidemiology of Needle stick and sharps injuries in a tertiary care center in Saudi Arabia . American Journal of infection control.(2002) 30: 234 – 241.

Abu – Gad HA and AL – Turki KA some epidemiological aspects of needle stick injuries among the hospital care workers: eastern province, Saudi Arabia. European Journal of epidemiology. (2001) . 17 : 401 – 407

Al – Turkic KA and Abu-Gad HA. Frequency of prevention measure for needle stick injuries among hospital health care workers in Saudi Arabia. Journal for health care quality (2000).. 22,6:23-28.

Knight VM and Bodsworth NJ.. Perceptions and practice of universal blood and body fluid precautions by registered nurses at a major Sydney teaching hospital. Journal of advanced Nursing (1998). 27:746 – 751.

Wise HJ and McCormick RN. Re-enforcing hygiene anesthetists. Anesthesia (1999). 54:1220- 1043.

Cassina PC Hauser M , Kacl G, imthurn B. the real incidence of percutaneous injuries in the pirating room a prospective study . Swiss Surgery (1999) .. 27 : 746 – 751.

Varma M and G Mehta . Needle stick injuries among medical students. Journal of the Indian medical association. (2000) . 98 : 436 – 438.

Memish ZA. Almuneefin, Dillon J. epidemiology of needle stick and sharps injuries in a tertiary care center in Saudi Arabia . American Journal of infection control. (2002) . 30 : 234 – 241.

HIV/TB co-infected patients at more risk to anti-tuberculosis drug induced hepatotoxicity

Ehmeid M Khalifa* and Mohamed Kaled A. Shambesh

Abstract

Background and rationale: Three of the four anti-tuberculosis (TB) drugs (isoniazid, rifampicin, and pyrazinamide) that the World Health Organization (WHO) recommend for TB patients have a potential for toxicity on the liver. Because HIV infection is a common disease within TB patients, the aim of this systematic review is to use all existing research to assess whether HIV infection is a risk factor for anti-TB drug-induced hepatotoxicity.

Objective: The main objective to identify whether TB patients who are HIV infected are at greater risk of hepatotoxicity when they take anti-tuberculosis treatments.

Methods: Six databases were searched including the National Institute for Health and Clinical Excellence (NICE), Cochrane Library, CINAHL, Clinical Trials Gov., Medline, and PubMed. The search on these six databases produced 4448 results. This number of articles was reduced to 43 by reviewing the titles, abstracts, full texts, and the reference lists of some retrieved full text articles that only related to the systematic review. The 43 articles from the primary search were then reduced to a final number of 17 articles relevant to this systematic review after the inclusion and exclusion criteria were applied, and this process excluded 26 articles.

Results: Each included article was reviewed using the specific criteria of type of study, location of study, date of study, number of subjects in the study, what anti-TB drugs were introduced to the patients, and the outcomes of each study. Each study was critiqued against the claims of each study's author and further appraised by the author of this systematic review. This included the validity, reliability, and quality of each study. After the analysis of the 17 articles; 10 out of 17 papers show that HIV is a significant risk factor in TB patients in developing hepatotoxicity when receiving anti-TB drugs. In the last 6 papers out of 17, the analysis of results shows that there is no difference between HIV positive and HIV negative patients who received anti-TB drugs. One study only out of 17 from South Africa; (Marks, et al., 2009) showed that anti-TB drug-induced hepatotoxicity was more prevalent in HIV negative patients than those who were HIV positive.

Conclusion: According to the results of 17 included articles in this systematic review the answer could be clearly stated the almost all of the studies suggested and confirmed that HIV infection leads to a significantly greater risk of developing anti-TB drug-induced hepatotoxicity. The major two factors that make HIV a risk of developing anti-TB drug induced hepatotoxicity are retroviral therapy and low immunity of the body (low of CD4 count). In the conclusion also, there are two studies out of the 17 included articles considered the risk of two drugs of antiretroviral drugs which can cause toxicity on the liver (nevirapine and efavirense), and they reported that nevirapine has more toxic effect than efavirense, and practitioners should be aware of the their risk when using these drugs together.

Keywords: TB; HIV; anti-TB drugs; isoniazid; rifampicin; pyrazinamide; ethambutol; hepatotoxicity

1. Background

Hepatotoxicity due to TB medication can cause morbidity and mortality, and leads to limited use of these drugs. Hepatotoxicity is classified into many grades (table 1). Mild grade of hepatotoxicity can be tolerated by the patient and in moderate hepatotoxicity with the symptoms of toxicity the clinicians must interrupt the treatment or change it. In severe grade of hepatotoxicity, patients need to interrupt those drugs and be admitted to the hospital to have close monitoring and follow up regarding liver function tests. The incidence of TB patients who have developed hepatotoxicity due to anti-TB drugs is around 2% to 28% in the worldwide (de Castro, et al., 2010). There are many studies to identify the risk factors of TB drug-induced hepatotoxicity, such as the ethnicity, HIV, viral hepatitis, etc. Because the relationship between HIV and TB is inextricably linked, about 25 to 65% of HIV patients have TB infection (Sharma, et al., 2005). This systematic review has been chosen to review the studies and research which addressed HIV infection and whether it is a risk factor for TB drug-induced hepatotoxicity or not.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 1 the grades of hepatotoxicity

Hepatotoxicity classification
Grade 1 (mild) <2.5 times ULN (ALT 51–125 U/L)   Grade 2 (mild) 2.5–5 times ULN (ALT 126–250 U/L)   Grade 3 (moderate) 5–10 times ULN (ALT 251–500 U/L)   Grade 4 (severe) >10 times ULN (ALT > 500 U/L)   Adapted from (Tostmann, et al, 2008)
The normal range for ALT is between 10-40 U/l and AST 10-35 U/l   (Haslett, et al., 2002).

Three of the anti-TB drugs (isoniazid, rifampicin, and pyrazinamide) have a potential for toxicity on the liver as mentioned earlier, and using these drugs together increases their side effects. It is important that to see if there are any risk factors which could increase the toxicity of using anti-TB drugs on the liver. Because HIV infection is a common disease between TB patients, the aim of this systematic review is to use all existing research to assess whether HIV infection is a risk factor for anti-TB drug-induced hepatotoxicity or not, as there are no reviews which have addressed this question before.

A systematic review is considered the most reliable source of evidence to guide clinical practice. The most important step in this systematic review is to search of all of the sources for the relevant studies and list the searched databases in methodology of the review.

The use of inclusion criteria are used to screen for eligibility and to make assessment of appropriate titles and abstracts. A systematic review describes precisely the methodology to minimise bias, thus enhancing the reliability of the review conclusion (Clarke, 2011). A systematic review summarises all the results related to the subject under a methodological plan and contains a set of steps in preparing a review. The review question is one of those steps which is to assess the side effect of anti-TB drugs for induced hepatotoxicity in some types of people, specifically HIV infected patients. The parts of the review question are often referred to as 'PICO' (Participants, Intervention, comparisons, Outcomes) (Cochrane Consumer Network, 2011).

2. Objective

The main objective to identify whether TB patients who are HIV infected are at greater risk of hepatotoxicity when they take anti-tuberculosis treatments.

3. Methodology

3.1 Search Strategy for Identification of Studies

The initial stage was researching the Cochrane library by using HIV and TB as keywords to identify if a systematic review had been undertaken with regards HIV/TB co-infected patients and anti-TB drug-induced hepatotoxicity. No such systematic review existed, which clearly shows this current systematic review to be an original work and necessary. A similar search on Medline for such a systematic review relating to the review question has been done, using the same keywords HIV and TB. The search showed 32 reviews, but none of them are addressing the objective area of this systematic review.

Primary search strategy: The search was done in all relevant databases for studies and articles related to the review question by using the following keywords either individually or in various combinations: Tuberculosis, HIV, anti-tuberculosis, Isoniazid, Rifampicin, pyrazinamide, Ethambutol, and hepatotoxicity.

Because of the large amount of HIV and TB related papers in the databases resources; keywords were determined according to patients, intervention, and outcomes (PICO). Table 2 shows the keywords that are used in the search strategy of all relevant databases according to PICO method.

Table 2 shows the diagram of search strategy and data collection according to (PICO)

Patient/ Population/ Problem (P)	Intervention (I)	Comparison/ control intervention (C)	Outcome (or side effects) (O)
Tuberculosis	Anti-TB	No intervention	Hepatotoxicity
HIV	Anti-TB	No intervention	Hepatotoxicity
HIV and TB co-infection	Anti-TB	No intervention	Hepatotoxicity
HIV and TB co-infection	Isoniazid, rifampicin, pyrazinamide, and ethambutol	No intervention	Hepatotoxicity

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Research Design: Six databases were searched including the National Institute for Health and Clinical Excellence (NICE), Cochrane Library, CINAHL, Clinical Trials Gov., Medline, and PubMed. Figure 3.1 shows the database search results. The search on Medline and PubMed produced 1325 and 994 titles respectively. This number of articles was reduced to 44 by reviewing the titles and abstracts that only related to the systematic review question. The search within Cochrane and CINAHL produced 1818 titles and this number was reduced to 17 when just limited to those regarding the review question.

Clinical Trial.gov and National Institute for Health and Clinical Excellence (NICE) were accessed to check if there was any evidence of previous study or reviews done related to this systematic review's question. The search yielded 311 titles in total, all this number were excluded after retrieval and reviewed by titles and abstract.

The full text articles that were selected from the search in 6 databases were 62 articles. Some of these articles were repeated in different databases. Therefore, only one copy of the relevant article was selected; this reduced the number from 62 to 32. A search was also made from the reference lists of some retrieved full text articles and this produced 11 articles, depending on the relation with the systematic review question. The exclusion and inclusion criteria (table 3) were applied to those 43 primary studies (32 from databases + 11 from reference lists) to select them for answering the review question. The search strategy for studies that were retrieved and reviewed is shown in Figure 1.

3.2 Study Selection Criteria and Procedures

The Primary search strategy for the studies related to the review question has been done which produced 43 articles. The criteria for inclusion and exclusion have been applied utilizing PICO to the review protocol in the studies selection.

3.2.1 Types of studies considered

The search considered all studies that were designated as Randomised Control Trials (RCT), Clinical Trials, Case Control Study, and Cohort study. All reviews, cases reports, editorials, Qualitative studies, opinions, and Comments were excluded from the review. The review looks for the studies from 1981 until 2011, because HIV was first diagnosed in 1981.

3.2.2 Types of subjects considered

This systematic review focused on any TB infected patients who were receiving any one of the anti-TB drugs (isoniazid, rifampicin, pyrazinamide, and ethambutol), as the patients take them together or separately. HIV/TB co-infected patients were included. TB patients were those who were treated for pulmonary TB, extra-pulmonary TB, or LTBI as in the case of prevention therapy of LTBI in HIV patients. HIV patients who are receiving antiretroviral therapy were also considered. Also searches and studies considering HIV treatment as a risk factor for anti-TB drug induced hepatotoxicity were included. HIV drug side effects as a cause of hepatotoxicity in HIV patients were also considered. The age of patients included was 15 years or older, because 75% of incidence of TB infection occurs most commonly from the age of 15 years and older (Menzies, et al, 2011; Marzuki, et al, 2008). The review includes both genders to see the variation effect of gender. Patients included were those attending hospitals, clinics, or treatment centres.

3.2.3 Types of interventions considered

The drugs that the systematic review considers are anti-TB drugs. The treatment course of TB is a combination of multi-drug regimen; isoniazid, rifampicin, pyrazinamide, and ethambutol. Inclusion will consider any studies that use one of these drugs or use them together for more than two months, where the normal course of TB treatment generally is six months. Also this review includes the studies that use antiretroviral drugs for HIV treatment which is mandatory to HIV/TB co-infected patients, and the effect of these drugs will be considered when given together with anti-TB drugs.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The search considered all studies that were designated as Randomised Control Trials (RCT), Clinical Trials, Case Control Study, and Cohort study. All reviews, cases reports, editorials, Qualitative studies, opinions, and Comments were excluded from the review. The review looks for the studies from 1981 until 2011, because HIV was first diagnosed in 1981.

Fig.1 Flow chart of research design of primary search strategy of reviewed articles

3.2.2 Types of subjects considered

This systematic review focused on any TB infected patients who were receiving any one of the anti-TB drugs (isoniazid, rifampicin, pyrazinamide, and ethambutol), as the patients take them together or separately. HIV/TB co-infected patients were included. TB patients were those who were treated for pulmonary TB, extra-pulmonary TB, or LTBI as in the case of prevention therapy of LTBI in HIV patients. HIV patients who are receiving antiretroviral therapy were also considered. Also searches and studies considering HIV treatment as a risk factor for anti-TB drug induced hepatotoxicity were included. HIV drug side effects as a cause of hepatotoxicity in HIV patients were also considered. The age of patients included was 15 years or older, because 75% of incidence of TB infection occurs most commonly from the age of 15 years and older (Menzies, et al, 2011; Marzuki, et al, 2008). The review includes both genders to see the variation effect of gender. Patients included were those attending hospitals, clinics, or treatment centres.

3.2.3 Types of interventions considered

The drugs that the systematic review considers are anti-TB drugs. The treatment course of TB is a combination of multi-drug regimen; isoniazid, rifampicin, pyrazinamide, and ethambutol. Inclusion will consider any studies that use one of these drugs or use them together for more than two months, where the normal course of TB treatment generally is six months. Also this

review includes the studies that use antiretroviral drugs for HIV treatment which is mandatory to HIV/TB co-infected patients, and the effect of these drugs will be considered when given together with anti-TB drugs.

3.2.4 Types of outcome measures considered

The outcome is hepatotoxicity due to anti-TB treatment. This study has considered all grades of hepatotoxicity caused by anti-TB drugs according to the WHO definition; hepatotoxicity is a treatment-emergent increase in the serum of ALT enzyme greater than three or five times the upper limit of normal, with or without symptoms of hepatitis (Tostman, et al., 2008). Table (1) shows the grades of hepatotoxicity and the normal measures of ALT and AST. This study has also considered any changes in the serum level of total bilirubin. Table (2) shows the classification of bilirubin severity.

Following this selection process, 43 articles were retrieved and reviewed from the primary search strategy. These were then reduced to a final number of seventeen articles relevant to the systematic review question after the inclusion and exclusion criteria were applied, and this process excluded twenty six articles. The procedure of inclusion and exclusion of the articles are summarized in table (3).

Table 3 the grades of hyperbilirubinemia

Grade	Serum changes relative to the upper limit of normal
Grade 1	1.1-1.5×ULN
Grade 2	1.6-2.9×ULN
Grade 3	3-5×ULN
Grade 4	>5×ULN
Adapted from (Mankhatitham, et al, 2010)	
The Total normal level of bilirubin: 0.3 to 1.9 mg/dl	

Table 4 Inclusion and Exclusion Criteria

Articles	Study Design	Subjects	Intervention	Outcome Measures
17 Included articles	Randomised controlled trials (RCTs) Cohort studies Clinical Trials Case control studies Comparative studies	HIV/TB positive patients Pulmonary TB and extra-pulmonary TB co-infected patients with HIV Patients aged 15 years or older Gender: males and females	Isoniazid, rifampicin, pyrazinamide, & ethambutol Anti-retroviral drugs for HIV TB clinics Infectious diseases clinics HIV clinics	Elevation liver enzymes Hepatic damage Liver failure Acute hepatitis Chronic hepatitis Hyperbilirubinemia Cholestasis Hepatotoxicity
26 Excluded articles	Editorials and Reviews Qualitative studies Descriptive and opinion Papers Comments	Children Number of patients/ participants are not sufficient statistically	Other drug regimens not complying with above	No discussion on treatment effects No results given on effects of drugs

4. Results after selection criteria application

Table 5 shows the excluded articles from the final review and the reasons for exclusion. Table 6 shows the included articles within the systematic review and details about them.

Table 5 Full text articles excluded from the final review

	Author Details	Reason for Exclusion
1	Alegre J, et al, 1993	The type of this study is a letter. Letters are excluded in the review
2	Chaisson R. E, et al, 1996	The aim of this study was to evaluate the efficacy of anti-TB drugs for TB in patients with HIV
3	Chu K. M, et al, 2010	The number of HIV/TB co-infected patients is not given
4	Dalla Gasperina D, et al, 2011	The type of study is a single case report for one patient. Reports and small number of patients are excluded in this review
5	Dean G. L, et al, 2002	The aim of this study was to assess the benefits of HIV drugs treatment in HIV/TB co-infected patients
6	Dowda M, et al, 1998	314 TB infected patients; the number of HIV positive patients in this study is 12 only
7	Gangadharam P. R, 1986	The type of study is an editorial. Editorials and opinions are excluded in this review
8	Gordin F. M, et al, 2004	One of the two courses of TB treatments is two months (two months of rifampin & pyrazinamide). Two months or less of TB treatment are excluded
9	Grant A. D, et al, 2010	This study was done to evaluate the use of isoniazid as a preventive therapy for TB for around 24221 of general population, who have risk factors to develop primary TB infection, no specific TB patients, and no specific HIV patients mentioned
10	Gray D, et al, 2010	The median range age of patients in this study was 22 (10-53) months. Under 15 years are excluded
11	Hussin N, et al, 2008	The aim of this study was to identify the risk factors of increased TB infection in HIV patients. The aims and outcome measures of this study did not identify hepatotoxicity
12	Johnson J. L, et al, 2000	The aim of this study was to evaluate the efficacy of anti-TB drugs for TB in patients with HIV
13	Jones B. E, et al, 1994	The purpose of this study was to determine the efficacy of anti-TB drugs in TB/HIV co-infected patients
14	Kandula N. R, et al, 2004	34 TB patients treated for two months only by anti-TB drugs; none of them were known to be HIV infected. Two months course

		treatment is excluded in the review
15	Kuniholm M. H, et al, 2008	There were only 2 HIV infected patients from the 300
16	Menzies D, et al, 2011	The type of study is a review. Reviews are excluded in this review
17	O'Brien R. J. and Perriens J. H, 1995	The type of study is an editorial. Editorials are excluded in the review
18	Perriens J. H, et al, 1995	The aim of this study was to assess the efficacy of 6 months of anti-TB drugs for TB/HIV co-infected patients
19	Salpeter S. R, 1993	The type of study is a review. Reviews are excluded in this review
20	Solomon S. S, et al, 2008	All patients in this study were male. One gender studies are excluded
21	Tedla Z, et al, 2010	1995 HIV infected patients; TB patients in this study are 24%. The study is excluded, because the subjects were not all TB infected patients
22	Tostmann A, et al, 2010	Anti-TB drugs were introduced to the patients in this study for 2 months only
23	Walker N. F, et al, 2009	The type of study is a letter. Letters are excluded in this review
24	Whalen C. C, et al, 1997	The number of TB patients is not given
25	Wu S. S, et al, 2007	The median range of the patients is 10 years. Under 15 years are excluded
26	Yee D, et all, 2003	The participants rate of HIV patients in this study is just 4% of 430 TB patients

Table 6 details of studies included in the review

	Author	Design	Country	Setting	Sample size	Mean age	Outcome	Anti-TB drug
1	Breen R. A. M, et al, 2006	Comparative study	UK	North Middlesex, Royal Free, and University College London Hospitals	312 TB infected patients; 156 HIV/TB co-infected patients	20-73 years; median age 35 years	13% of 156 HIV/TB co-infected patients had hepatotoxicity, the similar rate in TB/non-HIV patients	Isoniazid, rifampicin, pyrazinamide, ethambutol, rifamycin, and rifabutin
2	Coca N. S. M., et al, 2010	Case control study	Brazil	Eduardo de Menezes Hospital	162 TB patients (30 HIV/TB positive and 132 TB/non HIV patients)	18-80 years	HIV/TB positive: Hepatotoxicity grade I (77%), hepatotoxicity grade II (20%), hepatotoxicity III (20%)	Isoniazid, rifampicin, pyrazinamide, and ethambutol
3	De Castro L, et al, 2010	Prospective observational follow-up study	Brazil	Instituto de Pesquisa Clinica Evandro Chagas-Fundacao Oswaldo	154 TB infected patients; 60 HIV/TB co-infected patients	Range of the age; 18-79 years	19.5% of TB patients have hepatotoxicity; risk ratio (RR) increased in HIV/TB co-infected patients (RR 2.53)	Isoniazid, rifampicin, and pyrazinamide
4	Hoffmann C. J, et al, 2007	Retrospective cohort study	South Africa	Workplace HIV care program	868 HIV infected patients (495 HIV/TB co-infected patients)	> 18 years; median 41 years	4.6% of severe hepatotoxicity	Isoniazid, rifampicin, pyrazinamide and ethambutol
5	Mankhatitham W, et al, 2011	Randomised controlled trial	Thailand	Bamrasnaradura Infectious Diseases Institute	134 TB/HIV co-infected patients	Mean age 36.8 ± 8.6 years	2.9% developed severe hepatotoxicity. 5.2% developed severe hyperbilirubinemia. 31.4% developed grade 1-2 hepatotoxicity	Isoniazid, rifampicin, pyrazinamide and ethambutol
6	Marks D. J. B, et al, 2009	Retrospective cohort study	South Africa	Treatment Clinic in Cape Town	141 HIV/TB co-infected patients	Median age 32.5 years	There was no hepatotoxicity in HIV/TB co-infected patients. Two cases of hepatotoxicity occurred in TB/non-HIV infected group	Isoniazid, rifampicin, pyrazinamide and ethambutol
7	Marzuki O. A, et al, 2008	Observational Case Control Study	Malaysia	Hospital Universiti Sains Malaysia	473 TB infected patients; 17 HIV/TB co-infected patients	Range of the age: 17-87 years	9.7% of TB patients had hepatotoxicity; HIV was a significant risk factor	Isoniazid, rifampicin, pyrazinamide and ethambutol
8	Moses M, et al, 2010	Retrospective cohort study	Malawi	Thyolo District Hospital	156 HIV/TB co-infected patients	Median age: 35 years	Two patients developed grade 2 and one developed grade 3 hepatotoxicity	Rifampicin
9	Nader L. A, et al, 2010	Historical cohort study	Brazil	Hospital Sanatorio Partenon	534 TB patients (209 HIV positive)	18-80 years	HIV/TB positive: 13.9%. TB/non-HIV patients: 6%	Isoniazid, rifampicin, and pyrazinamide
10	Ocama P, et al, 2008	Comparative study	Uganda	Infectious Diseases Clinic	187 HIV; 182 HIV/TB co-infected patients	Median age 37 ± 8.1 years	15 patients had hepatotoxicity	Isoniazid
11	Ozick L. A, et al, 1995	Clinical trial	USA	Harlem Hospital	70 TB infected patients; 22 HIV/TB co-infected patients	Range of the age: 22-58 years	8 TB patients developed hepatotoxicity; 6 of them HIV/TB co-infected	Isoniazid, rifampicin, and pyrazinamide
12	Possuelo L. G, et al, 2008	Prospective cohort study	Brazil	Hospital Sanatorio Partenon in Porto Alegre	254 TB patients (65 HIV/TB co-infected patients)	18-83 years	5.5% of 254 developed hepatotoxicity; 57% of them were HIV/TB co-infected patients	Isoniazid, rifampicin, and pyrazinamide
13	Pukenyte E, et al, 2007	Retrospective cohort study	France	French hospitals of Amiens, Besancon, Dijon, Nancy, Strasbourg, and Tourcoing	144 HIV infected patients; 124 HIV/TB co-infected patients	Range of the age: 32-56 years old	10.7% of the patients developed grade 3 and 4 hepatotoxicity	Isoniazid, rifampicin, pyrazinamide and ethambutol
14	Sathia L, et al, 2008	Clinical trial	UK	St. Mary's Hospital, London	103 HIV/TB co-infected patients	Mean age 39 years	11% of the patients had grade 1-2 of hepatotoxicity and 6% grade 3-4	Rifampicin
15	Tostmann A, et al, 2007	Randomized controlled trial	Malawi	Hospital	579 HIV/TB co-infected patients	Most of the patients > 18 years	About 2% of the patients develop grade 2 or 3 hepatotoxicity	Isoniazid, rifampicin, pyrazinamide and ethambutol
16	Ungo J. R, et al, 1998	Prospective cohort study	USA	A. G. Holly Hospital	134 TB infected patients; 44 TB/HIV co-infected patients	The range of the age 13-72 years; median age 44 years	22 patients have hepatotoxicity (12 HIV/TB co-infection patients)	Isoniazid, rifampicin, pyrazinamide and ethambutol
17	Yimer G, et al, 2008	Cohort study	Ethiopia	Armauer Hansen Research Institute (AHRI) and St. Peter's TB specialized Hospital, Addis Ababa	195 HIV/TB co-infected patients	18-67 years	34 patients developed hepatotoxicity (76.5% were HIV/TB positive)	Isoniazid, rifampicin, pyrazinamide and ethambutol

5. Discussion

As a part of the discussion, each included article was reviewed using the specific criteria of type of study, location of study, date of study, number of subjects in the study, what anti-TB drugs were introduced to the patients, and the outcomes of each study. Each study was put under critique of the authors of this study and of the author of this systematic review, which included the validity, reliability, and quality of each study.

مؤتمـر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

(Breen, et al., 2006); Adverse events and treatment interruption in tuberculosis patients with and without HIV-co-infection

This comparative study was undertaken in three UK hospitals between 1997 and 2003. The number of patients who were recruited in this study was 312 TB infected patients. They were divided into two group; 156 HIV/TB co-infected patients and the other group 156 only TB infected patients. Their median age was 35 years old and male gender was 52%. Anti-TB drugs (Isoniazid, rifampicin, pyrazinamide, and ethambutol) were administered to both groups. Antiretroviral therapy (HAART) was given to 111 HIV infected individuals at the same time as anti-TB treatment. The outcomes of 156 patients in each group showed that the incidence of serious (grade III or IV) hepatotoxicity during the TB treatment occurred with similar frequency in two groups; 20 patients (13%) in HIV infected group and 20 patients (13%) in HIV uninfected group.

(Coca, et al., 2010); Antituberculosis drug-induced hepatotoxicity: a comparison between patients with and without human immunodeficiency virus seropositivity

The design of study is a case control study. It was done in a hospital in Brazil from 2005 to 2007. The number of TB patients in this study was 162; 30 of these patients were HIV/TB co-infected patients. The age of patients was between 18 and 80 years-old. The male gender was 76%. Anti-TB drug regimens for treating tuberculosis were the same as those recommended for HIV/TB co-infected patients. The outcomes of this study were; hepatotoxicity grade I 77% in HIV/TB co-infected patients, and 46% in the TB group without HIV infection. Hepatotoxicity grade II occurred in 20% out of 30 HIV/TB co-infected patients, and 9% out of 132 in the TB group without HIV infection. Hepatotoxicity grade III occurred in 20% out of 30 HIV/TB co-infected patients, and 8.3% out of 132 in the TB group without HIV infection.

(De Castro, et al., 2010); Can hepatitis B virus infection predict tuberculosis treatment liver toxicity? Development of a preliminary prediction rule

This prospective observational follow-up study was done in a clinic in Brazil from 2003 to 2005. The number of TB patients was 154; 60 were HIV/TB co-infected. The age range was 18 to 79 years-old. The male gender was 64.3%. Anti-TB drugs were prescribed to the patients according to the Brazilian Ministry of health recommendation and that was rifampicin, isoniazid, and pyrazinamide. HIV/TB co-infected patients were taking the antiretroviral therapy regimen (HAART). The outcomes of the study showed 19.5% of 154 patients had hepatotoxicity; relative risk (RR) for HIV infection showed increase in risk of liver toxicity in HIV/TB co-infected patients (RR 2.53), while RR for HIV negative patients was 1.00.

(Hoffmann, et al., 2007); Hepatotoxicity in an African antiretroviral therapy cohort: the effect of tuberculosis and hepatitis B

The type of study is a retrospective cohort study. It was conducted in a workplace HIV care program in South Africa between 2002 and 2005. The number of HIV patients was 868; 495 were HIV/TB co-infected patients. The male gender was 94%, and the range of age was between 36-46 years-old. TB patients were treated for 2 months using rifampicin, isoniazid, pyrazinamide, and ethambutol followed by 4 months of rifampicin and isoniazid. HIV positive patients received antiretroviral therapy for 12 months. The outcomes of study showed that grade II hepatotoxicity developed in 11% the patients. Grade III or IV hepatotoxicity occurred among 4.6% of the patients. Anti-TB drugs increased risk of hepatotoxicity with antiretroviral therapy in HIV patients to 8.5-fold.

(Mankhatitham, et al., 2011); Hepatotoxicity in patients co-infected with tuberculosis and HIV-1 while receiving non-nucleoside reverse transcriptase inhibitor-based antiretroviral therapy and rifampicin-containing anti-tuberculosis regimen

This study is a case controlled trial. It was conducted in Thailand in Bamrasnaradura Infectious Diseases Institute between 2006 and 2007. TB/HIV co-infected patients were 142 (divided to two groups each one 71 patients and that was according to antiretroviral drugs; nevirapine group and efavirenz group). The range of ages was 28-45 years-old and 67.2% of them were male. The anti-TB drugs administered to the patients were rifampicin, isoniazid, pyrazinamide, and ethambutol for two months and followed by isoniazid and rifampicin for 4-7 months. All patients received antiretroviral therapy. The outcomes of this study were; grade III and IV hepatotoxicity, which developed in 2.9% out of 134, most of them in nevirapine group. Grade I and II hepatotoxicity occurred in 31.4% out of 134 co-infected patients. Grade III and IV hyperbilirubinemia occurred in 5.2% out 134 co-infected patients, most of them occurred in nevirapine group.

(Marks, et al., 2009): Adverse events to antituberculosis therapy: influence of HIV and antiretroviral drugs

The design of study is a retrospective cohort study. It was conducted in South Africa in treatment clinic between 2004 and 2006. The number of TB infected patients was 400, according to HIV infected patients, this number was divided into two groups; which the HIV infected group was 141. The median age of all the patients was 32 years-old and 60.5% of them were males. The anti-TB drugs administered to the patients were rifampicin, isoniazid, pyrazinamide, and ethambutol for two months followed by isoniazid and rifampicin for four months. The outcomes of the study were; only two patients had grade I and grade III hepatotoxicity respectively in HIV-uninfected group. There was no hepatotoxicity in HIV/TB co-infected group. By contrast with other studies, the incidence of hepatotoxicity was low in TB group. In the conclusion, hepatotoxicity was no among the adverse events that occurred in HIV/TB co-infected patients in this study.

(Marzuki, et al., 2008): Prevalence and risk factors of anti-tuberculosis drug-induced hepatitis in Malaysia

This study is an observational case control study. It was done in Malaysia in the hospital of Sains Malaysia University between 2003 and 2005. A total of 473 TB patients were registered at the Chest Clinic Malaysia in the hospital of Sains Malaysia University; 138 patients were selected using the simple random sampling methods as controls and 46 patients were selected as cases group. HIV/TB co-infected patients were 17 in both (9 in cases group and 8 in controls groups). The ranger of age was between 17-87 years old and about 65% were males. All TB patients received anti-TB drugs; rifampicin, isoniazid, pyrazinamide, and ethambutol. The outcome measure of this study of anti-TB drugs-induced hepatotoxicity was 46 (9.7%) patients out of 473. The prevalence values showed that only HIV infection (p-value is 0.005) was a significant risk factor for anti-TB drugs-induced hepatotoxicity. In conclusion, the significant risk factors the development of hepatotoxicity in this study were HIV infection and extra-pulmonary TB.

(Moses, et al., 2010): Outcomes and safety of concomitant nevirapine and rifampicin treatment under programme conditions in Malawi

The type of study is a retrospective cohort study. It was conducted in Malawi in Thyolo District hospital between June and December 2007. The number of HIV/TB co-infected patients was 156. The median age was 35 years-old. Male gender was 54.5%. TB patients were treated according to WHO guideline; 2-month initial phase of rifampicin, isoniazid, pyrazinamide, and ethambutol, followed by a 4-month continuation phase of isoniazid and rifampicin. The outcomes of this study were; two patients had hepatotoxicity (1.3%) out of 156 patients, one of them had grade II and the other one had grade III hepatotoxicity. In conclusion, the data from this study are reassuring that the incidence of hepatotoxicity was very low and did not complicate patient management or safety.

(Nader, et al., 2010): Hepatotoxicity due to rifampicin, isoniazid, and pyrazinamide in patients with tuberculosis: Is anti-HCV a risk factor?

The type of this study is a historical cohort study. It was done in Brazil in Sanatorio Partenon hospital between 1998 and 2006. The number of TB patients was 534; HIV/TB co-infected patients were 209. The age range was between 18-80 years-old and 75.1% were men. Treatment for TB patients was carried out using isoniazid, rifampicin, and pyrazinamide with daily doses according to the body mass index. The incidence of hepatotoxicity was 8.8% in general. HIV/TB co-infected patients were more frequently diagnosed with hepatotoxicity (13.9%) as hepatotoxic TB/non-HIV patients were just (6%). Relative risk (RR) of HIV for development hepatotoxicity in this study was 2.3 and P value was 0.008. In conclusion, HIV infection was considered as an independent risk factor for hepatotoxicity due to anti-TB drugs in this study. High doses of isoniazid and HCV infection were also considered as risk factors in this study for developed hepatotoxicity, but with less relative risk ratios and P values.

(Ocama, et al., 2008): The spectrum of liver diseases in HIV infected individuals at an HIV treatment clinic in Kampala, Uganda

The design of this study was a comparative cohort study. It was done in Uganda in infectious Diseases clinic between 2004 and 2005. The number of HIV patients was 8715; 182 were patients HIV/TB co-infected. The aim of this study was to evaluate the causes of liver diseases in 77 HIV positive patients who were recruited out of 8715 HIV positive patients. Only patients who had clinical symptoms of liver diseases were included in the evaluation. The mean age was 37 years old and 47% were men. Isoniazid was used as a treatment and prophylaxis for those 187 patients either as prophylaxis (5 patients) or

for treatment of TB (182 patients). All those patients received antiretroviral therapy (nevirapine, efavirenz, or first line regimen with nucleoside reverse transcriptase inhibitor based regimen) for HIV infection. The outcomes of this study were; 23 patients (30%) out of 77 patients had a diagnosis of eithernevirapine or isoniazid induced hepatotoxicity as the cause of liver disease. 11 patients (14% and P value = 0.13) had hepatotoxicity due to isoniazid treatment alone, 4 patients (5%) had hepatotoxicity due to isoniazid with nevirapine together, and 8 patients (11% and P value = 0.007) had hepatotoxicity due to nevirapine treatment alone. In conclusion, among HIV-infected patients, hepatotoxicity due to isoniazid (anti-TB drug) and/ or nevirapine is the most frequent diagnosis of liver diseases in HIV positive patients in this study.

(Ozick, et al., 1995): Hepatotoxicity from Isoniazid and Rifampin in Inner-City AIDS Patients

This is a clinical trial. It was conducted in USA in Harlem Hospital Centre from May 1990 to November 1990. The number of TB patients was 70; 22 of them were HIV/TB co-infected patients. 58 were men and 12 were women. Their age range was 22-58 years. The patients were received isoniazid, rifampicin, and pyrazinamide. The outcomes of this study were; eight out of 70 (11.4%) patients had hepatotoxicity and 6 of them (27.3%) were HIV/TB co-infected patients. In conclusion, HIV infection patients were significantly more likely to develop hepatotoxicity than those who had other risk factors (P value was less than 0.01).

(Possuelo, et al., 2008): Association of slow N-acetyltransferase 2 profile and anti-TB drug-induced hepatotoxicity in patients from southern Brazil

This study is a prospective cohort study. It was conducted in Brazil in Sanatorio Partenon hospital between 2005 and 2007. The number of TB patients was 254; 65 of them (25.6%) were HIV/TB co-infected patients. Of the 254 patients, 66.9% were men and the range of age was between 18-83 years-old. TB infected patients received isoniazid, rifampicin, and pyrazinamide as a treatment for TB infection. The aim of study was to determine which type of acetylation (slow acetylation or fast acetylation) are more risk factor for developing anti-TB drug induced hepatotoxicity, and evaluate other clinical risk factors such as, HIV, HBV, HCV, and alcohol abuses for increased anti-TB drugs toxicity on the liver. The number of patients with hepatotoxicity in this study was 14 patients (5.5%) out of 254 patients. Of the 5.5% who had hepatotoxicity; 57.1% were HIV/TB co-infected patients. The analysis of this study revealed that the presence of HIV infection is a significant risk factor for develop hepatotoxicity (P value was 0.007) more than other risk factors, such as HBV, HCV, and alcohol abuses. In conclusion, the study analysis showed that HIV and slow acetylation status were independent risk factors for developing hepatotoxicity due to anti-TB drugs.

(Pukenyte, et al., 2007); Incidence of and risk factors for severe liver toxicity in HIV-infected patients on anti-tuberculosis treatment

This study is a retrospective cohort study. It was done in French hospitals of Amiens, Besancon, Dijon, Nancy, Strasbourg, and Tourcoing between 1992 and 2004. The number of HIV patients was 144; 124 of them had confirmed TB and the other 20 of them had presumptive TB. The age range was 32-56 years-old and 80% were male. TB patients were treated with isoniazid, rifampicin, pyrazinamide, and ethambutol. The aim of this study was to assess the incidence for hepatotoxicity in HIV patients on anti-TB drugs. The outcomes of this study were fifteen patients (10.7%) who had severe hepatotoxicity; 5% of them had grade III hepatotoxicity, and 5.7% had grade IV hepatotoxicity. This study highlights the high incidence of severe hepatotoxicity in HIV positive patients who received anti-TB drugs. In this study, more than 10% of HIV infected patients treated for TB had severe hepatotoxicity (grade III or more). Pukenyte, et al., (2007) reported that the results of hepatotoxicity in HIV-positive patients were high if compared with other studies addressed hepatotoxicity just in HIV-negative patients who were treated by anti-TB drugs.

(Sathia, et al., 2008): Concomitant use of nonnucleoside analogue reverse transcriptase inhibitors and rifampicin in TB/HIV type 1-coinfected patients

This study is a clinical trial (prospective cohort study). It was conducted in UK in St. Mary's hospital between 2001 and 2005. The number of HIV/TB co-infected patients was 103; 43 of them received rifampicin and antiretroviral therapy. The mean age was 39 years-old and 40% of them were females. The outcomes of this study were 6% of the patients had grade IV hepatotoxicity and 11% had grade I and II hepatotoxicity. The authors of this studies suggested that the rate of drug-induced hepatotoxicity in co-infected patients was unexpectedly low comparing with other studies results (13% with grade III or IV hepatotoxicity). In this study over 80% of the patients maintaining normal liver function.

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

(Tostmann, et al., 2007): Short communication: Antituberculosis drug-induced hepatotoxicity is unexpectedly low in HIV-infected pulmonary tuberculosis patients in Malawi

The type of study is a randomised controlled trial. It was done in Malawi in a hospital. The number of HIV/TB co-infected patients was 579 and most of them older than 18 years. The number of withdrawal patients was 142 of this study, the reasons were; dead some of them and others lost the follow up. The four drugs for TB treatment were given (isoniazid, rifampicin, pyrazinamide, and ethambutol). In this study also, they assessed the administration of cotrimoxazole for HIV/TB co-infected patients. The outcomes of this study were 2% of the patients developed grade II or III hepatotoxicity. The conclusion of this study was suggested that anti-TB drug-induced hepatotoxicity was unexpectedly low in HIV/TB co-infected patients who were also receiving cotrimoxazole prophylaxis.

(Ungo, et al., 1998): Antituberculosis Drug-induced Hepatotoxicity: The Role of Hepatitis C Virus and the Human Immunodeficiency Virus

The type of study is a prospective cohort study. It was done in USA in A.G. Holly hospital between 1994 and 1996. The number of TB patients was 128 and 44 of them were HIV/TB co-infected patients. The males were 96 and 32 were females. The median age was 44 years. Isoniazid, rifampicin, pyrazinamide, and ethambutol were given all for TB patients. One of the aims of the study was to determine whether HIV infected patients was a significant risk factor for the development of anti-TB drug-induced hepatotoxicity. The outcomes of this study were 22 patients (19%) out of 128 developed hepatotoxicity, 12 of them (55%) were HIV/TB co-infected patients. The conclusion of this study was suggested that was a significant risk of development anti-TB drug-induced hepatotoxicity with HIV infected patients. The relative risk for developing drug-induced hepatotoxicity in HIV patients was (RR = 4 and p value was 0.036) and increased to (RR = 14.44 and p value was 0.002) when HIV associated with HCV.

(Yimer, et al., 2008): Anti-Tuberculosis Therapy-Induced Hepatotoxicity among Ethiopian HIV-Positive and Negative Patients

The type of this study is cohort study. It was done in Ethiopia in Armauer Hansen Research Institute and Peter's TB Specialized hospital between 2004 and 2005. The number of TB patients in this study was 195, 52% of them had HIV/TB co-infection. The males were 52.8% and 47.2% were females. The median age was 26 years. All TB infected patients received isoniazid, rifampicin, pyrazinamide, and ethambutol for the TB treatment. 34 (17.3%) of the patients developed hepatotoxicity, 26 (76.5%) out of those 34 patients were HIV/TB co-infected patients. Anti-TB drug-induced Hepatotoxicity was significantly associated with HIV/TB co-infected patients (p = 0.002). The Confidence Interval (CI) of developing hepatotoxicity in HIV positive patients was 95% of 1.5-8.5 as compared to those negative patients.

The discussion showed that there are 10 studies that showed a significant difference in hepatotoxicity between HIV/TB co-infected patients and TB/non-HIV patients in this systematic review (table 5.1).

Table (7): Summary of the 10 included studies results that showed the risk of HIV infection in developing hepatotoxicity in TB patients due to anti-TB drugs

The 10 included studies that those support the significant difference in hepatotoxicity between HIV/TB co-infected patients and TB/non HIV patients	
no	First author's name	The difference in hepatotoxicity between HIV/TB co-infected and TB/non HIV patients
1	(de Castro, et al., 2010)	HIV was the top risk factor in develop anti-TB drug-induced hepatotoxicity between TB patients. Relative risk ratio for HIV was (RR = 2.53)
2	(Hoffmann, et al., 2007)	Concomitant anti-TB drugs and retroviral therapy significantly increased the risk of hepatotoxicity in HIV/TB patients (p value < 0.001)
3	(Marzuki, et al., 2008)	HIV infection was a significant risk factor for anti-TB drugs-induced hepatotoxicity (p-value: 0.005 for HIV)
4	(Nader, et al., 2010)	HIV infection was considered independent risk factor for hepatotoxicity due to anti-TB drugs in this study. Relative risk (RR = 2.3 and p = 0.008)
5	Ocama, et al., 2008	Hepatotoxicity due to isoniazid (anti-TB drug) and/ or nevirapine is the commonest cause of liver diseases in HIV positive patients (P = 0.13)
6	(Ozick, et al., 1995)	HIV infection patients were significantly more likely to develop hepatotoxicity than those who had other risk factors (p value < 0.01)
7	(Possuelo, et al., 2008)	The presence of HIV infection is a significant risk factor for develop hepatotoxicity due to anti-TB drugs (p value = 0.007)
8	(Pukenyte, et al., 2007)	High incidence of severe hepatotoxicity in HIV positive patients who received anti-TB drug-treatment. More than 10% of HIV infected patients treated for TB had severe hepatotoxicity (grade III or more)
9	(Ungo, et al., 1998)	Significant risk of HIV infection in developing hepatotoxicity in TB patients due to anti-TB drugs (RR = 4)
10	(Yimer, et al., 2008)	Hepatotoxicity due to anti-TB treatment was significantly associated with HIV/TB co-infected patients (p = 0.002)

6. Conclusion

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Within the systematic review, anti-TB drug-induced hepatotoxicity has been defined and explained in the background section. This review has also considered the epidemiology of TB and HIV worldwide, and the relationship between them, and how they together increase the morbidity and mortality of co-infected patients. The main point in this systematic review was to make a link between anti-TB drugs and HIV and the increased risk of hepatotoxicity when using these drugs. TB and HIV have a strong relationship as the systematic review shows. The literature search was done to answer the systematic review question, whether HIV is a significant risk factor in TB patients for anti-TB drug-induced hepatotoxicity or not. The number of included article after retrieval and analysis were 17. The articles were chosen according to strict criteria that were explained in the methodology section of this systematic review. 10 out of 17 papers show that HIV is a significant risk factor in TB patients in developing hepatotoxicity when receiving anti-TB drugs. In the last 6 papers out of 17, the analysis of results shows that there is no difference between HIV positive and HIV negative patients who received anti-TB drugs. One study only out of 17 from South Africa; (Marks, et al., 2009) showed that anti-TB drug-induced hepatotoxicity was more prevalent in HIV negative patients than those who were HIV positive. The major two factors that make HIV a risk of developing anti-TB drug induced hepatotoxicity are antiretroviral therapy and low immunity of the body (low of CD4 count). This systematic review also focused on the risk of antiretroviral drugs for HIV infection as a risk factor in anti-TB drug-induced hepatotoxicity. There are two drugs of antiretroviral drugs which can cause toxicity on the liver (nevirapine and efavirense). Two studies out of the 17 included articles considered them as a risk factor and they reported that nevirapine has more toxic effect than efavirense, and practitioners should be aware of the their risk when using these drugs together. According to the results of 17 included articles in this systematic review the answer to the question whether HIV/TB co-infected patients are at higher risk of anti-TB drug-induced hepatotoxicity, it could be clearly stated that almost all of the studies suggested and confirmed that HIV infection leads to a significantly greater risk of developing anti-TB drug-induced hepatotoxicity and the advice that the author of this systematic review suggests is given in the following recommendation section.

7. Recommendations

The author of this systematic review suggests that all TB patients should be screened for HIV once when they are confirmed with TB infection. Physicians and pharmacists should increase their awareness of HIV risk in enhanced hepatotoxicity and screen liver function tests in all TB patients who are co-infected with HIV infection and who are taking anti-TB treatments. Monitoring should be done at least monthly or every one to two months for the duration of therapy. These findings will alert the potentially dangerous effect of HIV/TB co-infection. Prompt wide further studies to know the mechanism beyond HIV infection as a risk factor for anti-TB drug-induced hepatotoxicity rather than just looking for antiretroviral drugs as another cause. We also suggest that HIV/TB co-infected patients who are receiving antiretroviral drugs should monitor antiretroviral drugs concentrations in the blood, due to effect of anti-TB drugs on the liver enzymes. We recommend considering liver enzyme function test to all HIV/TB co-infected patients who are receiving nevirapine drug, due to the higher rate of hepatotoxicity that is associated with this drug.

References

ALEGRE J, FERNANDEZ DE SEVILLA T, FALCÓ V, ARMADANS L, and MARTINEZ VÁZQUEZ J. M. (1993). Postprandial Serum Cholyiglycine as a Marker of Antituberculous Drug Hepatotoxicity in HIV-lnfected Patients. *Chest*. 104 (4), pp. 1312-1313.

BREEN R. A., MILLER R. F., GORSUCH T., SMITH C. J., SCHWENK A., HOLMES W., BALLINGER J., SWADEN L., JOHNSON M. A., CROPLEY I. and LIPMAN M. C. (2006). Adverse Events and Treatment Interruption in Tuberculosis Patients with and without HIV-Co-lnfection. *Thorax*. 61 (9), pp. 791-794.

CHAISSON R. E, CLERMONT H. C, HOLT E. A, CANTAVE M, JOHNSON M. P, ATKINSON J, DAVIS H, BOULOS R, QUINN T. C, and HALSEY N. A. (1996). Six-Month Supervised Intermittent Tuberculosis Therapy in Haitian Patients with and without HIV Infection. *American Journal of Respiratory and Critical Care Medicine*. 154 (4), pp. 1034-1038.

CHU K. M, BOULLE A. M, FORD N, GOEMAERE E, ASSELMAN V, and VAN CUTSEM G. (2010). Nevirapine-associated Early Hepatotoxicity: Incidence, Risk Factors, and Associated Mortality in a Primary Care ART Programme in South Africa. *Plos One*. 5 (2), pp. e9183.

CLARKE J. (2011). What is a Systematic Review? *Evidence-Based Nursing*. 14 (3), pp. 64.

COCA N. S., OLIVEIRA M. S., VOlETA I., ANTUNES C. M. and LAMBERTUCCI J. R. (2010). Antituberculosis Drug-Induced Hepatotoxicity: A Comparison between Patients with and without Human Immunodeficiency Virus Seropositivity. *Rev Soc Bras Med Trop*. 43 (6), pp. 624-628.

COCHRANE CONSUMER NETWORK (2011). What is a Systematic Review?
Available   from: http://consumers.cochrane.org/what-systematic-review
Access date: 10 Nov, 2011.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

DALLA GASPERINA D, TOZZI M; ASTUTI N, BALSAMO M. L, DONATI D, ROSSI A, DIONIGI R, GROSSI P. A. (2011). Pulmonary Tuberculosis in an HIV- and Hepatitis C Virus-Coinfected Kidney-Pancreas Transplant Recipient: A Case Report. *Transplantation Proceedings*. 43 (4), pp. 1206-1209.

DEAN G. L, EDWARDS S. G, IVES N. J, MATTHEWS G, FOX E. F, NAVARATNE L, FISHER M, TAYLOR G. P, MILLER R, TAYLOR C. B, DE RUITER A, and POZNIAK A. L. (2002). Treatment of Tuberculosis in HIV-lnfected Persons in the Era of Highly Active Antiretroviral Therapy. *AIDS*. 16 (1), pp. 75-83.

DE CASTRO L., DO BRASIL P. E. A., MONTEIRO T. P. AND ROLLA V. C. (2010). Can Hepatitis B Virus Infection Predict Tuberculosis Treatment Liver Toxicity? Development of a Preliminary Prediction Rule. *Int J Tuberc Lung Dis*. 14 (3), pp. 332-340.

DOWDA M, SY F. S, DOWDA H, and POZSIK C.J. (1998). Correlates of Hepatotoxicity and Antituberculosis Therapy in South Carolina. *Journal of the South Carolina Medical Association*. 94 (1), pp. 16-20.

GANGADHARAM P. R. (1986). Isoniazid, Rifampin, and Hepatotoxicity. *The American Review of Respiratory Disease*. 133 (6), pp. 963-5.

GORDIN F. M, COHN D. L, MATTS J. P, CHAISSON R. E, and O'BRIEN R. J. (2004). Hepatotoxicity of Rifampin and Pyrazinamide in the Treatment of Latent Tuberculosis Infection in Hl V-Infected Persons: Is It Different Than in HIV-Uninfected Persons? *Clinical Infectious Diseases*. 39 (4), pp. 561-565.

GRANT A. D, MNGADI K. T, VAN HALSEMA C. L, LUTTIG M. M, FIELDING K. L, and CHURCHYARD G. J. (2010). Adverse Events with Isoniazid Preventive Therapy: Experience from a Large Trial. *AIDS*. 24 (Suppl. 5), pp. S29-36.

GRAY D, NUTTALL J, LOMBARD C, DAVIES M. A, WORKMAN L, APOLLES P, ELEY B, COTTON M, and ZAR H. (2010). Low Rates of Hepatotoxicity in HIV-Infected Children on Antiretroviral Therapy with and without Isoniazid Prophylaxis. *Journal of Tropical Pediatrics*. 56 (3), pp. 159-1 65.

HASLETT C., CHILVERS E., BOOM N. and COLLEDGE N. (2002). Appendix. *In*: HASLETT C., CHILVERS E., BOOM N. and COLLEDGE N. (eds.) *Davidson's Principles and Practice of Medicine*. Edinburgh: Churchill Livingstone, pp. 1211-1219.

HOFFMANN C. J., CHARALAMBOUS S., THIO C. L., MARTIN D. J., PEMBA L., FIELDING K. L., CHURCHYARD G. J., CHAISSON R. E. and GRANT A. D. (2007). Hepatotoxicity in an African Antiretroviral Therapy Cohort: The Effect of Tuberculosis and Hepatitis B. *AIDS*. 21 (10), pp. 1301-1308.

HUSSIN N., NAING N., SALLEH R., MUSTAFA M., ZAHIRUDDIN W. M. and ABU BAKAR M. (2008). Risk Factors for Pulmonary Tuberculosis in Adult Patients with Human Immunodeficiency Virus Infection in Kelantan, Malaysia. *International Medical Journal*. 15 (2), pp. 83-89.

JOHNSON J. L, OKWERA A, NSUBUGA P, NAKIBALI J. G, WHALEN C. C, HOM D, CAVE M. D, YANG Z. H, MUGERWA R. D, and ELLNER J. J. (2000). Efficacy of an Unsupervised 8-Month Rifampicin-containing Regimen for the Treatment of Pulmonary Tuberculosis in HIV-lnfected Adults. *The International Journal of Tuberculosis and Lung Disease*. 4 (11), pp. 1032-1040.

JONES B. E, OTAYA M, ANTONISKIS D, SIAN S, WANG F, MERCADO A, DAVIDSON P. T, and BARNES P. F. (1994). A Prospective Evaluation of Antituberculosis Therapy in Patients with Human Immunodeficiency Virus Infection. *American Journal of Respiratory and Critical Care Medicine*. 150 (6), pp. 1499-1502.

KANDULA N. R, DWORKIN M. S, CARROLL M. R, and LAUDERDALE D. S. (2004). Tuberculosis Prevention in Mexican Immigrants: Limitations of Short-Course Therapy. *American Journal of Preventive Medicine*. 26 (2), pp. 163-166.

KUNIHOLM M. H, MARK J, ALADASHVILI M, SHUBLADZE N, KHECHINASHVILI G, TSERTSVADZE T, DEL RIO C, and NELSON K. E. (2008). Risk Factors and Algorithms to Identify Hepatitis C, Hepatitis B, and HIV among Georgian Tuberculosis Patients. *International Journal of Infectious Diseases*. 12 (1), pp. 5 1-56.

MANKHATITHAM W., LUEANGNIYOMKUL A. and MANOSUTHI W. (2011). Hepatotoxicity in Patients Co-Infected with Tuberculosis and HIV-1 while Receiving Non-Nucleoside Reverse Transcriptase Inhibitor-Based Antiretroviral Therapy and Rifampicin-Containing Anti-Tuberculosis Regimen. Southeast Asian J Trop Med Public Health. 42 (3), pp. 651-658.

MARKS D. J., DHEDA K., DAWSON R., AINSLIE G. and MILLER R. F. (2009). Adverse Events to Antituberculosis Therapy: Influence of HIV and Antiretroviral Drugs. mt J STD AIDS. 20 (5), pp. 339-345.

MARZUKI O. A., FAUZI A. R., AYOUB S. and KAMARUL IMRAN M. (2008). Prevalence and Risk Factors of Anti-Tuberculosis Drug-Induced Hepatitis ¡n Malaysia. Singapore Med J. 49 (9), pp. 688-693.

MENZIES D, AL JAHDALI H, and AL OTAIBI B. (2011). Recent Developments in Treatment of Latent Tuberculosis Infection. The Indian Journal of Medical Research. 133 (3), pp. 257-266.

MOSES M., ZACHARIAH R., TAYLER-SMITH K., MISINDE D., FONCHA C., MANZI M., BAUERFEIND A., MWAGOMBA B., KWANJANA J. and HARRIES A. D. (2010). Outcomes and Safety of Concomitant Nevirapine and Rifampicin Treatment under Programme Conditions in Malawi. *Int J Tuberc Lung Dis*. 14 (2), pp. 197-202.

NADER L. A., DE MATTOS A. A., PICON P. D., BASSANESI S. L., DE MATTOS A. Z. and PINEIRO RODRIGUEZ M. (2010). Hepatotoxicity due to Rifampicin, Isoniazid and Pyrazinamide in Patients with Tuberculosis: Is Anti-HCV a Risk Factor? *Ann Hepatol*. 9 (1), pp. 70-74.

O'BRIEN R. J. and PERRIËNS J. H. (1995). Preventive Therapy for Tuberculosis in HIV Infection: The Promise and the Reality. *AIDS*. 9 (7), pp. 665-673.

OCAMA P., KATWERE M., PILOYA T., FELD J., OPIO K. C., KAMBUGU A., KATABIRA E., THOMAS D., COLEBUNDERS R. and RONALD A. (2008). The Spectrum of Liver Diseases in HIV Infected Individuals at an HIV Treatment Clinic in Kampala, Uganda. *Afr Health Sci*. 8 (1), pp. 8-12.

OZICK L. A., JACOB L., COMER G. M., LEE T. P., BEN-ZVI J., DONELSON S. S. and FELTON C. P. (1995). Hepatotoxicity from Isoniazid and Rifampin in Inner-City AIDS Patients. *Am J Gastroenterol*. 90 (11), pp. 1978-1980.

PERRIËNS J. H, ST LOUIS M. E, MUKADI Y. B, BROWN C, PRIGNOT J, POUTHIER F, PORTAELS F; WILLAME J. C, MANDALA J. K, KABOTO M, RYDER R. W, ROSCIGNO G, and PlOT P. (1995). Pulmonary Tuberculosis in HIV-Infected Patients in Zaire. A Controlled Trial of Treatment for either 6 or 12 Months. *The New England Journal of Medicine*. 332 (12), pp. 779-784.

POSSUELO L. G., CASTELAN J. A., DE BRITO T. C., RIBEIRO A. W., CAFRUNE P. I., PICON P. D., SANTOS A. R., TEIXEIRA R. L., GREGIANINI T. S., HUTZ M. H., ROSSETTI M. L. and ZAHA A. (2008). Association of Slow N-acetyltransferase 2 Profile and Anti-TB Drug-Induced Hepatotoxicity in Patients from Southern Brazil. *Eur J Clin Pharmacol*. 64 (7), pp. 673-681.

Page 223

<div dir="rtl">

مؤتمـر البحـوث الطبيـة الثانى

كلية الطب البشري

قسم طب الأسرة والمجتمع

</div>

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

PUKENYTE E., LESCURE F. X., REY D., RABAUD C., HOEN B., CHAVANET P., LAISKONIS A. P., SCHMIT J. L., MAY T., MOUTON Y. and YAZDANPANAH Y. (2007). Incidence of and Risk Factors for Severe Liver Toxicity in HIV-Infected Patients on Anti-Tuberculosis Treatment. *Int J Tuberc Lung Dis.* 11 (1), pp. 78-84.

SALPETER S. R. (1993). Fatal Isoniazid-Induced Hepatitis. Its Risk During Chemoprophylaxis. *The Western Journal of Medicine*. 159 (5), pp. 560-564.

SATHIA L., OBIORAH I., TAYLOR G., KON O., O'DONOGHUE M., GIBBINS S., WALSH J. and WINSTON A. (2008). Concomitant Use of Nonnucleoside Analogue Reverse Transcriptase Inhibitors and Rifampicin in TBIHIV Type 1-Coinfected Patients. *AIDS Res Hum Retroviruses*. 24 (7), pp. 897-901.

SHARMA S. K., MOHAN A. and KADHIRAVAN T. (2005). HIV-TB Co-Infection: Epidemiology, Diagnosis and Management, *Indian J Med Res*. 121 (4), pp. 550-567.

SOLOMON S. S, HAWCROFT C. S, NARASIMHAN P, SUBBARAMAN R, SRIKRISHNAN A. K, CECELIA A. J, SURESH KUMAR M, SOLOMON S, GALLANT J. E, and CELENTANO D. D. (2008). Comorbidities among HIV-lnfected Injection Drug Users in Chennai, India. *The indian Journal of Medical Research*. 127 (5), pp. 447-452.

TEDLA Z, NYIRENDA S, PEELER C, AGIZEW T, SIBANDA T, MOTSAMAI O, VERNON A, WELLS C. D, and SAMANDARI T. (2010). Isoniazid-associated Hepatitis and Antiretroviral Drugs during Tuberculosis Prophylaxis in HIV-infected Adults in Botswana. *American Journal of Respiratory and Critical Care Medicine*. 182 (2), pp. 278-285.

TOSTMANN A., BOEREE M., AARNOUTSE R., DE LANGE W., VEN A. J. and DEKHUIJZEN R. (2008). Antituberculosis Drug-Induced Hepatotoxicity: Concise Up-to-Date Review. *Journal of Gastroenterology and Hepatology*. 23 (2), pp. 192-202.

TOSTMANN A., BOEREE M. J., HARRIES A. D., SAUVAGEOT D., BANDA H. T. and ZIJLSTRA E. E. (2007). Short Communication: Antituberculosis Drug-Induced Hepatotoxicity is unexpectedly Low in HIV-Infected Pulmonary Tuberculosis Patients in Malawi. *Trop Med Int Health*. 12 (7), pp. 852-855.

TOSTMANN A, VAN DEN BOOGAARD J, SEMVUA H, KISONGA R, KIBIKI G. S, AARNOUTSE R. E, and BOEREE M. J. (2010). Antituberculosis Drug-induced Hepatotoxicity is Uncommon in Tanzanian Hospitalized Pulmonary TB Patients. *Tropical Medicine & International Health*. 15 (2), pp. 268-272.

UNGO J. R., JONES D., ASHKIN D., HOLLENDER E., BERNSTEIN D., ALBANSE A. and PITCHENIK A. E. (1998). Antituberculosis Drug-induced Hepatotoxicity. The role of Hepatitis C Virus and the Human Immunodeficiency Virus. *American Journal of Respiratory and Critical Care Medicine*. 157 (6 pt. 1), pp. 1871-1876.

WALKER N. F, KLINER M, TURNER D, BHAGANI S, CROPLEY I, HOPKINS S, and LIPMAN M. (2009). Hepatotoxicity and Antituberculosis Therapy: Time to Revise UK Guidance? *Thorax*. 64 (10), pp. 918.

WHALEN C. C, JOHNSON J. L, OKWERA A, HOM D. L, HUEBNER R, MUGYENYI P, MUGERWA R. D, and ELLNER J. J. (1997). A Trial of Three Regimens to Prevent Tuberculosis in Ugandan Adults Infected with the Human Immunodeficiency Virus. The New England Journal of Medicine. 337 (12), pp. 801-808.

WU S. S, CHAO C. S, VARGAS J. H, SHARP H. L, MARTÍN M. G, MCDIARMID S. V, SINATRA F. R, and AMENT M. E. (2007). Isoniazid-Related Hepatic Failure in Children: A Survey of Liver Transplantation Centers. *Transplantation*. 84 (2), pp. 173-179.

YEE D., VALIQUETTE C., PELLETIER M., PARISIEN I., ROCHER I. and MENZIES D. (2003). Incidence of Serious Side Effects from First-Line Antituberculosis Drugs Among Patients Treated for Active Tuberculosis. *American Journal of Respiratory and Critical Care Medicine*. 167 (11), pp. 1472-1477.

YIMER G., ADERYA G., AMOGNE W., MAKONNEN E., AKLILLU E., LINDQUIST L., YAMUAH L., FELEKE B. and ASEFFA A. (2008). Anti-Tuberculosis Therapy-Induced Hepatotoxicity among Ethiopian HIV-Positive and Negative Patients. *PLoS ONE* I *www.plosone.org.3*. (3), pp. 1-5.

Role Of Clinical Pharmacy In Benghazi Hospitals

Mailud El-Amari, Eman Aljhani, Salah Mursi. Muftah. Fieturi.

Benghazi University, Faculty of public health

Abstract

Role Of Clinical Pharmacy In

Benghazi Hospitals

Mailud el-Amari, Eman Aljhani, Salah Mursi. Muftah. Fieturi. Benghazi University, Faculty of public health

The present study focus on the role of clinical pharmacy in some of the hospital in Benghazi during Dec 2012 to July 2013 .

Objective of the study 1- Explore the role of pharmacy as a clinical 2-Explore the know ledge and attitude of health team

Method and materials: The study was conducted as descriptive "cross sectional " study about the role of clinical pharmacy practice in Benghazi medical center and hawari hospital . the study included department of medicine , pediatric and gynecology .

Questionnaires were developed by the researcher as tools for data collection :-

The questionnaire was divided to:-

main characters {sex, education level . . ete }

information about the clinical pharmacy.

information about role clinical pharmacy as understood and accepted by health team in the hospital.

information about presence any previous training in the field clinical pharmacy or any another training

positive feature for communication between clinical pharmacy and health team

composition health team to contribution in treatment of patient in hospital

information about effect of presence health team including pharmacist in hospital , patient , and community.

Training about data collection :- For the purpose of reducing the error of date collection researchers has been trained about the method of collection and date entry into computer for analysis including questionnaire distribution and collection , cleaning the data .

جامعة طرابلس
كلية الطب

Data analysis :- The data collected was cleaned and sorting for computer entering using SPSS version for statistical analysis using description tables of percentages.

Result:- The present study included a total 98 participate out of all the pharmacist and other medical team in Benghazi hospital and hawari hospital it show that 43.9% for age less than 30 year and 74.5% female more than half compared with male.

Conclusion:- The most health team focus on training in field clinical pharmacy for all hospital staff specially the medication team and nearly half participants needed for presence clinical pharmacy in departments to help on reduce of percentage the error , nearly half participants who know benefit of medication discussion with clinical pharmacist female more than half compared with male.

Introduction

Pharmacist plays a key role in the treatment of diseases; they advise both doctors and patients about dosage and side effects of medications, that is actually only a small part of a pharmacist job (2).

Hospital pharmacists were mostly engaged in traditional pharmaceutical activities such as dispensing and manufacturing , until the mid-1960. Then, the increasing range and sophistication of medicines available, awareness of medication errors and the widespread use of ward-based prescription charts brought pharmacists out of the dispensary and on to the wards in increasing numbers (1).

Clinical pharmacy practice in the UK developed from the work of two pharmacists. _Graham Calder_ pioneered a new role for pharmacists on hospital wards in _Aberdeen_. They initiated the review of medication orders on the wards to ensure safe prescribing. In the same period, the late sixties, John Baker based at Westminster Hospital, introduced the formulary concept and developed the role of the pharmacist as part of the prescribing system, practiced in all healthcare settings, but its main origins lie in the hospital sector (1,3,4,5).

Clinical pharmacy practice is the practice where pharmacists provide patient optimizes medication and promotes health and disease prevention, which is, assist clinicians and benefit patients, including contributing to prescribing decisions, monitoring and modifying drug therapy, counseling patients and involvement in clinical trials practice (6,7).

The aim was to explore the importance of a pharmacist in the health care team in improving drug use, with emphasis on explore the role of pharmacy as clinical pharmacist and explore the knowledge and attitude of health team.

جامعة طرابلس
كلية الطب

Role of pharmacy

Pharmacist review of medication orders has been shown to prevent errors, consultation has reduced drug costs. However, the main role of pharmacist: (11).

Formulary development. 2. Medication order. 3. Medication administration
Medication storage. 5. Minimizing adverse drug reaction. 6. Elimination medication error. 7. Managing drug product. 8. Unit dose packaging.
Medication information. 10. Optimizing the use of medicines is central to delivery of high quality patient care. 11. Medication error and adverse reaction .
12. Training and education (7, 12).
In 2008, study Jordan show decrease of errors in the presence of a clinical pharmacist by 87% was to avoid occurrence of drug toxicity and side effects of drugs by 12.7%, while therapeutic results improved by 24.1% and increased the utilization rate of the effectiveness of   drugs   by   21.7%   (13).
        The presence of a pharmacist on rounds as a full member of the patient care team in a medical ICU was associated with a substantially lower rate of ADEs   (Adverse drug events) caused by prescribing errors. Nearly all the changes were readily accepted by physicians 99% (11).

Most of the physicians and nurses acknowledged the pharmacists contribution to improved drug use in the ward. The clinical pharmacy practice improves documentation of drug therapy and estimated patient compliance, decrease the duplicate prescription could prevent the risk of other dose and reduce drug cost (9,11,14).

Material and Method

The study was conducted as a descriptive cross sectional study about clinical pharmacy practice in Benghazi hospitals, from Dec. 2012 to July 2013, included two public hospitals.
The present study was carried out among medical team who work as full time team member, accept to participant in our study, and those who were available at the time of data collection in the hospital.
Questionnaires were constricted as the tool for date collection, and divided to main characters (sex, education level… etc), Information related to clinical pharmacy, role of pharmacist and health team, previous training in the field of clinical pharmacy, communication between pharmacist and health team. For the purpose of reducing the error of date collection and analysis, short trained was conducted. The data collected was cleaned and sorting for computer entering using SPSS version 17th statistical package for analysis using description tables of percentages.

Results

The present study included total of 98 participate out of all the pharmacist and other medical team working in Benghazi medical center   and Alhawari hospital, it show that 43.9% age less than 30 year and 74.5% female

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

participate marital status show that single and married are nearly as same, in case of single 54.1% while married 42.8% . Education level In case university graduate and more represent 82.8% , about 52 % of participant were physician and pharmacist 14.3%, participants according to working hour between (36-42 hr) as 36.7% (table.1).

Looking for the composition of health team for patient medication care consist of (physician, pharmacist and nutrition, nurse) as 33.7% and 6.1% think health team only physician .

Recognizing the role of clinical pharmacy practice by medical team in the hospitals, 19.4% of participate include medicine information and medicine knowledge but participate who know the role as dispensing of drugs in hospital and those who include knowledge on drugs and attend the morning round as member of the medical team 18.4%.

Responsibility of medication decision show that 38.7% of participants think it is the responsibility of (physician, pharmacist, nursing) while 27.6% for clinical pharmacist only.

Prescription discussions with all medication team appear to be accepted by all team members in this study as 90.8. 59.2% of the participant who thought that error is due to give prescription without discussion with the clinical pharmacy, or might be due to unavailability of the clinical pharmacy in the hospital. (table .2)

Benefit of medication discussion with clinical pharmacist 57.1% for safe medication comparing to participate not have known for benefit 15.3%. Responsibility of patient consulting is understood by 41.9% of participant as pharmacist role.(table.3).

The benefit of the clinical pharmacist as member of the health team on deferent level show that, in hospital level for decision taken about patient medication 35.7%, and 33.6% for education of patient about handling and taken medicine, benefit on patient include side effect and provide necessary medication to patient 29.5% and 28.5% respectively

On community basis almost half participant do not know the benefit of having clinical pharmacy practice this percent might be due to ignore 47.9%. In case of reduce spending on medicine cost 24.4%, of participant admit so and about the contribution in provision of providing high quality of health care for patient is count for 22.4% (table 4).

participants who know the intervention of clinical pharmacy, as in case of administration, information about medicine use 76.5% of participant could recognize it as contribution of clinical pharmacy. (table 5).

The Majority think of the need for such training in the field of clinical pharmacy practice 84.7% of the participants (table 6).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Participants do not know the role of clinical pharmacy 9.2%, regarding the knowledge of participant about clinical pharmacy practice, out of all participant 49% physician who know about clinical pharmacy from all medication team who participated in this study .

Considering the knowledge of participant about clinical pharmacy practice, 73,5% know about the practice of clinical pharmacy as university level and more. (table 7)

Table (1) The General Characters

Characters		No.	%		Characters		No.	%
Age (years)	< 30	43	43.9		Education Level	Less University	17	17.3
	30 –40	35	35.7			University grad	81	82.7
	< 40	13	07.1					
Sex	Male	25	25.5		Occupation	Physician	51	52.0
	Female	73	74.5					
Marital status	Single	53	54.1			Pharmacist	14	14.3
	Married	42	42.8			Nursing	21	21.5
	Divorced	3	03.1			Nutrition	7	07.1
Working Hours (Hrs)	< 36	24	24.5			Laboratories	5	05.1
	36 – 40	36	36.7					
	40	24	24.5					
	N.A	14	14.3					

Table (2) Medical personal and their knowledge about

Medical team in hospital

Health Team Compassion	No.	%
Physician	6	06.1
Physician and pharmacist	2	02.0
Physician and nurses	8	08.2
Physician, pharmacist and nurses	27	27.6
Physician, pharmacist, nurses and nutrition	33	33.7
Physician, pharmacist, nurses and alienist	2	02.0
Physician, pharmacist, nurses, nutrition, alienist	4	04.1
Physician, pharmacist, nurses, laboratories technician and radiologist technician	10	10.2
N.A	6	06.1

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table ( ) Knowledge About Role Of Clinical Pharmacist

in Hospital

Expected Role	No.	%
Drug distribution, attending round and information about drug	18	18.4
Medicine information and medication knowledge	19	19.4
Medicine distribution inside the hospital	7	07.1
optimizing patient medication, follow up of medication with nurse	29	29.6
Morning round, information about drug, drug distribution, patient medication record with nurses	7	07.1
Knowledge about medication use in hospital	3	03.1
N.A	15	15.3
RESPONSIBILITY MEDICATION DECISION		
Clinical pharmacist	27	27.6
Physician	21	21.4
Physician, pharmacist and nurses	38	38.8
N.A	12	12.2
Need For Prescription Is Discuss With…….		
Physician only	5	05.1
Pharmacist only	1	01.0
Health team	89	90.8
N.A	3	03.1
PARTICIPATION OF CLINICAL PHARMACIST & MEDICAL ERROR		
route of administration , drug interaction, dose determine and in special antibiotic for pediatric	58	59.2
Error in trade name	5	05.1
Food-drug interaction	2	02.0
N.A	33	33.7

Table (3) Participation of clinical pharmacist with the

health team for patient care

Participation	No.	%
Why clinical pharmacy		
Knows more about drug	40	40.8
Knows about drug interaction	29	29.7
Knows about dosage form	5	05.1
Knows about alternative drug	2	02.0
N.A	22	22.4
Benefit Of Medication Discussion With Clinical Pharmacist		
Safe medication	56	57.1
Safe medication time	22	22.4
Efficient result	5	05.2
N.A	15	15.3
Responsibility of patient drug education		
Pharmacist	41	41.8
Physician and pharmacist	27	27.6
The entire medical staff	22	22.4
N.A	8	08.2

جامعة طرابلس
كلية الطب

Table (4) Benefits of having clinical pharmacy in

Benefits	N0.	%
For the (hospital)		
Participate with the medical team in determine curative.	35	35.7
Rationalization of handling and taking medication	33	33.7
Save time and money	8	08.1
N.A	22	22.5
For (patient)		
Provide necessary medication to the patient	28	28.6
Decreasing the side effects	29	29.6
Knowledge necessary for medication user	14	14.3
N.A	27	27.5
For community		
Reduce the drugs budget	24	24.5
Contribute in reduce the spread of diseases	5	05.1
Contribute to the provision of high-quality health care	22	22.4
N.A	47	48.0

medical setting

Table (5) The clinical pharmacy

intervention

Intervention	No.	%
The duration for the patient in the hospital	3	03.1
Alternative proposal medicines	10	10.2
Information for medication	75	76.5
NA	10	10.2

Table (6) The need for training in the field of

clinical pharmacy

The need for training program	No.	%
Yes	**83**	**84.7**
No	**15**	**15.3**

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table (7) knowledge participant bout clinical

Pharmacy practice

Item	KNOW		DO NOT KNOW	
	NO.	%	NO.	%
Medical Team				
Physician	48	49.0	3	03.1
Pharmacist	14	14.3	0	00.0
Nurse	15	15.3	6	06.1
Nutrition	5	05.1	2	02.0
Laboratory	5	05.1	0	00/0
Education Level				
University graduate	10	10.2	7	07.1
> University	72	73.5	9	09.2

Discussion

The present study included total 98 participant out of all the pharmacist and other medical team working in Benghazi medical center and Al hawari hospital, it show that 43.9% for age less than 30 year and 74.5% female.

Participate who have known the role of clinical pharmacy 19.4% including medicine information and medicine knowledge compare with other study appear that it goes most physician and nurse acknowledge of role clinical pharmacy in hospital as improving drug use (9).

Other study show that it is quite important for the benefit of medical care and patient care , as it show in study done in Boston (USA) where 99% of clinical pharmacy intervention was accepted (11), It occur without consultation of pharmacist and discussion as part of medication team 59.2% of participant think it will affect the drug administration, dose intake. where the presence and discussion with clinical pharmacy can be decreased by 87% which is quite effective and better than our condition . This might be due to lack of knowledge about the clinical pharmacy practice in our hospital (13).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Looking at benefits which may result from having discussion between pharmacy and medication team about medication discussion to be taken to treat or reduce the illness 57.1% of participate related to safe medication , which is very important in any hospital , as will as other benefit . this might be considered to emphasis the need for such practice in our hospital . As it is practiced in developed countries, such as U.K (9).

Regarding the intervention of clinical pharmacy , in case administration information on medicine 76.5% which count of ¾ participants and 3.1% in case of duration of patient stay in hospital. This stating the importance of clinical pharmacy present as main member of medication team , for the benefit of patient and hospital ,as will play part in education of public about use of drugs. This go along with elsewhere.

 The Majority think of the need for training in the field clinical pharmacy and should be concerned on this field in future to improve efficacy of patient medication administration and benefit .

conclusion

Most health team focused on need of training program in the field of clinical pharmacy for all hospital staff specially the medication team.
Some of the health team who participate in our study know very little about to clinical pharmacy Practice.
Nearly half of the medical team have acceptable to include clinical pharmacist with in the medical team .
Most participant have recognize the importance of discussion about prescription with clinical pharmacist in the hospital.
Nearly half participant have stated that error is due to give prescription without clinical pharmacy consultation and discussion.
Nearly half participant recognize the advantage of outcome for prescription presented with clinical pharmacy discussion , this benefit on patient , hospital , and community.
More than half participant prefer the intervention of clinical pharmacy practice due to the fact that it will reduce the spending on drug and effective.

Recommendation

Establishment of specialized training courses, in the field of clinical pharmacy practice, this program includes all medication care for patient in the hospitals.
Contribution of the pharmacist to educate the general community members about drugs use and related topics.
Encourage implementation of this practice in all health facilities (hospital, poly clinic , health center).
Work on the development of interest in this area to provide efficient health services, through discussion with all health personal.

Promote more research work in this field by different specialties, to be able to explore more of the practice of clinical pharmacy within the medical field discussion taken and planning for improving the quality of health benefit to the community.

References

Calver R . 1998 Clinical pharmacy- Hospital perspective Br J Clinpharmacol; 47:231-238.

Yasser abd El moneim Ibrahim 2008, 2009 communication skills for pharmacists, B. pharm.

Calder G, Barnett J W .1967. The pharmacist in the ward .pharm J ; 198:584-586.

Baker J. 1988. Br med J ; 297 :465-469(PMC free article)(pub med).

Cousins HD, luscombe D. 1995; Re engineering pharmacy practice (1) .forces for change and the evaluation of clinical pharmacy practice .pharm J .255:771-776.

American college of clinical pharmacy .2008 .the definition of clinical pharmacy. pharmacotherap, 28:816-817.

Damian child. janthancooke and Richard hey, clinical pharmacy .

Clucas K, chair pharmacy, 1986: A report to the Nuffield foundation .london: Nuffield foundation.

Eva RammeBrmberg, Christina hising, Urban nylen, Hans Ehrsson ,staffanEksborg, evaluation pharmacist contribution to an oncology ward in a Swedish hospital .

http://www.ukcpa.Org/.uk clinical pharmacy association website.

Lucianl.leeape MD: David J. cullen MD: Margaret Dempsey Clapp, MS , Rph : Elisabeth Burdick ,MS : Harold J .Demonaco, MS, Rph: Jeanette lves Erickson, MSN, RN : David W. Bates ,MD , MSC .1999, JAMA. 282 (3): 267 -270.

John A . Armitstead , MS .Rph ,FASHP ,2006 –the role of pharmacists in the hospital setting .

Feras Al Aaly . 2011 work shope doctor of pharmacy and clinical pharmacy .faculty of pharmacy university of science technology (Jordan)

Reborta monsoon ,MD ,chester A .Bond , pharm D ,Arthur schuna ,MS Arch .1981 .role of the clinical pharmacist in improving drug therapy clinical pharmacist in outpatient therapy, intern med .141(11):1441-1444.

Dodds L .1982 .An objective assessment of the role of the pharmacist in medication and compliance ,Br J pharm pract 4:12-24 .

Gleason K, Groszek J , sullivancet al .2004.recanciliation of discrepancies in medication histories .AMJ health-syst pharm 61:1689-1695.

National institute for health and clinical excellence –NicE patient safety guidance 1. techical patient safety solutions for medications reconciliation on admission to hospital . London, National patient safety .Agency ,2007.

Prevalence of anaemia among pregnant women in Gharian- Libyas

Jamal bordom[1],Tarek Elezabi[2]

1-family & community medicine department faculty of medicine/Gharian

2- National center for disease control/ Tripoli .Libya

Abstract:

Introduction

Anaemia is a serious public health problem in Libya mainly among pregnant women. This study was conducted to estimate the prevalence of anaemia among pregnant women in Gharian / LIBYA.

Methods:

A cross sectional study was conducted on 168 pregnant women from a total of 200 women due to miss essential values. Data was collected using pretest questionnaire to collect data about socio-demographic characteristics and obstetric history.

Results:

The prevalence of anaemia among pregnant women was 40.5%.Anaemia more common in middle age (30 to39 years) with 43.8%.(p>0.05).
No significant association was found between anaemia and educational levels (p>0.05).

Regarding gestational age ,anaemia more common in first trimester with48.4%(P>0.05).
Anaemia more high with parity at 5 and more(42.9%)(P>0.05). There was no severe anaemia in this study, the percent of mild anaemia was 38.1%.

Discussion:

Our results in this study was similar with the results of old study in Gharian. The overall prevalence of anemia among pregnant women in our study was about 40.5% according to WHO classification(Hb<11gm/dl) (8).There is no severe anemia in our study, the moderate anemia was   2.4% and 38.1% had mild anemia .Anemia in pregnancy rest a serious public health problem mainly in Libya as a one of developing countries. Other study needed to know the types and causes of anaemia in Libya

Conclusion:

Anaemia still public health problem in Libya mainly among pregnant women.
So awareness regarding nutritional education, regular antennal care, intake of iron and folic acid, correct unhealthy habits, balance diet, all of them are highly recommended.

جامعة طرابلس
كلية الطب

Key words:

prevalence of anaemia, pregnant women, unhealthy habits, socio-demographic factors, nutritional education, obstetric history.

Introduction

Anemia is considered a major public health problem ,playing an important contributor to mortality and morbidity among pregnant women especially in developing countries.(1).

Pregnancy is not just a matter of waiting to give birth but a joyful and a fulfilling period in a women's life. It can also be one of the experiences of misery and suffering when complications or adverse circumstances compromise the pregnancy, causing ill health or even death [2].

Anaemia is the term used to describe the condition in which there is a reduction in the concentration of hemoglobin in the blood stream to a level below 11 gm/dl for pregnant women[3].

Physiologically, during pregnancy there is an increase of iron and folate requirements, therefore the possibility of decreased iron and folate is high if there is not supplementation.(4)

In India, the prevalence of anaemia was found to be 50.14%.Further ,finding of the study revealed that the prevalence was higher among young women, women belong to low socioeconomic status and women with short pregnancy interval and higher parity [5].

In Ethiopia, (2014) study done on prevalence of anaemia in pregnant women revealed that 27.9% of them were anemic and 12.5% of pregnant women had severe anemia(Hb below 7 mg/dl)[6].

In Malawi, 57% of women were anemic by WHO standard (Hb <11.0 g/dl) and 3.6% were severely anemia (Hb <7.0 g/dl).[7].

The aim of this study was to identify the prevalence of anaemia among pregnant women attending ante-natal care at MCH service at Gharian polyclinic.

Subject & methods :

A cross sectional study was carried out from march to June 2016 at MCH centre during antenatal care visits at Gharian polyclinic. All mothers attendant MCH centre during the anti- care visits were interviewed regarding certain socio-demographic ,obstetric and medical history of pregnant women were collected ,using pretest questionnaire.

A total of 200 pregnant women were enrolled in this study by using simple random sample technique and all mothers attending MCH centre were selected in this study during the days of our visits to MCH centre. The final analysis carried out on 168 pregnant women due to missing value in certain questionnaires.

Procedure:

Data was collected from pregnant women by questionnaire by ………………..

Information on the questionnaire included sociodemographic characteristics such as age, occupation, parity and educational level. Hemoglobin level was obtained from the last reordered in patient file.

Anemia in this study is defined by using the WHO criteria of haemoglobin values of less than 11 g/dl.(8)

▪mild anemia 9-<11 g/dl

▪moderate 7-<9 g/dl

▪severe anemia<7g/dl

Statistical analysis :

Data analysis was performed using SPSS software version( ) .Descriptive statistics, including, numbers and percentage was done. Inferential statistics was done (Chi-square test) and P-value less than 0.05 was considered statistically significant.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Results:

The results of this study was run on 168 women only from 200 due to missing essential values.

The mean age group of pregnant women in present study was 31.9±6.2

(20-48)years.

Figure 1,revealed that about 40.5% of pregnant women were anemic and 59.5% of them non anemic in this study.

There was no severe anemia in present study, the moderate anemia was 2.4% and the mild was 38.1%.(Table 1).

Table 2,shows the distribution of mothers according to type of work. This study showed that 22.6% of mothers were house wife and 77.4 % of them do different works.

Table 3,presents the distribution of mothers according to education levels,2.4% of mothers were illiterate and 71.4% were university level.

Table 4,shows that 85.7% of mothers did antenatal care regular and 14.3% of them did not do.

Table 5, illustrates the distribution of pregnant mothers and their knowledge about the sign of dangers during pregnancy. The table shows that 36.9% of women dose not know the sign of dangers during pregnancy.

Table6,presents the pregnant women characteristics, it shows that about 41% of women aged from 20to 29 year,43.5% aged from 30to 39year and 15.5% of them at 40 years and more.

Regarding the gestational age ,36.9% of women in first trimester,30.9% of them in second trimester and 32.2% in third trimester (Table 6).

Table 6 , shows that 91.7 % of mothers with parity from 1 to 4 and 8.3% from 5to 10.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 7, illustrate, the anemia status according to age, educational levels gestational age and parity .It is clear from the table that the percentage of anemia was 26.2% among mothers from 20 to29 years,43.8% from 30to 39 year and 42.3% from 40 years and more.

The prevalence of anaemia was 61.7% among pregnant women with university level and more and 54.2% between secondary school or less.

Regarding the gestational age and anemia, it was found that 48.4% of women were anemic during the first trimester, 42.3% during the second trimester and 29.6% during the third trimester.(Table7)

For the parity it was found that , 40.3% of the women were anemic between 1 and 4,and 42.9% of them from 5 and more. (Table7)
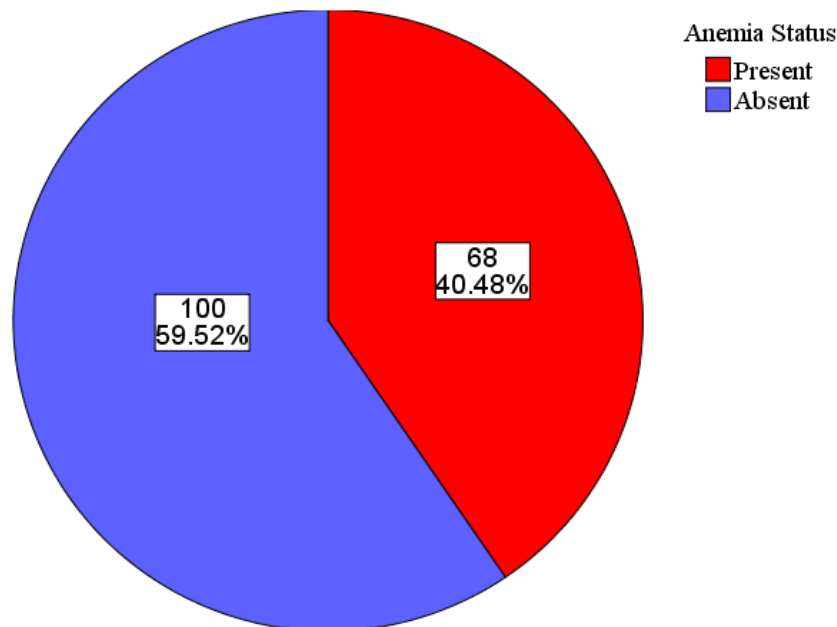
Figure 1.Distribution of anemia status among pregnant women

Table 1.Classification of anemia among pregnant women

Classification	N°	%
Mild anemia	64	38.1
Moderate anemia	4	2.4
Severe anemia	-	-

Table 2.Distribution of mothers according to type of work.

Types of work	N°	%
Employed	30	17.9
Nurses	12	7.1
Teachers	68	40.5
House wife	38	22.6
Others	20	11.9
Total	168	100

Tabble 3.Distribution of mothers according to educational level .

Education levels	N°	%
Illiterate	4	2.4
Primary school	-	-
Preparatory school	6	3.6
Secondary school	38	22.6
University	120	71.4
Total	168	100

Table 4.Distribution of mothers according to antinatle care visite.

Status	N°	%
Visited	144	85.7
Not visited	24	14.3
TOTAL	168	100

Table 5.Distribution of mothers knowledge about the signs of dangers during pregnancy.

Status	N°	%
Knows	62	36.9
Dose not know	106	63.1
TOTAL	168	100

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 6. Distribution of pregnant women with certain characteristics.

Pregnant women characteristic	Count	%
Age in Years		
20 – 29	69	41.0
30 – 39	73	43.5
40 – 49	26	15.5
Total	**168**	**100.0**
Gestational Age		
First Trimester	**62**	**36.9**
Second Trimester	**52**	**30.9**
Third Trimester	**54**	**32.2**
Total	**168**	**100**
Parity		
1 – 4	**154**	**91.7**
5 – 10	**14**	**8.3**
Total	**168**	**100**

Table.7: Distribution of anemia Status for Pregnant women according to age, educational levels, gestational age and parity.

Factor	Anemia Status						P
	Present		**Absent**		**Total**		
	Count	%	Count	%	Count	%	
Age in Years							
20 – 29	25	26.2	44	63.8	69	100	
30 – 39	32	43.8	41	56.2	73	100	P = .64
40 – 49	11	42.3	15	57.7	26	100	
Educational Level							
Secondary or Less	22	45.8	26	54.2	48		
University and Higher	46	38.3	74	61.7	120		P = .37
Gestational Age							
First Trimester	30	48.4	32	51.6	62	100	
Second Trimester	22	42.3	30	57.7	52	100	P = .12
Third Trimester	16	29.6	38	70.4	54	100	
Parity							
1 – 4	62	40.3	92	59.7	154	100	
5 – 10	6	42.9	8	57.1	14	100	P = .8

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Discussion :

The overall prevalence of anemia among pregnant women in our study was about 40.5% according to WHO classification(Hb<11gm/dl) (8).There is no severe anemia in our study, the moderate anemia was 2.4% and 38.1% had mild anemia .Anemia in pregnancy rest a serious public health problem mainly in developing countries.

The percentage of house wife in this study was 22.6% and the percentage of illiterate women was 2.4%.In the meanwhile, the percentage of women with university grade was 71.4%.In this study majority of mothers(85.7%) visited antenatal care unit in polyclinic regular.

We found in our study that more than one third (36.9%) of women did not know the sign of dangers during pregnancy ,this due to lack of health education during antenatal care from medical and paramedical staff .

This study indicated that the prevalence of anemia was 41% among age group between 20 to 29 years ,43.5 % between age group 30-39 years and 15.5% at 40 years and more. The age of pregnant women was not significantly associated with anemia(P>0.05) .This is similar to other study carried out in Derna /Libya in 2016.(9).The mean age group in our study was 31.9±6.2 years.

No significant association was found between anaemia and educational levels (p>0.05).This is in accordance with other study in Libya(9).

Regarding the gestation age, 36.9% in the first trimester,30.9% in second semester and 32.2% in third trimester in this study. There was no association between gestation age and anaemia (p>0.05).This was similar in what was found in old study carried in the same place in 2007.(10).

The presents study showed that 40.3% of anemic women with parity from 1 to 4 and 42.9% of them from 5 to 10.There was no association between parity and anemia in present study (p>0.05).This is in agreement with other studies carried out in Tanzania (11).

Anemia among pregnant women still public health problem in Libya since long time as indicated by an old study in 1991.(12).

Others studies in Middle east and North Africa carried out on anemia among pregnant women showed that anemia were 48.08% in Algeria, 26.2% in Bahraini,Turky and Jordan 34.7% and 39% in Makkah (Saudi Arabia).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

The results of our study were less than in Algeria regarding the prevalence of anemia among pregnant women and not so far from prevalence of anemia in Makkah (40.5% and 39%) and more than in Bahraini ,Turky and Jordan.(13-17)

Regarding the pattern of food consumption among Gharian population as indicated by old studies ,Macaroni, couscous and rice are commonly used with a mean frequency as twice a week in lunch.

In evening soup with bread is wildly used with a mean frequency as 2.3 times per week in dinner. Meat consumption is used as 5 times a week, while fish consumption is rarely used(a round one a week).Eggs and milk about 5 times a week. Fruit(3 times a week) and vegetable(4 time a week) consumption depended mainly on season, price and family income.(10,18-19).

Before the Libyan crises , in 2011 most of basic needs available with subsidize prices as flour, oil, rice, macroni and couscous and they are a good source for energy and protein.

 Anaemia is chronic problem among pregnant women in Libya since long time although the basic needs available with low price before the crises ,and the high prevalence of anaemia may be due to lack of nutritional education. The other reason could be poor absorption of iron or due to unhealthy habits as drink tea or coffee after the meal which prevent absorption of iron .This habit is popular among Libyan population.

 Other reason could be late supplementation with iron due to late ante-natal care. The pregnant women who registered early before 12 weeks for ante-natal care and took iron regularly had greater iron reserves ,higher haemoglobin levels and a lower prevalence of anaemia.(20-21)

The weak points of present study are ,our study carried on local area, with small sample size and we could not classify the types of anaemia due to lack of sufficient resources.

Conclusion:

Anemia in pregnancy continues to be a health problem in Libya as any other country in developing world. The overall prevalence of anemia was 40.5% among ante-natal women in present study.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Again anemia continues to be a public health problem with the existing health care resources.

Socio-economic status: literacy of women and awareness related to health concern are the major determinants that contributes to the problem of anemia.

Therefore ,public health education / information on reproductive health, monitoring the compliance of women with ante-natal care services ,and strengthening of their health care seeking behavior are important health care measures to be undertaken at the community level.

Also ,it is the time for realization that health system should focus on various factors that contribute to the occurrence of anemia and include them as an important indicator in the national health care policy.

Primary health care strategy should be revised in Libya in national level to protect and promote the health of mothers and children and to improve the quality of health services as a whole.

Recommendation:

1-Health services should be reoriented in all levels in Libya.

2- Primary health care strategy should be put on national health care policy.

3-More large studies on anemia prevalence and types in national level.

4-Nutritional survey is urgent needs to know the actual nutritional situation in Libya.

5-Health education activity should be supported.

6-MCH services should be reevaluated.

Aknowledgment:

The authors wish to thanks all the participant in this study mainly the Gharian poly clinical staff and demonstrated in family and community medicine department at faculty of medicine ,Algabel Algarbi University/ Gharian . Libya.

References

1-WHO.The global prevalence of anaemia in 2011.Geveva :World Health Organization;2015.

2-world health organization. Make every mother and child count,2005.

3-worlth health organization. Prevention and management of severe anaemia in pregnancy,Geneva,WHO,1991.

4-Xiong X et al .Anemia during pregnancy and birth outcome: a meta –analysis. Am j perinatol.2000;17(3):137-46.

5-Judith A et al.prevalence of anaemia among pregnant waomen: A community –based study in Udupi District. Health and population –prospective and issues.2088. 31(1):31-4.

6-kefryalew F et al.Anemia among pregnant women in southeast Ethiopia 2014.

7-van den broek,N.R. et al. Anaemia in pregnancy in southern Malawi:prevalence and risk factors.British journal of obstetrics and Gynaecology,April 2000,vol,107,pp445-51.

8-WHO.Micronutrient deficiencies: Iron deficiency anemia2008.

9-Elzahaf R, Omar M. Prevalence of anaemia among pregnant women in Derna/Libya.International journal of community medicine and public health,july 2016;vol 3(7):1915-20.

10-Bordom J,Ismail A,Hassan H.Analysis of nutritional situation among Gharian population in Libya.Medical journal ,Zagazic university,Vol(13) N°(1)JAN 2007.

11-Bergsjo P et al.Hemoglobin concentration in pregnant women. Experience from Moshi-Tanzania. Acta obstet Gynecol,scand 1996;75:241-44.

12-Bordom J.A study of the health status of pregnant women in Libya.Primary health care department ,Ministry of health,Tripoli ,Libya,1991.(un published study).

13-Demmouche A et al.Anemia among pregnant women in the Sidi Bel Abbes region : An Epidemiologic study.J blood Disord Tranfus.2011;2(3).

14-Merza R et al.The prevalence and factors associated with iron deficiency anemia in anemic pregnant women Bahrain Medical Journal.2014;36(3).

15-Karaoglu L et al. prevalence of nutritional anemia in pregnancy in an east Antolian province, Turky.BMC public health 2010 :10(239).

16-Al-mehaisen L et al .Maternal anemia in rural Jordan :room for improvement Anemia 2011.

17-Abdelhafez AM,El –Soadaa SS.Prevalence and risk factors of anemia among a sample of pregnant females attending primary health care centers in Makkak,Saudi Arabia .Pak J Ntri.2012;11(12):1113-20.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

18- Bordom J. Croissance des enfants libyens de la naissance a 5 ans: Etablissement de nouvelles courbes; comparaisons historiques, géographiques et socio-économiques ,2002. (phD Study)

19-Bordom J et al.New growth chart for Libyan preschool children. Eastern Miditerranean Health Journal,WHO,vol,14,(6),2008.1400-12.

20-Milman N et al.Iron status and iron balance during pregnancy. A critical reappraisal of iron supplementation.Acta obsttet. Gyneco scand ,1999,78(9)749-57.

21-Ray SK et al .A rapid assessment of anaemia in pregnancy in west Bengal with special reference to care seeking behaviours of mothers. Indian journal of public health,46(2)58-64.

The growth and nutritional status of Libyan preschool children: An overview during the last decades

Jamal Bordom **Family & community medicine department**

Faculty of medicine /Gharian

Abstract:

Nutrition is one of the most important factors influencing the quality of human life in most part of the world. Under nutrition is and will likely one of the main contributing causes to very high rates of infant and young child deaths and in those who survive it retards in growth and development and lower resistance to infections or environment hazards.

In Libya ,the nutrition surveys and field studies to assess the nutritional status of various population groups are rather scarce and limited to made sound conclusion about current nutrition situation. However, data available from those limited studies and surveys suggest that stunting, wasting, anaemia and obesity are quite prevalent among Libyan preschool children .

In 2008,local study revealed that the nutritional status of Libyan preschool children has improved as a results of the policy of development adopted throughout the country in recent decades. The lower prevalence of wasting ,stunting and undernourishment appears to reflect improved in nutritional and sociodemographic conditions in the country.

A review of literature published from 1979 to 2012 in Libya on the nutritional status of Libyan preschool children was preformed in this study .Available data from studies, reports and surveys were reviewed and used in this work.

The objective of this study is to analysis the nutritional status of Libyan preschool children and to draw conclusion on nutritional situation of Libyan preschool children.

The nutritional status of Libyan preschool children is improved during the last decades, although the stunting, wasting ,obesity and anemia are still public health problem among Libyan preschool children. Stunting is more among boys than girls and in rural areas than urban areas.

Key words: Nutritional status ,growth, wasting, stunting, anaemia, Libyan preschool children, obesity .

مؤتمـر البحـوث الطبيــة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

The growth and nutritional status of Libyan preschool children: An overview during the last decades

Jamal Bordom

Family & community medicine department

Faculty of medicine /Gharian

Introduction:

Most developing countries have experienced dramatic decreases in their infant and under five mortality rate over the last three decades.
As greater numbers of children survive it becomes critical to pay closer
Attention to children ability to develop their full physical and mental potential. This will have important consequences in adult life.(1)
 Nutrition status is good indicator of well-being in children. The best global indicator of children well-being is growth, because infections and unsatisfactory feeding practices, or more often a combination of the two, are major factors affecting their physical growth and mental development. poor growth is attributable to a range of factors closely linked to overall standards of living and the ability of population to meet their basic needs, such as access to food, housing and health care. [2-3].
In Libya ,the nutrition surveys and field studies to assess the nutritional status of various population groups are rather scarce and limited to made sound conclusion about current nutrition situation. However, data available from those limited studies and surveys suggest that stunting, wasting, anaemia and obesity are quite prevalent among Libyan population [4].

In 1979,a cross sectional study was conducted in Tripoli showed that the Libyan preschool children was retard in his growth parameters particularly in the lower socio-economic groups ,which points to nutritional factors as a probable cause [5].

In 1993,WHO ,report showed that the nutritional problems related to under nutrition or over nutrition and obesity or anaemia are quite prevalent in the Libyan society due to lack in nutrition education and physical activities[5].

In 2008,local study revealed that the nutritional status of Libyan preschool children has improved as a results of the policy of development adopted throughout the country in recent decades. The lower prevalence of wasting ,stunting and undernourishment appears to reflect improved in nutritional and sociodemographic conditions in the country[6].

The objective of this study is to analysis the nutrition status of Libyan preschool children and to draw conclusion on nutritional status of Libyan preschool children.

Methods

A review of literature published from 1979 to 2012(more than 15 studies and surveys) in Libya on the nutritional status of Libyan preschool children were reviewed .Most of our data comes from cross sectional studies carried out in Libya during the last decades.

Anthropometric measurements ,age in months, sex were used to calculate weight/age, height/age and weight / height Z-score for Libyan preschool children .

Results:

 The available data indicate that the nutritional status of Libyan preschool children in the reviewed studies, reports and surveys during the last decades were adequate and satisfy although retard in growth ,anemia ,

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

stunting, and wasting were most prominent mainly in low socio-economic groups in rural areas among Libyan preschool children .

A study was conducted in Tripoli in 1978which covered 1500 preschool children, revealed that 17.7% of children were anemic.

Other study carried out in Tripoli in 1981 reported that the prevalence of anemia among preschool children increased to 40.7% and wasting was encountered in 33.1% of the examined children.

In 1997,the Arab and Libyan maternal and child survey showed that the malnutrition reduced among Libyan preschool children and the percent of under nutrition was 4.7% ,the percent of wasting was 2.7% and stunting was 15% .

Regarding the prevalence of stunting among Libyan preschool children, it was more common in Aljabel Algarbi region(20.2%), Aljabel Al-Akhdar(21%) and Sirt(18.2%).

Concern the under weight it is more common in Sabha, Sirt and Aljabel Algarbi ,it's about 6.7% in all of the three regions in Libya.

In 2000,the prevalence of obesity among preschool children was 7% in urban area and 3% in rural areas and more common in girls than in boys .

The prevalence of stunting(2000) among Libyan preschool children was 6.1% in rural area and 2.5% in urban area. The mean birth weight among Libyan preschool children was 3.200 kg.

There were significant improvements in nutritional status of Libyan preschool children between 1979 and 2000 .

The average duration of exclusive breastfeeding was 3 months and the average age of weaning in urban area was 9 months and 10 months in rural area.

En 2003,the results of the project of cluster survey multi-indicators showed that the infant mortality rate was 25 per 1000 and the under five mortality rate was 31 per 1000 live birth.

In 2012,the infant mortality rate decrease to 13.5 per 1000 live birth, the under five mortality rate was 18per 1000 live birth and the percent of newborn with birth weight 2.500 kg or more was 95%.Re. Regarding the maternal mortality rate ,it was 15 per 100.000 live birth.

In comparison the growth patterns of Libyan preschool children with other international growth charts we found that the growth of Libyan preschool children is not so far from studied charts as WHO chart, France chart, CDC chart and Euro chart mainly for the 50th percentile.(figures 1 to 8).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
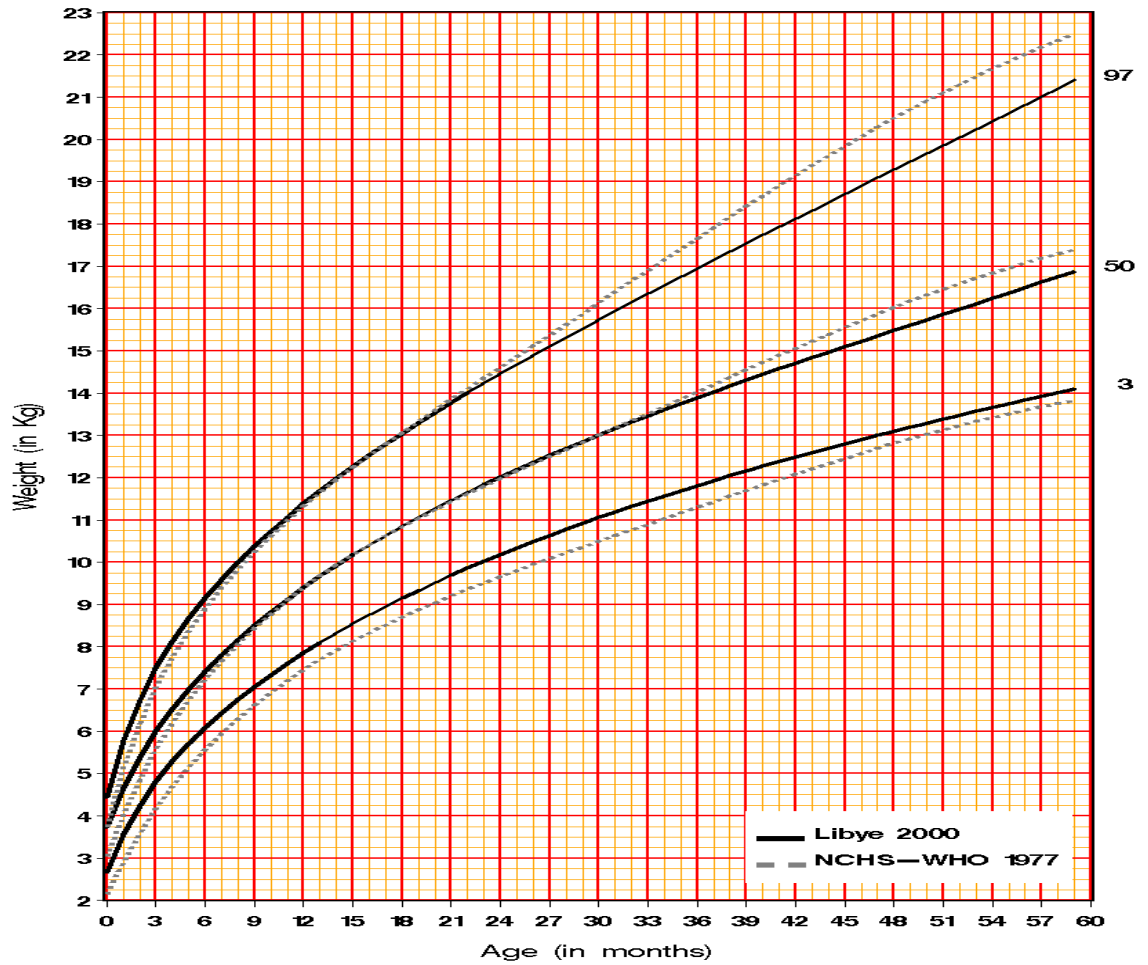
Figure 1.Comparison of Libyan preschool children of boys according to WHO

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
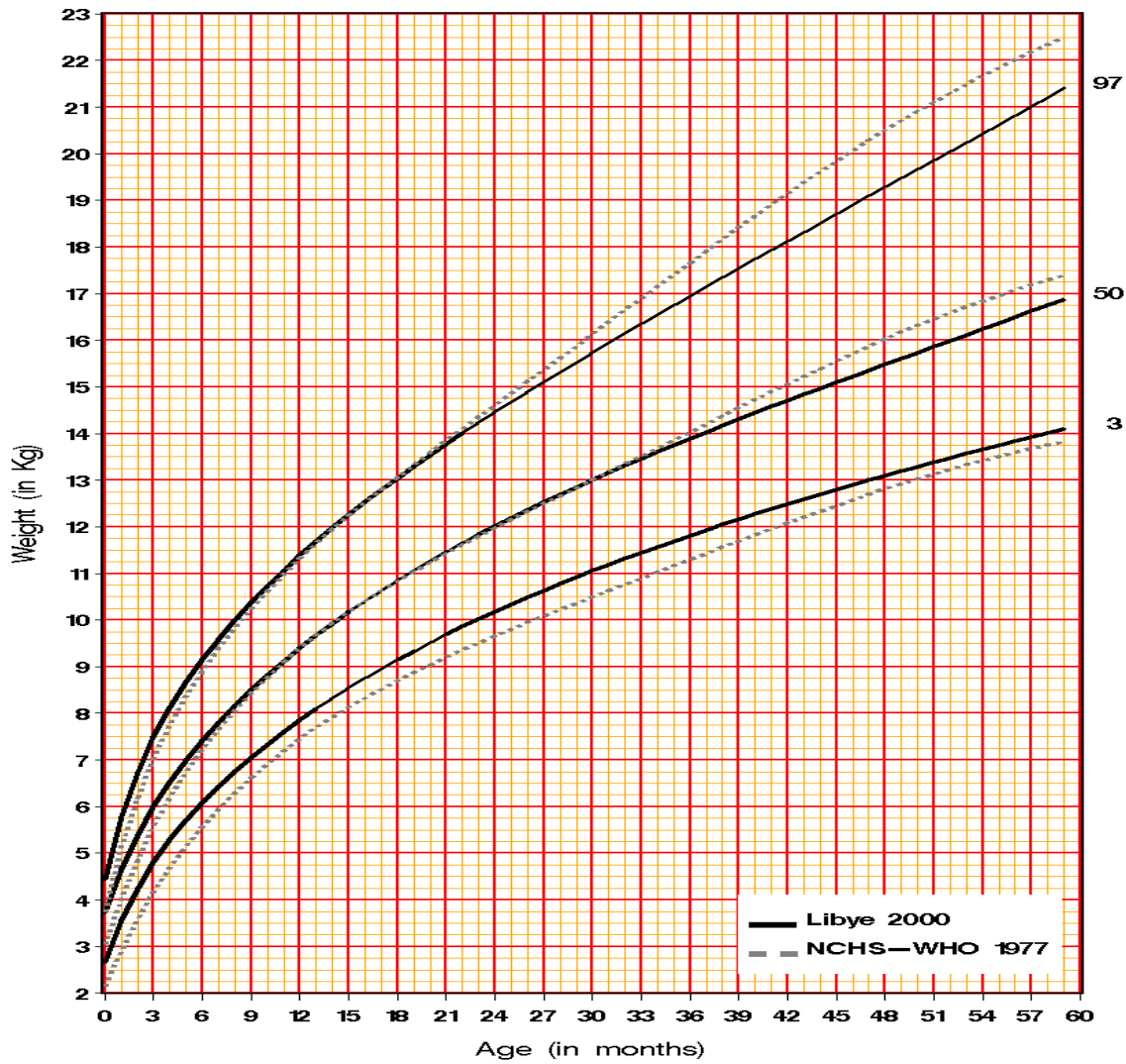
Figure 2.comparison the growth of Libyan preschool children (girls) according to WHO.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
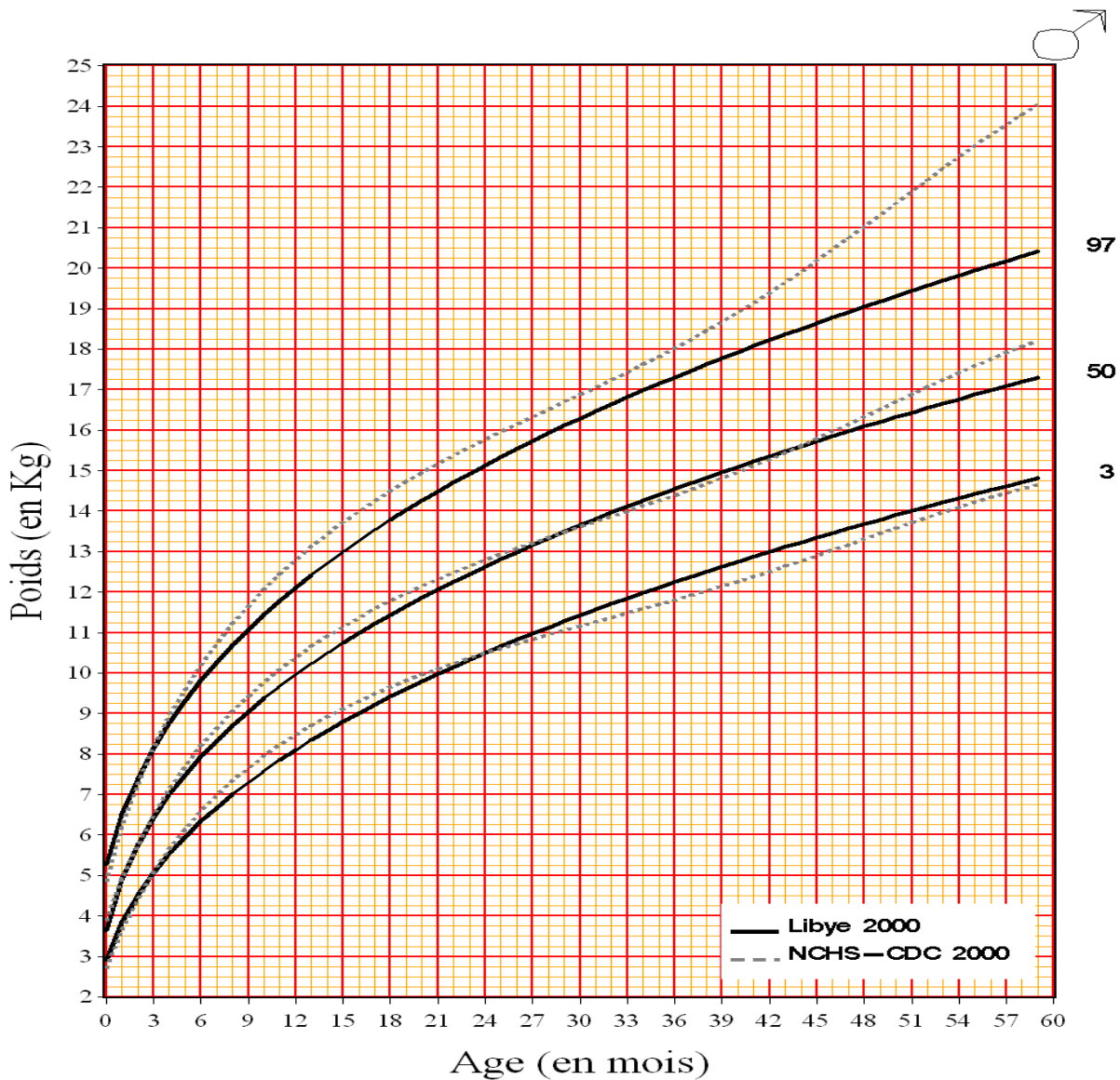
Figure 3.comparison the growth of Libyan preschool(boys) according to CDC 2000.
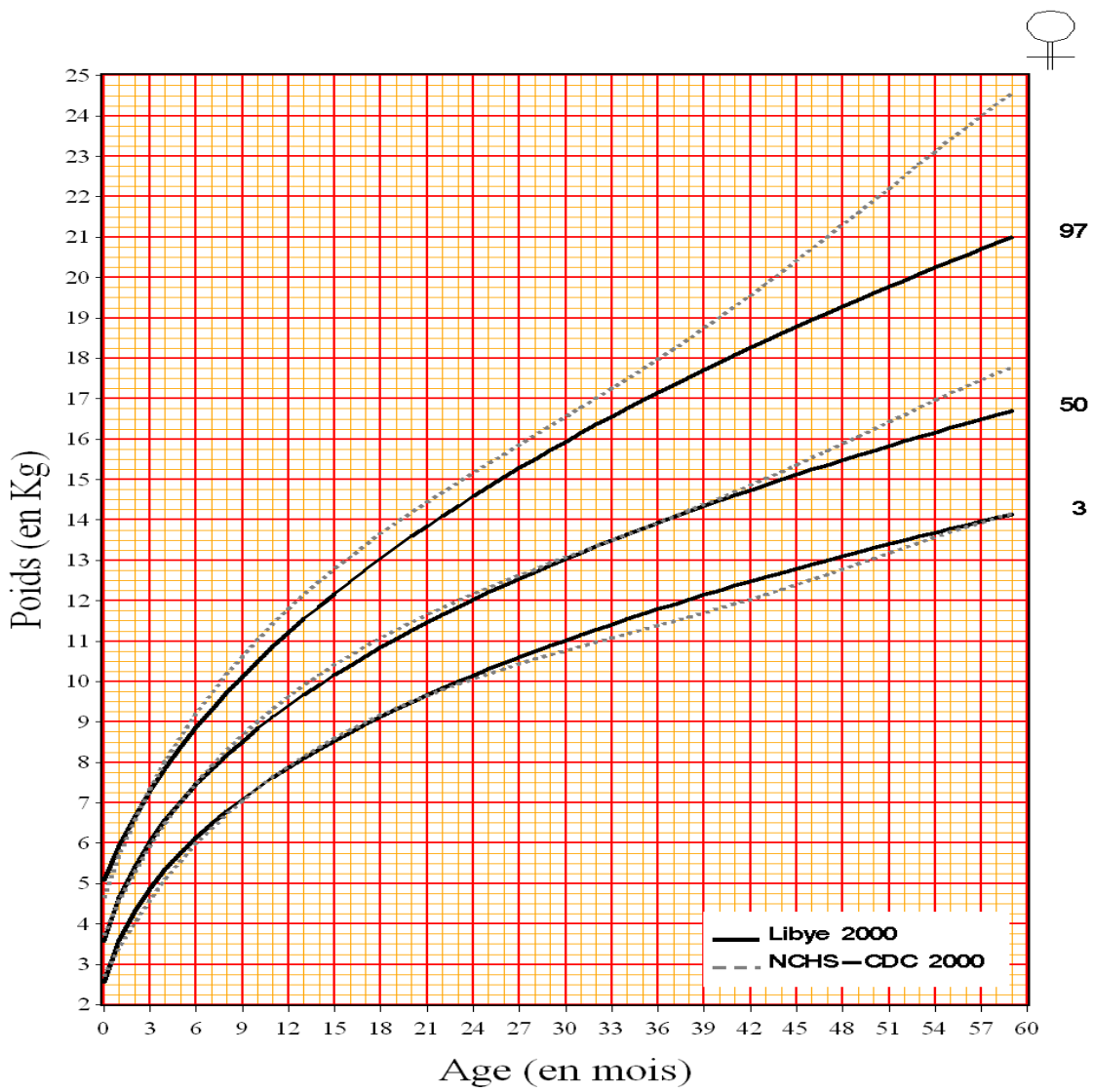
Figure4 .comparison of Libyan preschool children(girl) with CDC2000

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع
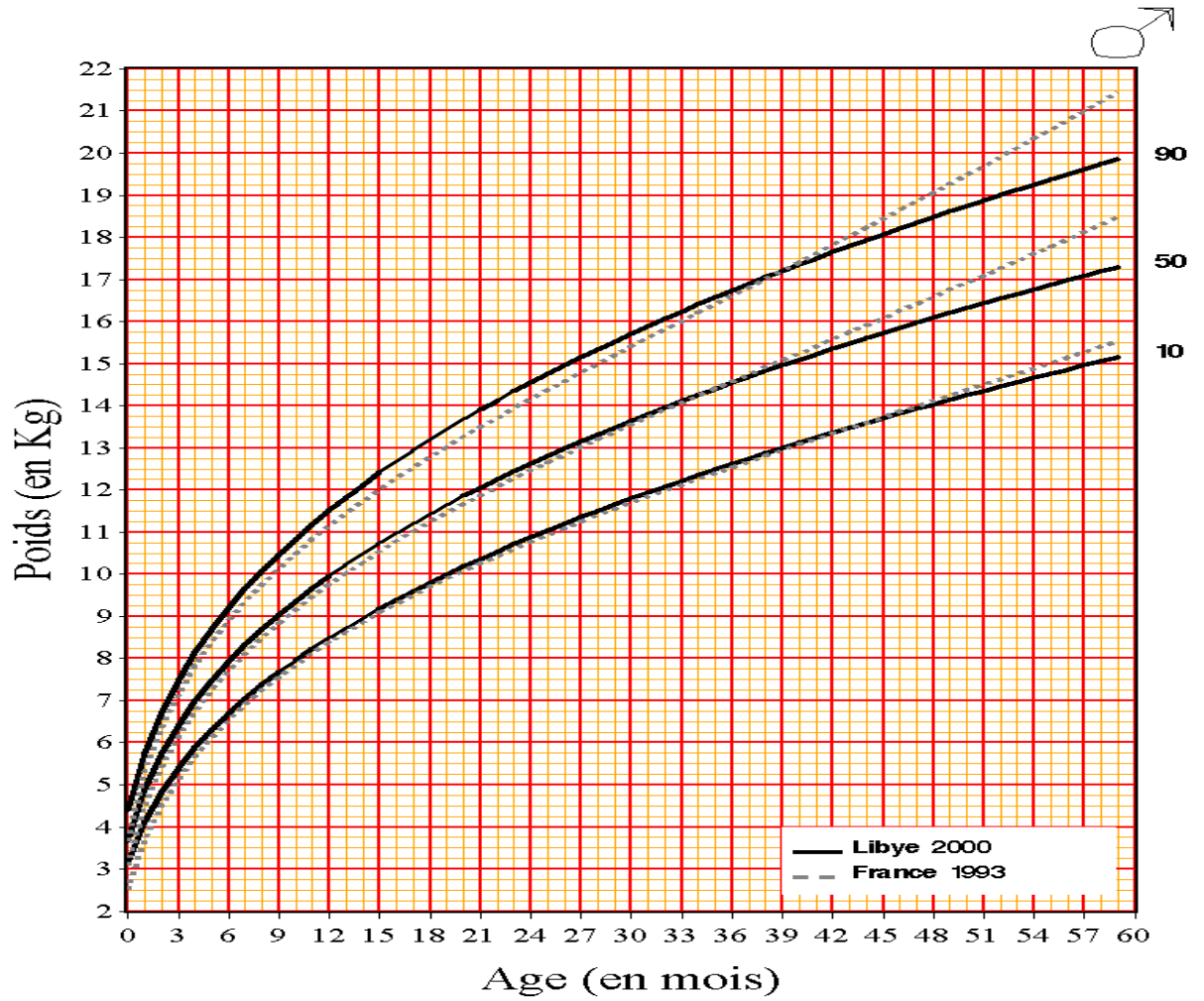
Figure5.comparison the growth of Libyan preschool children(boys) according to France.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
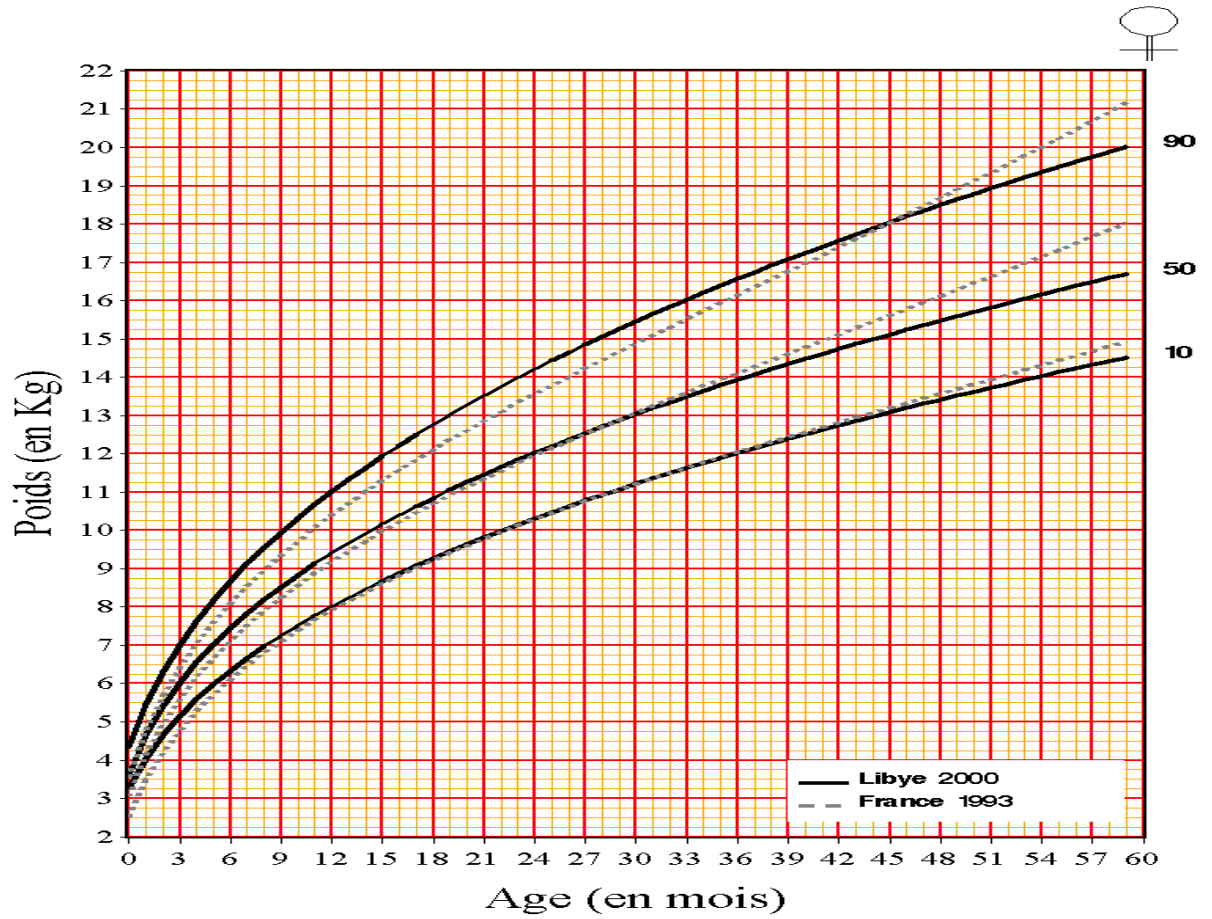
Figure6.Comparison the growth of Libyan preschool children (girls) with France.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
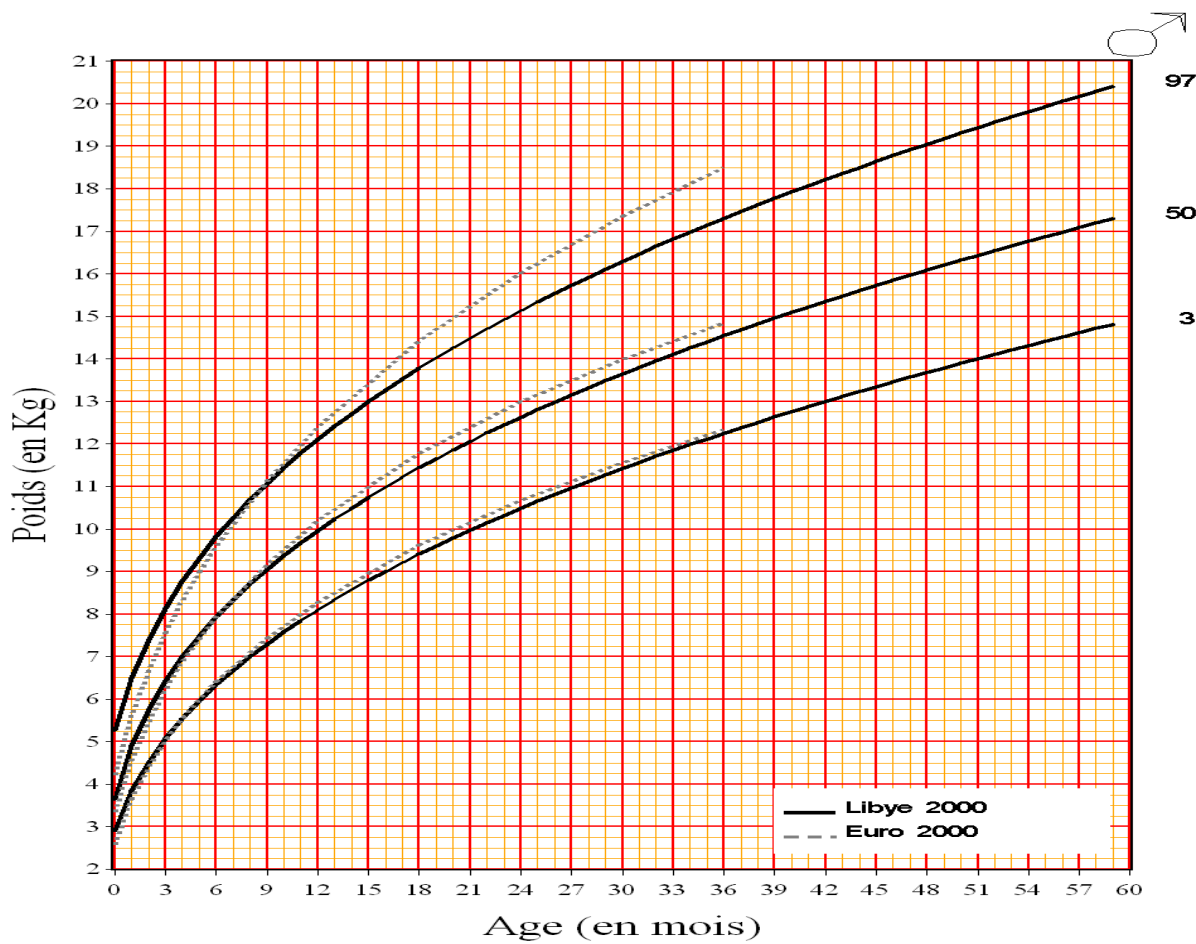
Figure 7.Comparison of Libyan preschool children (boys) with Euro growth chart
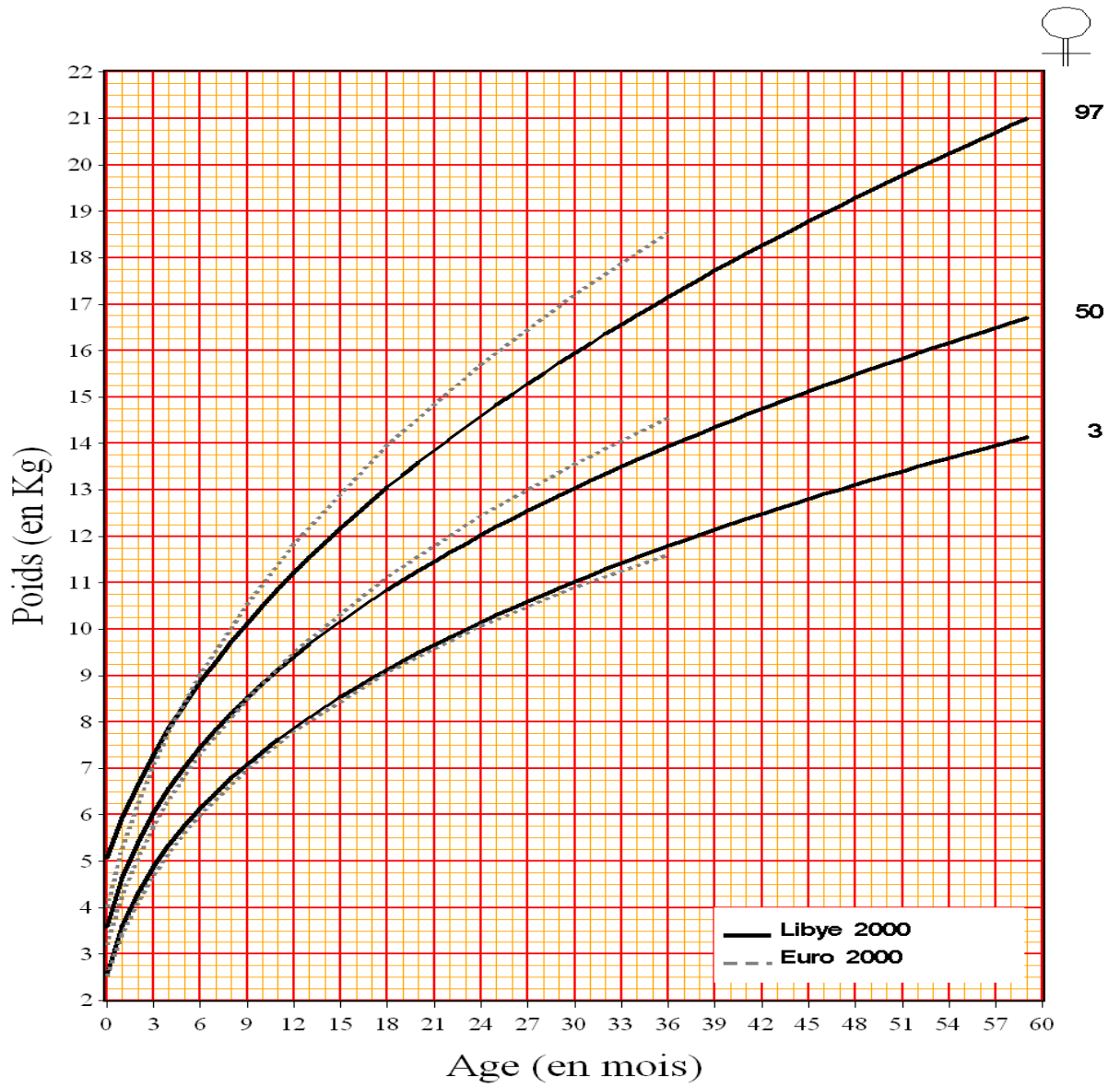
Firgure 8.Comparison the growth of Libyan preschool children (girls) with Euro growth chart.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Discussion:

The results of reviewed studies and surveys showed that the nutrition status of Libyan preschool children improved during the last decades due to socioeconomic development, increased levels of education among women, prolonged breastfeeding, provision of high quality solid foods as a supplement to breastfeeding and availability of higher energy foods. Heavy subsidies to several basic foods commodities [7].

Although the availability of higher energy foods with heavy subsidies ,the stunting still a public health problem among Libyan preschool children since long time mainly in rural area. In 2000,it's prevalence among healthy preschool children was 2.5% in urban area and 6.1% in rural area.

A national survey was conducted in 1997, from general community indicated that stunting was relatively more common with a level as high as 15% among Libyan preschool children and among boys than girls

However, the problems of stunting (mainly in regions of Aljabel Al-Akhdar ,ALgabel Algarbi and Sirt), wasting and anaemia among Libyan preschool children rest a chronic problem since long time due to absence any strategy to control this problems from the Libyan government[8,9-11].

In 2003,the result of national cluster survey indicated that the percentage of stunting was 12.1%,wasting was 3.6% and underweight was 5.3% [12].

However, the percentage of stunting reported among Libyan preschool children in national level was lower than that in surrounding countries as it was 24.9% in Egypt in 1998,and 18.3% in Algeria in 1995[2].This variation might be suggested due to improvement in socio-economic condition in Libya during the last decades. Other factors may be associated with the decrease in prevalence of stunting and wasting among Libyan preschool children include greater availability of high energy foods ,increase of vaccination coverage, good supplementation with others types of foods, good breast feeding and control of diarrhea diseases by oral rehydration solution [13-16].

The lower mortality rate between infants and under five is best indicators for improvement the health and nutritional status of Libyan preschool children during the last decades. [12].The higher prevalence of breast feeding among mothers during the last two decades helps to improve the nutrition status of Libyan preschool children [17].

In comparison the growth patterns of Libyan preschool children ,with other international charts we found that the growth of Libyan preschool children was very near or similar from international charts mainly during the first three years(mainly in third and fifth percentiles)and the differences started after the third years might be due environment ,genetics factors or due to high prevalence of obesity among western preschool children(18-21) .

More recently, the higher prevalence of breastfeeding among Libyan mothers decline during the last years due to lack of interest among mothers mainly young mothers and lack of health education from medical and paramedical staff during antenatal care visits in public and private sectors.

However, today the Libyan situation is critical mainly from the begging of 2016,there is big inflation in the prices of basic foods as, eggs, bread, flour, oil, wheat ,fruit, vegetable ,meat ,cereals……etc. It was observed also high consumption of sweet foods, salts foods and other fast foods among children and adults among Libyan population. All of this problems well be effect on nutritional situation of Libyan community in near future in forms of under weight, or over weight and obesity.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Conclusion:

The nutritional status of Libyan preschool children is improved during the last decades, although the stunting, wasting, obesity and anemia are still public health problem among Libyan preschool children. Stunting is more among boys than girls and in rural areas than urban areas.

Recommendation:

1-More recent studies on nutritional status of Libyan preschool children.

2-Return the policy of subsidized to the basic food staple in Libya to fight malnutrition problems among Libyan community.

3- Promote ,protect ,and support breastfeeding among Libyan mothers.

4-Foster nutrition education among Libyan society .

5-Nutritional survey is needed in Libya.

6-Available growth charts used in Libya should be revised and develop a national growth charts (local) to follow up the nutritional status of Libyan preschool children.

References

1-de onis M ,Blossner M.Nutrition and child health :An overview from WHO Globabl Database on Child growth and malnutrition.Scondinavian Journal of nutrition,1998, Vol,42:136-39.

2-de onis M et al. Is malnutrition declining ?.An analysis of changes in levels of child malnutrition since 1980.Bulletin of world health organization vol.78,n°10.2000.

3-WHO.physical status: the use and interpretation of anthropometry. Geneva,WHO technical report series,No,854,1995.

4-Amine E .K. Nutritional assessment in Libya. WHO consultant ,1993.

5-Tajouri R.F. Cross sectional study of growth in urban preschool children inTripoli, Libya ,1979.

6-Bordom J. et al .New growth charts for Libyan preschool children. Eastern Mediterranean health journal,WHO,vol,14,N°6,novembre,2008.

7-Hameida J et al . Growth of preschool children in Libya: Regional and sociodemographic differences. Eastern Mediterranean health journal,WHO,vol,8,Nos4/5,jully,2002.

8- Libyan Arab survey for mother and child. Ministry of health and Arab child project(league Arab),1997

9-Own-Allah,S et al. The nutritional status of preschool children in Triopli and Alzawia,1978(unpublished).

10-Amine,E.K. et al. The nutritional status survey of Tripoli, Libya, FAO ,Rome,1980.

11-El Taguri,A et al. Nutritional status of under five children in Libya: A national population based survey. Libyan J Med.3(1)2008:13-19,

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

12-Central agency for primary health care. National cluster survey report,2003.

13-National supply cooperation :Tripoli, Libya . Report of national supply cooperation,1999.

14-Bordom Jet al .Analysis of nutritional situation among Gharian population in Libya, in medical journal of Zagazig University, vol. (13)N°(1),2007.

15-Bordom J ,Billot L. Nutritional status of Libyan children in 2000 compared with 1979. . Eastern Mediterranean health journal,WHO,vol,8,Nos2/3,March,2002.

16-Ministry of health. Health information centre, annual statistic report,2012.

17-Bordom J et al. Socio-demographic factors influencing breast-feeding patterns in Libyan mothers .Health services journal of the Eastern Mediterranean Region,WHO,Vol,7,1,1993.

18-NCHS/WHO charts for preschool children.1977.

19-Euro growth charts.2000

20-France growth charts for preschool children,1993.

21-NCHS/CDC. Revised growth chart,2000.

Obesity among secondary school student in Gharian city, 2016

Najia Mahdawi, Gharian University, faculty of medicine.

najiamahdawi@yahoo.com

Background:

Obesity is a global epidemic resulting in major morbidity and death. it progressively increasing with age, in Libya two times more common among women than men. And it increasing as well as all over the world, genetic and environmental factors playing a contributory role. With its known significant morbidity and mortality, obesity should draw the attention of the healthcare community, researchers, and policy makers in Libya.

Aims of study:

To identify the prevalence of obesity among secondary school students in Gharian city, and to study the relation between BMI and sex, and food habit.

subjects and methods:

This study was descriptive cross sectional study. The study was conducted in secondary schools in the city of Gharian during the year 2016. A total of 307 students were randomly selected for the study. The schools were in the center of Gharian, they were 4 schools. A multistage random sample technique was adopted were each school student chosen randomly, different number written

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

on pieces of the paper ,the odd number were chosen**,**permission was obtained from heads of schools directors ,also from student before measuring them. The following data were obtained: gender, age, mother's job, father's job and income for the mother and the father, theweight and height of the students were measured at the social worker room in the school, and BMI was calculated.

Result:

The current study sample was taken from three levels of the secondary school. About 55.4% of the students were in the 1st year, 31,9% of the students were in the 2nd year, and 12.7% were in the 3rd year. the percentages of male to female (49.8% were males and 50.2% were females). The mean weight of the students was 58.3kg with standard deviationof 13 and the mean height was 1.64cm with standard deviation of 0.08.The prevalence of obesity was 4.2% (BMI $\geq$ 30). The percentage of the students (67.8%) had normal BMI (18.5-24.9). About 19.2% of the students were under weight (BMI< 18.5). The current study showed that overweight was more in the 1st year students than in the 2nd and 3rd year. On the other hand the prevalence of obesity was more in the 2nd year students than in the 1st year with p value equal 0.05. The result showed that 9.2% of the males were overweight and 8.4% of the females were overweight. The result also showed that 4.6% of the males were obese while 3.9% of the females were obese with p value >0.05. About 53.8% of obese students were eating junk food, 37% of the overweight students were eating junk food, 13% of the students with normal BMI were eating junk food and about 13.5% of underweight students were eating junk food.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Conclusions:

The prevalence of overweight and obesity in secondary school students was relatively low compared with other Arabic countries.The prevalence of overweight and obesity was higher in males than females ,and it was higher in the 1st year and 2nd year students.

Recommendations:

Health education programs directed to the whole community, especially parents and children, on developing healthy eating patterns should be implemented. Schools should provide healthy food, physical exercise and nutritional education to the students. The schools also should involve family and community in supporting and reinforcing nutritional education. Further studies should be conducted in the future to study the risk factors and diseases associated with obesity among students.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

INTRODUCTION:

Overweight and obesity are defined by the WHO as abnormal or excessive fat accumulation that presents a risk to an individual's health, overweight and obesity are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer and while it was once an issue only in high income countries, overweight and obesity has now dramatically risen in low- and middle-income countries. Such countries are now facing a "double burden" of disease, for while they continue to deal with the problems of infectious disease and under nutrition, they are also experiencing a rapid upsurge in chronic disease risk factors such as obesity and overweight. [1,2]

Consequences and Health Risks

Obesity is a concern because of its implications for the health of an individual as it increases the risk of many diseases and health conditions including- :

Coronary heart disease

Type 2 diabetes

Cancers (endometrial, breast, and colon)

Hypertension (high blood pressure)

Dyslipidemia (for example, high total cholesterol or high levels of triglycerides)

Stroke

Liver and Gallbladder disease

Sleep apnea and respiratory problems

Osteoarthritis (a degeneration of cartilage and its underlying bone within a joint)

Gynecological problems (abnormal menses, infertility.

Less common health conditions associated with increased weight include asthma, hepatic steatosis and sleep apnoea.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

These conditions can cause or contribute to premature death and substantial disability. [1-3]

Economic Consequences

Overweight and obesity and their associated health problems have a significant economic impact on health system. The medical costs associated with overweight and obesity have both direct and indirect costs - direct medical costs may include preventive, diagnostic, and treatment services related to obesity, while indirect costs relate to loss of income from decreased productivity, restricted activity, absenteeism, bed days and the income lost by premature death. [1,2]

Measuring Obesity

The best measure of obesity is the body mass index (BMI) which is a simple index of weight-for-height that is commonly used in classifying overweight and obesity in adult populations and individuals - a person's weight in kilograms is divided by the square of the height in meters (kg/m2). BMI provides the most useful population-level measure of overweight and obesity as it is the same for both sexes and for all ages of adults but it is merely a rough guide because it may not correspond to the same degree of fatness in different individuals. The formula is - BMI = (Weight in kilograms) divided by (Height in metres squared) body Mass Index (BMI).[4]

Weight Status

BMI below 18.5   Underweight
BMI between18.5-24.9   Normal
BMI between 25 -29.9   Overweight
BMI Above 30   Obese

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The WHO defines an adult who has a BMI between 25 and 29.9 as overweight - an adult who has a BMI of 30 or higher is considered obese - a BMI below 18.5 is considered underweight, and between 18.5 to 24.9 a healthy weight. BMI provides a benchmark for individual assessment, but experts suspect that the risk of chronic disease in populations increases progressively from a BMI of 21 upwards.[3]

Measuring overweight and obesity in children aged 5 to 14 years is challenging. The WHO Child Growth Standards includes BMI charts for infants and young children up to age 5. Childhood obesity is associated with a higher chance of premature death and disability in adulthood. Obesity rates rose sharply during the 20 years between 1980 to 2000 — with adult- rates doubling and children's rates more than tripling during that time [1]

BMI ranges for children and teens are defined so that they take into account normal differences in body fat between boys and girls and differences in body fat at various ages. However although BMI correlates with the amount of body fat, BMI does not directly measure body fat and some people, such as athletes, may have a BMI that identifies them as overweight even though they do not have excess body fat. [5]

Other methods of estimating body fat and body fat distribution include measurements of skin fold thickness and waist circumference, calculation of waist-to-hip circumference ratios, and techniques such as ultrasound, computed tomography, and magnetic resonance imaging (MRI). [2]

Causes of Obesity and Overweight

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The basic cause of obesity and overweight is an energy imbalance between calories consumed and calories expended and maintaining your current body weight indicates you are in caloric balance and to gain or lose weight, will need the balance scale to tip in one direction or another to achieve a goal.

Whether you want to lose weight or maintain a healthy weight, the connection between the energy the body takes in, through the food and drink consumed and the energy the body uses through the activities, must be taken into consideration. [6]

A number of factors play a role in obesity and it is a complex health issue to address - behavior, environment, culture, socioeconomic status and genetic factors in disorders such as Bardet-Biedl syndrome and Prader-Willi syndrome - all play a part and may have an effect in causing people to be overweight and obese. Overweight and obesity are the result of an energy imbalance where too many calories are taken and not enough physical activity takes place. [3]

Behavior and environment play a large role causing people to be overweight and obese and are the greatest areas for prevention and treatment actions.[3]

Maintaining a healthy weight for a lifetime involves balancing the number of calories consumed with the number of calories the body uses or "burns off.A calorie is defined as a unit of energy supplied by food. Regardless of its source - carbohydrates, fats, sugars, or proteins, all of them contain calories. It takes approximately 3500 calories below your calorie needs to lose a pound of body fat - to lose 1 to 2 pounds a week, the caloric intake must be reduced by 500-1000 calories per day.[3,4]

There has been a global shift in diet towards increased intake of energy-dense foods that are high in fat and sugars but low in vitamins, minerals and other

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

micronutrients and this along with a trend towards decreased physical activity has had a large impact on worldwide increase in obesity rates. The increasingly sedentary life of many forms of work, changing modes of transportation, and increasing urbanization have added to the problem. [1-3]

Obesity Epidemiology

Worldwide trends of obesity

The highest rate of obesity and its incidence has been reported in the Pacific Islands and the lowest rates have been seen in Asia. The rates in Europe and North American are generally high, while the rates in Africa and Middle Eastern countries are varying. The prevalence of obesity ranges from 1% in India to the Pacific Islands, where the prevalence of obesity can reach up to 80% in some regions. [2,4,5]

According to the World Health Organization, body mass index studies cover only 86% of the worldwide population. The WHO, however, estimates that in 2005 approximately 1.6 billion people worldwide were overweight and that at least 400 million adults were obese. This helps the WHO predict that by 2015, approximately 2.3 billion adults will be overweight and that at least 700 million will be obese. [2,4,5]

Worldwide studies of over 28 countries showed a declining trend in obesity among men in only two countries - Denmark and Saudi Arabia. Among women a decline in obesity numbers was seen in five countries including Denmark, Ireland, Saudi Arabia, Finland, and Spain. [2,4,5]

Obesity in Libya

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع

The prevalence of obesity in Libya is not high in both adults and children, but it has increased dramatically since 1984. The epidemic of obesity is not limited to Libya, but it is a global problem. Obesity is much more prevalent among Libyan women than men, and it increases progressively with age in both sexes. The Libyan diet, which is high in calories and rich in fat, and the lack of physical activity play an important role in the current obesity in Libya. [8]

Obesity Treatment & Management

Treatment of obesity starts with comprehensive lifestyle management (i.e., diet, physical activity, behavior modification), which should include the following: [3]

Self-monitoring of caloric intake and physical activity

Goal setting

Stimulus control

Nonfood rewards

Relapse prevention

As with all chronic medical conditions, effective management of obesity must be based on a partnership between a highly motivated patient and a committed team of health professionals. This team may include the physician, a psychologist or psychiatrist, physical and exercise therapists, dietitians, and other subspecialists, depending on the comorbidities of the individual patient. Scientific evidence indicates that multidisciplinary programs reliably produce and sustain modest weight loss between 5% and 10% for the long-term. [4,5]

In January, 2015, the Endocrine Society released new guidelines on the treatment of obesity to include the following:[7,8]

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع

جامعة طرابلس

Diet, exercise, and behavioral modification should be included in all obesity management approaches for body mass index (BMI) of 25 kg/m 2 or higher. Other tools, such as pharmacotherapy for BMI of 27 kg/m 2 or higher with comorbidity or BMI over 30 kg/m2 and bariatric surgery for BMI of 35 kg/m 2 with comorbidity or BMI over 40 kg/m 2, should be used as adjuncts to behavioral modification to reduce food intake and increase physical activity when this is possible. [7,9]

(instead of 2 as was the case in previous guidelines), and elevated waist circumference can be one of those comorbidities. [4,5,12,13]

The Aim of this study were:

1-To determine the prevalence of obesity among secondary school students in Gharian city.

2- To study the relation between BMI and sex, and food habit.

Subjects and Methods:

This study was descriptive cross sectional study. The study was conducted in secondary schools in the city of Gharian during the year 2016. A total of 307 students were randomly selected for the study. The schools were in the center of Gharian, they were 3 schools. A multistage random sample technique was adopted were each school student chosen randomly, different number written on pieces of the paper, the odd number were chosen, permission was obtained from heads of school's directors, also from student before measuring them. The following data were obtained: gender, mother s job, fathers job and, income for the mother and the father, the weight and height were measured at the social worker room in the school, then the BMI was calculated

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The following points were considered in measuring the weight and the height of the students:

To minimize errors in the measurement, the weight checked by scale (without heavy clot and shoes).

The height was measured with tap fixed to the wall firmly ,object held firmly to the head, height was measured the later converted to meters

Body mass index: BMI is a ratio measurement between weight in kilograms and height in square meters.

Underweight is defined as BMI < 18.5.

Normalweight is defined as BMI 18.5-24.9.

Overweight is defined as BMI 25-29.9

Obese is defined as BMI 30-39.9

Extremely obese defined as BMI >40.

Statistical analysis:

Statistical analysis was computerized using the Statistical Program for Social Sciences (SPSS version 21) that used for data entry and analysis. Descriptive statistics were used and all results are presented as frequencies, means ± standard deviation and percentages. Categorical data were compared using the Chi-square test and Fisher's exact test if appropriate. A P-value of less than or equal to 0.05was considered statistically significant.

Result:

Secondary school levels of the student:

Figure1, shows the distribution of secondary school levels , were the first year represent about 55.4% of the students, second year represent 31,9% , and the third year represent 12.7% of out sample.
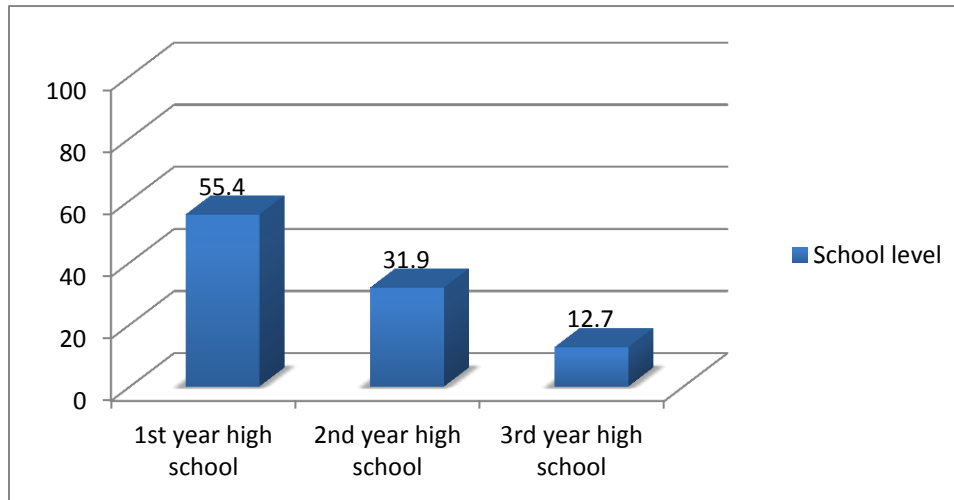
Figure 1:Distribution of secondary school levels, (Gharian 2016)

Sex of the student:

Table 1, shows the sex distribution out sample indicates that 49.8% was male and 50.2% female, The male to female ratio was almost 1:1.

Table 1: Sex of the student distribution, (Gharian 2016)

Sex of the students	No. (%)
Male	153 (49.8%)
Female	154 (50.2%)
Total	307 (100%)

Mother's occupation:

Regarding the mother occupation, about (47.2%) were teachers, 36.8% were housewives, 8.8% employees, 1.6% physicians, 2.9% nurses, 0.7% engineers and 2% were retired.

Table 2 : Distribution of Mothers occupations, (Gharian 2016)

Mother job	No. (%)
Teacher	145 (47.2%)
House wife	113 (36.8%)
Employee	27 (8.8%)
Physician	5 (1.6%)
Nurse	9 (2.9%)
Engineer	2 (0.7%)
Retired	6 (2%)
Total	307 (100%)

Father's occupation:

With regards the father occupation, about (39.4%) were employee. 20.8% were having free jobs, 5.2 were engineers, 9.1% policeman, 12.1% teachers, 2% physicians, 1% nurses, 0.3% lawyer and 10.1% were retired.

Table 3 : Distribution of Fathers occupation, (Gharian 2016)

Father job	No. (%)
Employee	121 (39.4%)
Free job	64 (20.8%)

مؤتمر البحوث الطبيـة الثانى
كلية الطـب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Engineer	16 (5.2%)
Police man	28 (9.1%)
Teacher	37 (12.1%)
Physician	6 (2%)
Nurse	3 (1%)
Lawyer	1 (0.3%)
Retired	31 (10.1%)
Total	307 (100%)

Family income:

Most of the families income in the current study were between 1500 and 2000 Libyan dinars. Approximately 24.4% of the families get between 500 and 1000 Libyan dinars, 20.2% get between 1000 and 1500 Libyan dinars, 10.4% get between 2000 and 2500 Libyan dinars and 1.6% get more than 2500 Libyan dinars.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
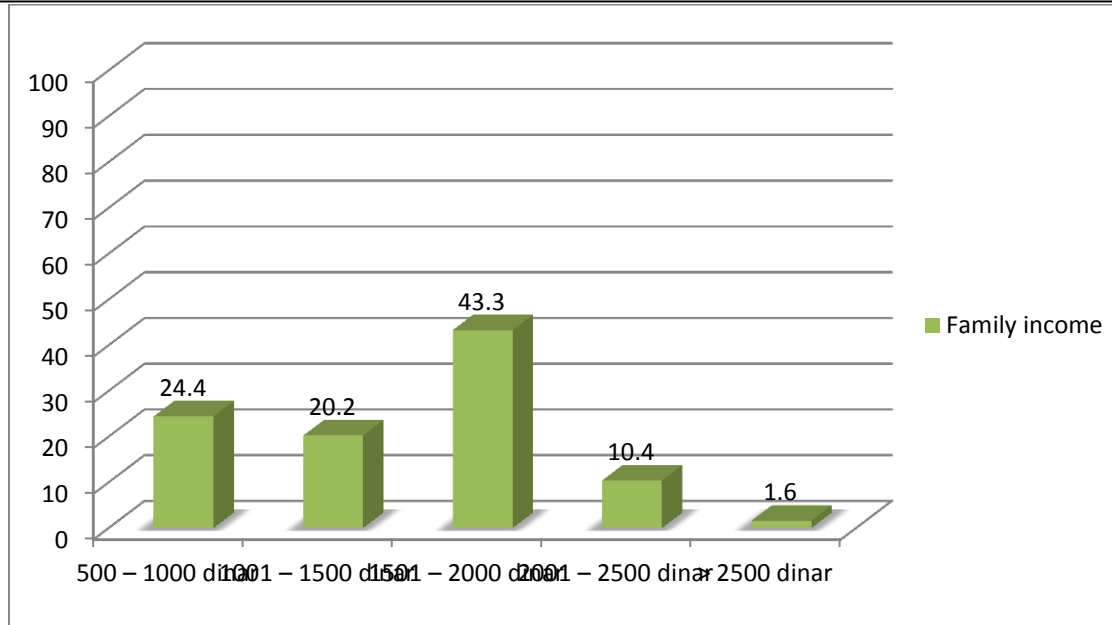
Figure 2 : distribution of Families income, (Gharian 2016)

History of junk food eating:

In the present study about 16.9% of the students gave history of eating junk food. The rest of the students (83.1%) gave negative history regarding junk food eating.

Table 4 : History of junk food eating among students, (Gharian 2016)

History of junk food	No. (%)
Yes	52 (16.9%)
No	255 (83.1%)
Total	307 (100%)

Weight of students:

The mean weight of the student was(58.3+_13 kg) with standard deviation of 13.The weight of the students in this study were as following; about 3.6% between 31 and 40 kg, 26.7% between 41 and 50 kg, 33.6% 51 and 60 kg, 21.8% between 61 and 70 kg, 10.1% between 71 and 80 kg, 2.3% between 81 and 90 kg, 1.3% between 91 and 100 kg, and only 0.7% were more than 100 kg.
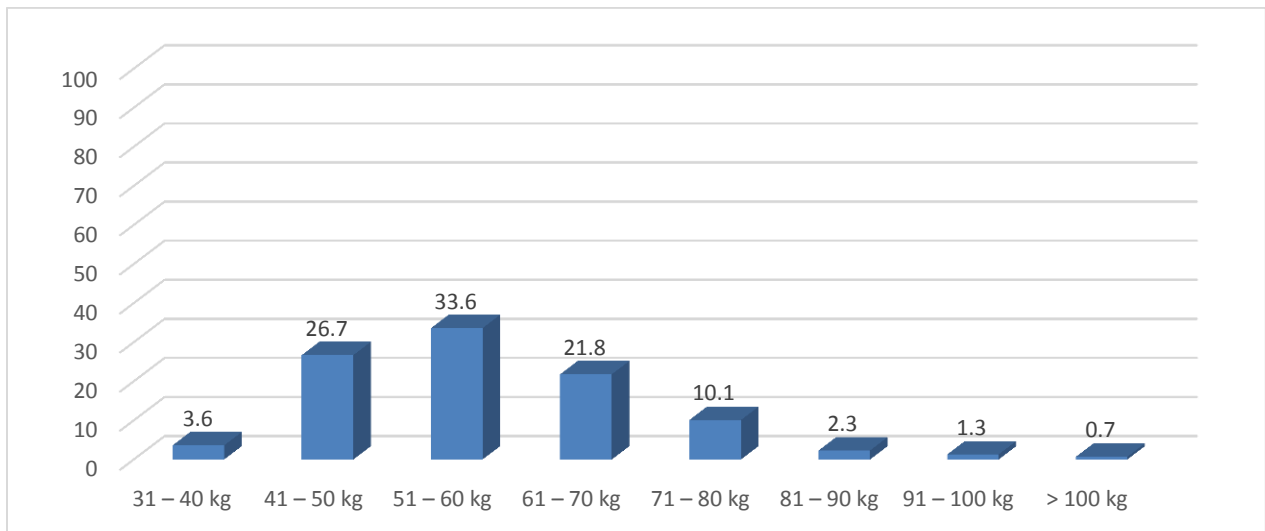
Figure3 : distribution of students weight(Gharian 2016)

Height of the student:

Regarding the height of the students in the present study, about 4.6% were less than 1.5 meter, 30.6% were between 1.51 and 1.6 meter, 39.1% between 1.61 and 1.7 meter, 22.5% between 1.71 and 1.8 meter, and only 3.3% were more than 1.8 meter. The mean height was 1.64 with standard deviation of 0.08. The minimum height was 1.47 m and the maximum height was 1.88 m.
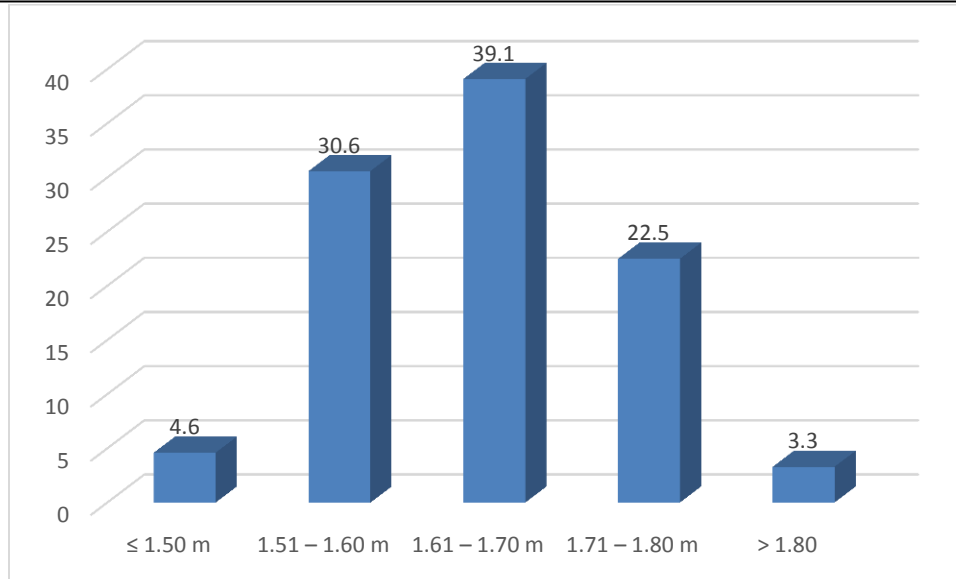
Figure 4 :Height of the students (Gharian 2016)

Body mass index of the student:

With regards the BMI in the current study, the prevalence of obesity was 4.2% (BMI ≥ 30). About two third of students with normal BMI (67.8%). (18.5-24.9). The rest of the students (19.2%) were under weight (BMI< 18.5). The mean BMI was 21.5 with standard deviation of 4.1. The BMI ranged between 13.9 and 53.4.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطـب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
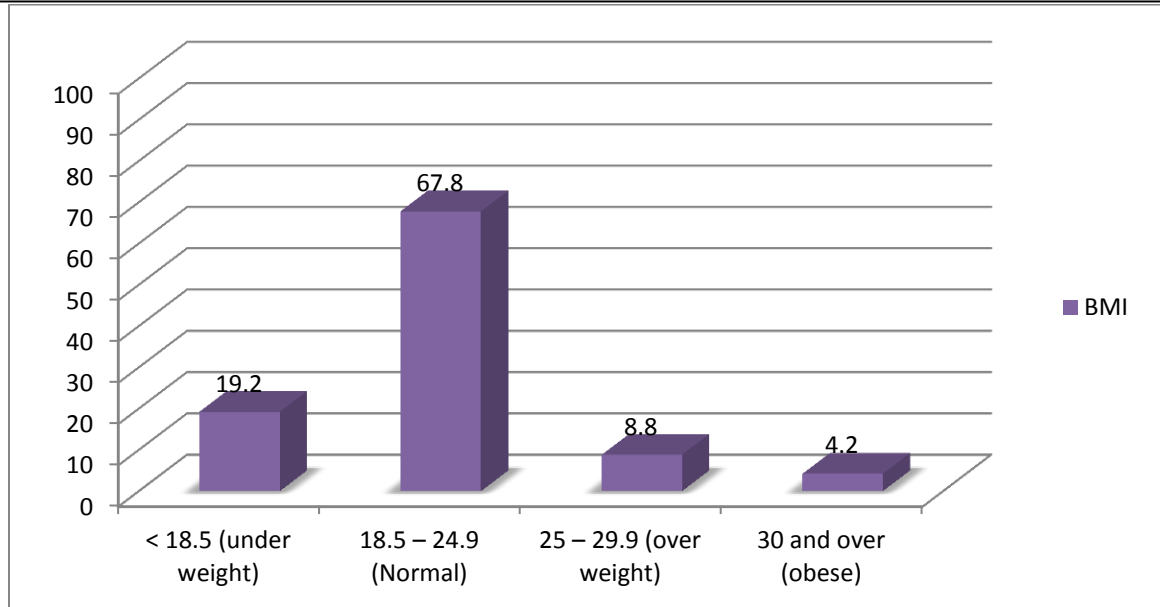
Figure 5: BMI of the students(Gharian 2016)

Relation between student school level and BMI:

The current study showed that among the 1ˢᵗ year secondary school students, about 61.8% had normal BMI, 23.5% were underweight, 10.6% were overweight and only 4.1% were obese. Regarding the 2ⁿᵈ year, about 70.4% had normal BMI, 15.3% were underweight, 8.2% were overweight and only 6.1% were obese. The 3ʳᵈ year students were as following; 87.2% of students had normal BMI, 10.3% were underweight and 2.6% were overweight. The relation was statistically significant with p value equal of 0.05.
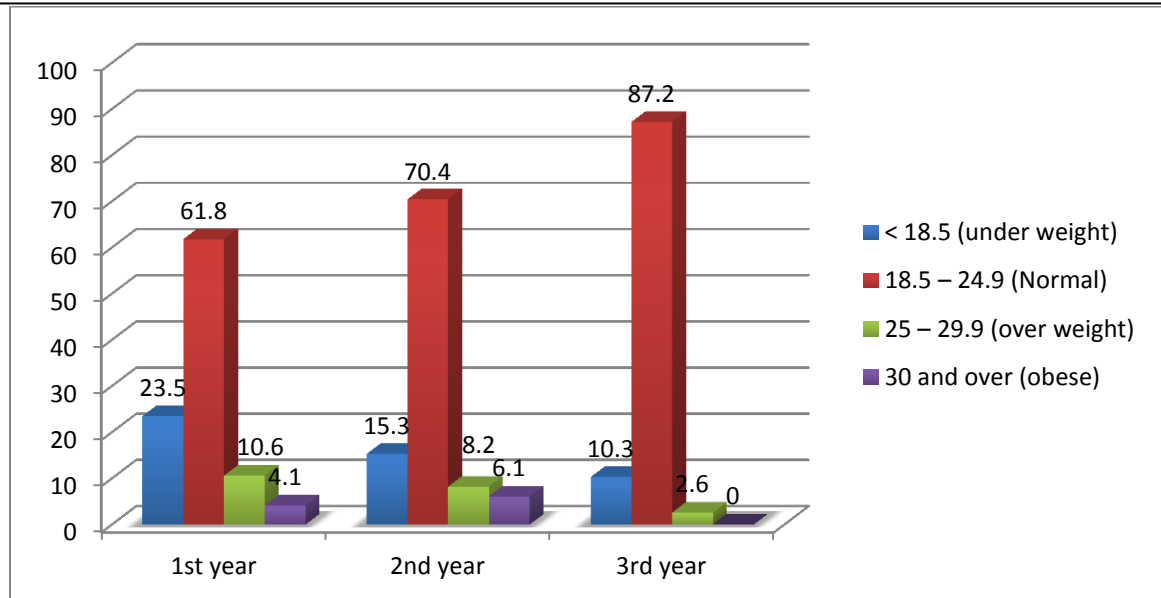
Figure 6: Relation between student's school level and BMI (Gharian 2016)

Relation between BMI and the sex:

Regarding the relation between the BMI and the sex of the student, the result was statistically insignificant with p value of 0.839. The result showed that among the males about 65.4% had normal BMI, 20.9% were underweight, 9.2% were overweight and 4.6% were obese. On the other hand the females were as following; 70.4% had normal BMI, 17.5% were underweight, 8.4% were overweight and 3.9 were obese.
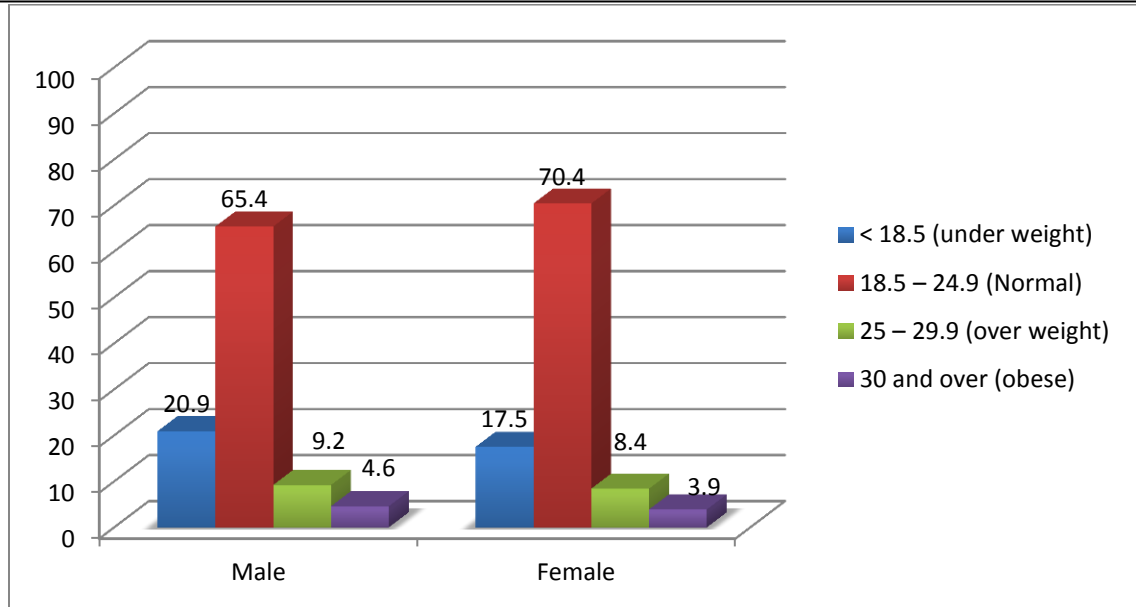
Figure 7: Relation between BMI and the sex of the students (Gharian 2016)

Relation between BMI and junk food eating:

The relation between BMI and junk food eating was statistically significant with p value = 0.0001. About 53.8% of obese students were eating junk food, 37% of the overweight students were eating junk food, 13% of the students with normal BMI were eating junk food and about 13.5% of underweight students were eating junk food. The percentage of eating junk food decreased with the decrease in the BMI.(chi-square)

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس
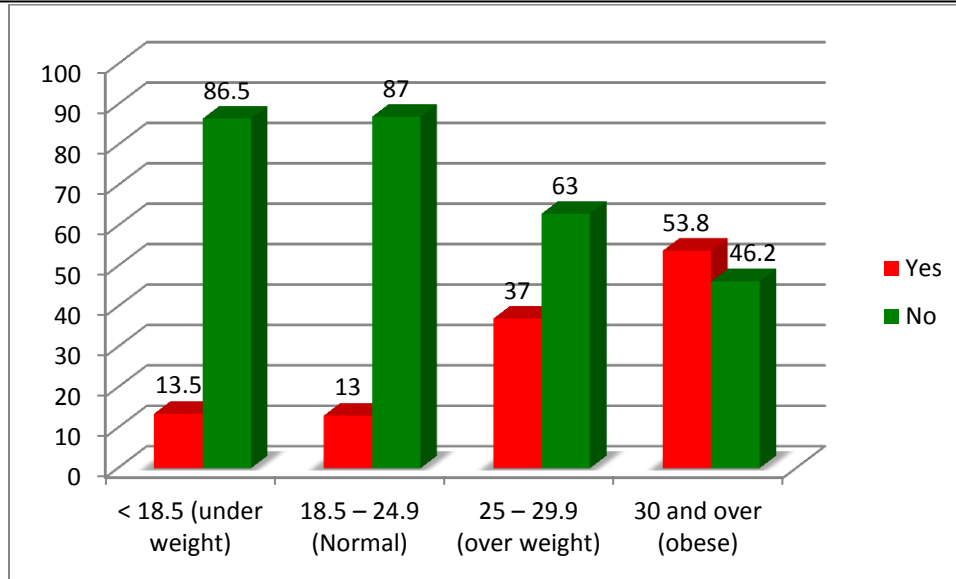
Figure 8: Relation between BMI and junk food eating (Gharian 2016)

Relation between obesity and overweight with family income:

The relationship between obesity and overweight with family income was statistically insignificant with p value of 0.599, ($p>0.05$). The result of this study show that about 55.6% of obese students with monthly income between 1500-2000 Libyan dinars and 46.2% of overweight students with same income.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
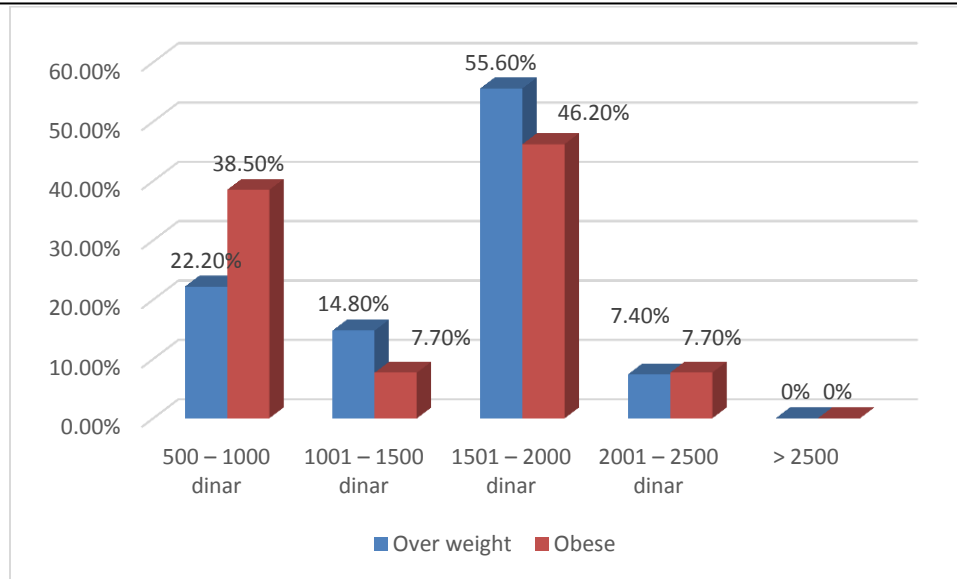
Figure9 ,Distribution of overweight and obesity according to family income

Discussion:

Obesity has long been considered as a predisposing factor that affects an individual's health. Yet, the importance of obesity and overweight among students has only been highlighted relatively recently. Worldwide, there are a total of 155 million (1 in 10) students overweight, and around 30–45 million classified as obese.[14] Available studies in the Mediterranean countries indicate that obesity has reached an alarming level among both students and adults. Consequently, the incidence of non-communicable diseases is also very high, and represents more than 50% of total causes of death.[15]In Libya the economic development during the last 3 decades has changed the nutritional and lifestyle habits, food has become more affordable to a larger number of people with the substantial decrease in the price relative to income, and the concept of food has changed from a means of nourishment to a determinant of lifestyle and a source of pleasure, coupled with physical inactivity have likely contributed to the increase in the prevalence of overweight and obesity among the students. [15]

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

The present study result showed that the highest percentage of students (55.4%) that were selected for the study were in 1st year of secondary school, about 31,9% of the students were in the 2nd year and 12.7% of the students were in the 3rd year.The result was similar to a study conducted in Dubai which showed that the highest percentage was students in 1st year of secondary school (39.8%) followed by 2nd year (34.7%) then 3rd year (25.5%). [16] The study of *Petribú M et al also showed similar result, in which the percentage of 1st year students (47.3%) was higher than the 2nd (31.5%) and 3rd (21.2%) year students.* [17]

Regarding the sex of the students in the present study, the percentages of male students and female students were almost equal (49.8%were male and 50.2% were females). The result of Hussain HY et al showed that the percentage of males was 50.3% and the percentage of females was 49.7%. [16]. The result of Petribú *M et al showed that the percentage of females was 62.5% and the percentage of males was 37.5%.* [17]

With regards the weight of the students, the result showed that the mean weight of the students was 58.3 with standard deviation of 13. The result also showed that most of the students were between 50 and 60 kg. compare with The result of Musaiger AO(2012), reported that the mean weight in seven Arabic countries was as following; 61.4 kg in Algeria, 63.3 kg in Jordan, 73.9 kg in Kuwait, 62 kg in Libya, 59 kg in Palestine, 62.4 kg in Syria and 62.3 kg in UAE. [18]

Regarding the height of the students in the current study, The result showed that the mean height was 1.64m with standard deviation of 0.08. ranged between 1.47m and the 1.88m. compare with The result of Musaiger AO reported that the mean height of students in seven Arabic countries was as following; 1.67m in Algeria, 1.66m in Jordan, 1.65m in Kuwait, 1.63m in Libya, 1.65m in Palestine, 1.66m in

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Syria and 1.64m in UAE. [18],which give no significant differ between Libyan student mean height and Arabic student mean height.

With regards the BMI in the current study, the prevalence of obesity was 4.2% (BMI ≥ 30) and the prevalence of overweight (BMI between 25 and 29.9) was 8.8%. The mean BMI was 21.5.which show differ with The prevalence of obesity and overweight in Musaiger AO et al result, were in Algeria 12.8% were overweight and 4.3% were obese, in Jordan 19.5% were overweight and 7.3% were obese, in Kuwait 22.9% were overweight and 26.7% were obese, in Libya 22% were overweight and 9.8% were obese, in Palestine 12.6% were overweight and 4.1% were obese, in Syria 20% were overweight and 6% were obese, in UAE 15.2% were overweight and 13% were obese. [18]

Our study showed that overweight was more in the 1st year students than in the 2nd and 3rd year. On the other hand, the prevalence of obesity was more in the 2nd year students than in the 1st year, the result showed no obese child in the 3rd year students. Compare with The result of Hussain HY et al study reported the same relation regarding the overweight, in which the percentage of overweight students was higher in 1st year students than in the 2nd and 3rd year. On contrary Hussain HY et al study showed different result from the current study regarding the obesity, in which the percentage of obese students was higher in the 1st year students than in the 2nd and 3rd year. [16] while The study of *Petribú M et al reported that overweight was higher in the 2nd year students and obesity was higher in 3rd year student.* [17]

Regarding the relation between BMI and sex of the students in our study, the result showed that 9.2% of the males were overweight and 8.4% of the females were overweight. The result also showed that 4.6% of the males were obese while 3.9%

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

of the females were obese. While The study of Musaiger AO et al reported the following; in Algeria overweight was 9.3% in males and 15.5% in females while obesity was 4.1% in males and 4.5% in females, in Jordan overweight was 21.6% in males and 17.5% in females while obesity was 10.2% in males and 4.6% in females, in Kuwait overweight was 25.6% in males and 20.8% in females while obesity was 34.8% in males and 20.6% in females, in Libya overweight was 16.4% in males and 26.6% in females while obesity was 9.6% in males and 10% in females, in Palestine overweight was 12.7% in males and 12.5% in females while obesity was 5% in males and 3.5% in females, in Syria overweight was 20.3% in males and 20.1% in females while obesity was 6.7% in males and 5.3% in females, in UAE overweight was 16.8% in males and 13.6% in females while obesity was 19.1% in males and 6.6% in females. [18]these results go with our study results which show the obesity more in male than female.

Conclusions:

The prevalence of overweight and obesity in secondary school students in Gharian city was relatively low (4.2%) compared with other Arabic countries. The relation between BMI and education level and eating habits was significant. The prevalence of overweight and obesity was higher in males than females and it was higher in the 1st year and 2nd year studen

Recommendations:

1-Health education programs directed to the whole community, especially parents and children, on developing healthy eating patterns should be implemented.

2-Physical activity in schools should be encouraged through physical

education classes and training of physical education teachers

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference

مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

3- Schools should provide healthy food, physical exercise and nutritional education to the students.

4- The schools also should involve family and community in supporting and reinforcing nutritional education.

5- Further studies should be conducted in the future to study the risk factors

6- Training courses should be provided to improve the knowledge and skills

of people engaged in the prevention and treatment of obesity. Such courses should include adequate and up-to-date information on the dietary management , assessment and exercise needed to treat obesity.

7. Sound and reliable information on dietary management and physical activity to prevent and control obesity should be introduced in school It is preferable that a committee consists of specialized people ,health sector and other related sectors to review the information provided to the students through these curricula.

References:

1. Nutrition, Physical Activity, and Obesity| Winnable Battles | CDC. Cdc.gov. 2016. Available from: http://www.cdc.gov/winnablebattles/obesity/

2. Nguyen DEl-Serag H. The Epidemiology of Obesity.Gastroenterology Clinics of North America. 2010;39(1):1-7.

3. James W. The epidemiology of obesity: the size of the problem. J Intern Med. 2008;263(4):336-52.

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

4. Campos P. The epidemiology of overweight and obesity: public health crisis or moral panic?.International Journal of Epidemiology. 2005;35(1):55-60.

5.Ogden CL, Carroll MD, Curtin LR, Lamb MM, Flegal KM. Prevalence of high body mass index in US children and adolescents, 2007–2008. JAMA 303(3):242–9. 2010.

6. Wadden TA, Webb VL, Moran CH, Bailer BA. Lifestyle modification for obesity: new developments in diet, physical activity, and behavior therapy. Circulation. 2012. 125(9):1157-70.

7. Zheng W, McLerran DF, Rolland B, Zhang X, Inoue M, Matsuo K, et al. Association between body-mass index and risk of death in more than 1 million Asians. N Engl J Med. 2011. 364(8):719-29.

8. ElmehdawiR, Albarsha A. Obesity in Libya: a review. Libyan Journal of Medicine. 2012;7(19): 1-5.

9. Berrington de Gonzalez A, Hartge P, Cerhan JR, Flint AJ, Hannan L, MacInnis RJ, et al. Body-mass index and mortality among 1.46 million white adults. N Engl J Med. 2010. 363(23):2211-9.

10. Tucker ME. New US obesity guidelines. Treat the weight first. Medscape Medical News.Available at http://www.medscape.com/viewarticle/838285.

11. Apovian CM, Aronne LJ, Bessesen DH, et al. Pharmacological management of obesity: an endocrine society clinical practice guideline. J ClinEndocrinolMetab. 2015. 100(2):342-62

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

12. Jolly K, Lewis A, Beach J, et al. Comparison of range of commercial or primary care led weight reduction programmes with minimal intervention control for weight loss in obesity: Lighten Up randomised controlled trial. BMJ. 2011 Nov 3. 343:d6500.

13. Bray GA. Medications for weight reduction. Med Clin North Am. 2011. 95(5):989-008.

14. Mirmiran P, Sherafat-Kazemzadeh R, Jalali-Farahani S, Azizi F. Childhood obesity in the Middle East: a review. Eastern Mediterranean Health Journal. 2010;16(9):1009-17.

15. Elabani F. Kure J. Study the prevalence of overweight and obesity among Libyan children in relation to their socioeconomic level status and fast food meals. LJMR. 2015;9(2):4-14.

16. Hussain H, Al Attar F, Makhlouf M, Ahmed A, Jaffar M, Dafalla E et al. A Study of Overweight and Obesity Among Secondary School Students in Dubai: Prevalence and Associated Factors. International Journal of Preventive Medicine Research. 2016;1(3):153-60.

17. Petribú Marina de Moraes V, Tassitano Rafael Miranda, NascimentoWallacy Milton F. do, Santos Eduila Maria C, Cabral Poliana Coelho. Factors associated with overweight and obesity among public high school students of the city of Caruaru, Northeast Brazil. Rev. paul. pediatr. 2011; 29(4): 536-45.

18. Musaiger A, Al-Mannai M, Tayyem R, Al-Lalla O, Ali E, Kalam F et al. Prevalence of Overweight and Obesity among Adolescents in Seven Arab Countries: A Cross-Cultural Study. Journal of Obesity. 2012;2012:1-5.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

الملخص

دراسة معدل انتشار السمنة بين طلبة المدارس الثانوية بغريان / ليبيا

المقدمة:

البدانة في سن المراهقة هي مشكلة عامة رئيسية ولها اثارها الصحية الهامة، والاجتماعية والاقتصادية للمراهق. ,وحيث ان العوامل الوراثية والبيئية من اهم الاسباب في تزايد حالات السمنة في ليبيا وكذلك في جميع أنحاء العالم فان اجراء الدراسات والابحاث لهده المؤثرات يعود بالكثير من النفع والاستفادة

أهداف الدراسة:

لتحديد مدى انتشار السمنة بين طلاب المدارس الثانوية في مدينة غريان، ودراسة العلاقة بين مؤشر كتلة الجسم والجنس والعادات الغذائية.

طرق البحث:

كانت هذه الدراسة وصفية مقطعية. أجريت للثلاثة مستويات دراسية في المدارس الثانوية في مدينة غريان خلال عام 2016. حيث اختير 307طالبا عشوائياً للدراسة. من المدارس الثلاث(3))المتواجدة في مركز المدينة. واعتمد أسلوب عينة عشوائية متعددة المراحل في اختيار الطلاب. وقد تم الحصول على إذن من الرؤساء ومديري المدارس، وأيضا من الطلاب قبل قياس الوزن والطول لهم. وتم الحصول على البيانات التالية: الجنس والسن، وظيفة الأم , وظيفة الأب ، دخل الاسرة، وتم حساب مؤشر كتلة الجسم.

النتيجة:

اظهرت النتائج ان حوالي 55.4 % من الطلبة في السنة الأولى ، 31.9% في السنة الثانية و 12.7 % من الطلاب في السنة الثالثة. و النسب المئوية للطلاب الذكور والإناث متساوون تقريبا (49.8 % من الذكور و 50.2 %من الإناث). وكان متوسط وزن الطلاب 58.3كجم والانحراف المعياري 13 ومتوسط الطول 1.64 مع الانحراف المعياري 0.08. و معدل انتشار السمنة 4.2% (مؤشر كتلة الجسم 30). واستنتجنا ان الزيادة في الوزن كانت اكثر في طلاب السنة الاولي. اما معدل السمنة كان اكثر في طلاب السنة الثانية. وبينت كدلك النتائج أن 9.2% من الذكور يعانون زيادة في الوزن و 8.4% من الإناث. اضافة الي ان 4.6 % من الذكور كانوا يعانون من السمنة بينما كان الاناث 3.9% مع قيمة $p < 0.05$.و حوالي 53.8% من الدين يعانون السمنة كانوا يتناولون الوجبات السريعة.

الاستنتاجات:

معدل انتشار زيادة الوزن والسمنة لدى طلبة المدارس الثانوية كان منخفضا بالمقارنة مع البلدان العربية الأخرى.و ونسبيا أعلى في الذكور من الإناث، و أعلى لدى طلاب السنة الأولى والثانية.

التوصيات:

برامج التربية الصحية الموجهة للمجتمع كله، وخاصة الآباء والأمهات والأطفال، على تطوير أنماط الأكل الصحي ينبغي أن تنفذ. وينبغي أن توفر المدارس الغذاء الصحي وممارسة الرياضة البدنية والتثقيف في مجال التغذية للطلاب.   وينبغي أيضا علي المدارس إشراك الأسرة والمجتمع المحلي في دعم وتعزيز التثقيف التغذوي. وإجراء مزيد من الدراسات في المستقبل لدراسة عوامل الخطر والأمراض المرتبطة بالسمنة بين الطلاب

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Evaluation of Risk Exposure Among Tripoli Children

Mohamed M.Tabeb[1], Jamal M.Arafa[2]

Department of Safety and health, high institute of occupational safety and health, Tripoli, Libya.
MD, DTM&H, MPH, Physician Occupational health professional, Tripoli Libya.

Authors' contribution
This work was carried out between the two authors, author MMT designed the study and wrote the protocol, author JMA managed some of the literatures, and Author MMT managed some of the literatures and collected the data from the population, and wrote the discussion and made the graphs and designed and wrote the final script.

Abstract

Background Children's Safety and Health is a core factor to eliminate and to reduce risk exposure of hazardous, many factors contribute to child accidents indoor and outdoor, which can lead to serious damage, health deterioration, injuries or even death as well as damage to house materials.

Objectives Assessment of risks to children through parent's perception and Comparing between gender and age.

Methods An questionnaire was distributed randomly then samples were gathered from 355 participants as parent's child, boy and girl, aged (6, 7, 8, 9 years old), from 23 schools from different locations in Tripoli, data analysed using SPSS, version 22, with Kruskal-wallis test used with An alpha level of 0.05 was set as significant level.

Results 20% of the children rarely obey to order of safety, the girls were more respecting to order than boys and statistically significant between gender $p < .01$, while if a risky condition had happened younger child will ask for help more than the older, 42% of girls always will ask for help to 33% for boys and statistically significant between gender $p < .01$. it found decreasing in reporting the dangerous conditions with increasing in ages as 72% 61% 53% at seven, eight and nine years old respectively, when child plays in public space alone 43% considered as extremely risky and very risky, the highest at six years old,, the girls are more risky to play alone or with siblings or friend in all ages comparing to boys and statistically significant between gender $p < .01$, crossing the road alone the highest percentage scored at younger age with 68% extremely risky then decreases with older ages, as well as with gender girls more risky to cross roads alone than boys from 61% to 47% extremely risky respectively and statistically significant between gender $p < .01$, in parents respect of their children will not do damage to house materials or hurt themselves the six years old had the highest low trust 40%, the boys in trusting of the parents had the highest respect comparing to girls 48% to 41% respectively with no statistic significant between gender $p = .778$, in concerning health 44% of all children never made full health check-up, 12% of girls comparing to 7% to boys had health check-up every year.

Conclusion, it found that most of safety and health parameters as check it in the questionnaire were poorly followed. Children need more awareness of the surroundings and safety practice to avoid the hazardous conditions and should report any suspicious situation could lead to bad serious consequences.

Key words: Safety; Health; Risk; Accident; Dangerous; Exposure.

1. Introduction

Children in general are exposed to increasing risks of health deterioration in their house and neighbourhood. Knowledge and maturity of children to recognise the hazardous elements surrounding them in their childhoods are not enough to protect them, Investigation efforts will be important to ensure a safe environment for our children while decreasing the incidence and severity of childhood risk exposure. Many studies have attempted to propose effective interventions to prevent childhood accidents. However, there is a lack of literature review done for the local population in Tripoli. For such a significant risk exposure to children and lack of safety and health programs, it is important to investigate the problem to identify the risk factors. Safety restraints for children must be designed in a different way from those intended for adults. Children are exposed to an even greater risk of fatalities and serious health losses compared with adults. Childhood accident is one of the leading causes of death globally as high exposure to risks in their childhood. Tripoli children are not exception to this tragic fact, it is important to understand these elements of risk factors of childhood locally. Epidemiological studies have shown that childhood accidents are a common, preventable and significant public health concern. Home accidents and falls are responsible for majority of the injuries; playground and road traffic accidents are also important causes. Healthcare professionals and legislators play an important role in raising awareness and reducing the incidence of childhood. Thus, greater efforts in public health and safety education in understanding childhood risk exposure is coupled with more research studies to evaluate the effectiveness and deficiencies of current prevention strategies will be necessary.

1.2 World Health Organisation report on child injury prevention

Every child in the world matters. The landmark Convention on the Rights of the Child, ratified by almost all governments, states that children around the world have a right to a safe environment and to protection from an accident. It further states that the institutions, services and facilities responsible for the care or protection of children should conform with established standards, particularly in the areas of safety and health. Safeguarding these rights everywhere is not easy. Children are exposed to hazards and risks as they go about their daily lives and are vulnerable everywhere to the same types of accident. Around the world more than 2000 families are torn apart by the loss of a child to an unintentional injury or so-called "accident" that could have been prevented. Once children reach the age of five years, unintentional accidents are the biggest threat to their survival, are also a major cause of disabilities, Child accidents are a growing global public problem. Hundreds of thousands of children die each year from different type of accidents, and millions of others suffer the consequences of non-fatal injuries. For each area of child injury there are proven ways to reduce both the likelihood and severity of injury. WHO (2008), Global Burden of Disease: 2004 report; Homicide 5.8%, War 2.3%, Road traffic injuries 22.3%, Self-inflicted injuries 4.4%, Poisoning 3.9%, fall 4.2%, Fire-related burns 9.1%, Drowning 16.8%

1.3 Children are particularly susceptible to accident

Studies of children in road traffic have shown that young children may lack the knowledge, skills and levels of concentration needed to manage the road environment, no matter how benign the road conditions. They are less visible than adults and if hit by a vehicle, they are more likely than an adult to sustain a head or neck injury. Other physical characteristics make children vulnerable to accident for instance skin of infants burns more deeply and quickly and at lower temperatures than the thicker skin of adults. Smaller airway size increases the danger of aspiration. Similarly, a given amount of a poisonous substance will more likely be toxic for a child than an adult because of the child's smaller weight. Their physical abilities may not be matched by cognitive abilities. In the process of exploring their world, may fall from heights because their climbing ability is not matched by their ability to balance, climb onto the window ledge, squeeze through stair balustrades, slide down the stair handrail, swing on the gate, run from room to room and ride bikes inside as well as out, making use of their houses in ways that seem to them reasonable, but have not apparently been foreseen by the designer. Their voices are seldom heard and only rarely are places designed in consultation with children.

1.4 Fall

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم طب الأسرة والمجتمع

Falls sometimes beyond both the resilience of the human body and the capacity of the contact surface to absorb the energy transferred. Falls are thus an important cause of childhood injuries, including those resulting in permanent disability or death. Falls of this degree of seriousness are not randomly distributed, either globally or within single countries. To understand why this should be one needs to examine the built environment and the social conditions in which children live. Falls have been defined and recorded in several ways. The World Health Organization's definition, according to which falls are "an event which results in a person coming to rest inadvertently on the ground or floor or other lower level. In most countries, falls are the most common type of childhood injury seen in emergency departments, accounting for between 25% and 52% of assessments. The published literature on the incidence and patterns of fall-related injuries among children relates largely to high-income countries, In many of these countries, deaths from all types of injury are estimated to have dropped by over 50% over the past three decades.

1.5 Consequences of an accident

Head injuries are the single most common and potentially most severe type of injury sustained by children. Among minor injuries incurred by children, cuts and bruises are those seen most frequently. However, the most common category of unintentional injuries suffered by children requiring hospital admission is various types of fractures to the arms and legs. In addition to mortality, hospital admissions, emergency department attendances and days lost from school can all be used as markers of accident severity. Falls are the leading cause of traumatic brain injury, especially in young children, with a significant risk of long- term consequences. In the United States, about one third of the 1.4 million people suffering traumatic brain injuries are children, who have disproportionately high rates of falls compared with other age groups. Falls are also the most common cause of fatal and serious head injuries among children in France and the United Kingdom. While the incidence of spinal-cord injuries following a fall is generally low. A case study from Nigeria describes the lifelong disability resulting from such accident, often the result of falls from tall palm trees. An analysis in Australia of children falling from playground equipment showed that fractures accounted for 85% of playground injuries.

1.6 Cost of fall-related injury

In Canada, annual injuries from childhood falls were estimated in 1995 to cost 630 million Canadian dollars. Implementing strategies known to be effective is expected to result in a 20% reduction in the incidence of falls among children aged 0–9 years, In the United States, falls account for the largest share of the cost of deaths and injuries in children and costing almost US$ 95 billion in 2004. In Australia, the annual direct health-care cost of falls in children is estimated to be over 130 million Australian dollars, of which 28 million dollars is attributable to hospital inpatient care. An emergency department study in Turkey noted that falls accounted for 41% of injury admissions and contributed to a major part of the overall budget for paediatric trauma cases. The high risk of wounds becoming contaminated and of complications such as bone and joint infections, together with the scarcity of powerful antibiotics and microsurgical techniques, create significant problems for health-care services.

1.7 ENVIRONMENTAL MODIFICATION

Environmental modification or engineering involves the design of products or of the built environment to reduce the potential for accident. Traffic safety schemes can include measures to redistribute traffic and reduce its speed, Structural hazards in the built environment stem from the presence of dangerous or inappropriate features, or from the absence of protective features.

2. OBJECTIVES ARE TO:

Assess risk exposure to children at home and the neighbourhood through parent's perception, and comparing between gender and age of children if there are any statistical significant.

3.1 Research Questions

1. What is the level of risk that children are exposed to in their childhood?

2. Does significant relationship exist between the different ages and gender?

3.2. METHODOLOGY

Questionnaire was distributed randomly to 23 schools and then parents in each school were selected randomly just as come first in chance to meet with in schools as agreed with head of schools, in different location in Tripoli, questionnaire submitted by hand to teachers after explained to them and agreed to propose of the research to participate with answers of a likert scale of five options (extremely – very – just – rarely – never), the study selected children in primary school with indication of gender male or female with specifying the age at (6, 7, 8 and 9 years old) then questionnaire were gathered in few days later.

3.3 Hypotheses

H_0: Gender and age are distributed the same and not statistically significant.

H_1: Gender and age are not distributed the same and statistically significant

 An alpha level of 0.05 was set as significant level.

3.4 Population Sample

Number of parent's child is 355 Participants in total. The distribution of gender (55% boys and 45% girls)

Age distribution (six years old 27%, seven years old 19%, eight years old 26% and nine years old 28%)

3.4 Area

Tripoli – Libya 23 public schools

3.5 Time

October to December 2016

5. Statistical Analysis

Descriptive and non-parametric statistics were applied to characterize the data and evaluate the pattern of results as a function of age group, gender group and total group, questionnaire coded then interned to be analysed using SPSS social package of statistical science, version 22, with crosstabs to find the distribution of percentage in total, age and gender, each one separately, with Kruskal-wallis test as (ANOVA) analysis of variance, for a non-parametric used to determine whether if statistical significant result exist between separate groups. And an excel sheet of Microsoft 2010 were used to draw graphs.

5. Results

5.1 Responding to safety

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
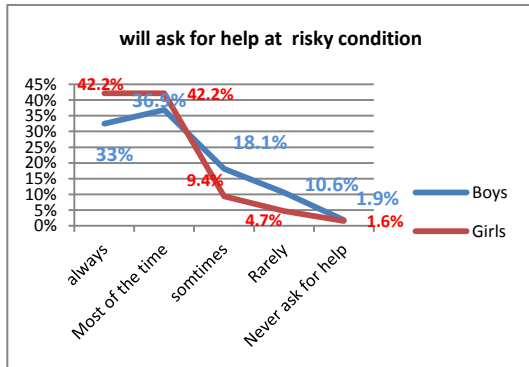
Figure (1) presents gender factor to ask for help   Figure (2) present age factor to ask for help
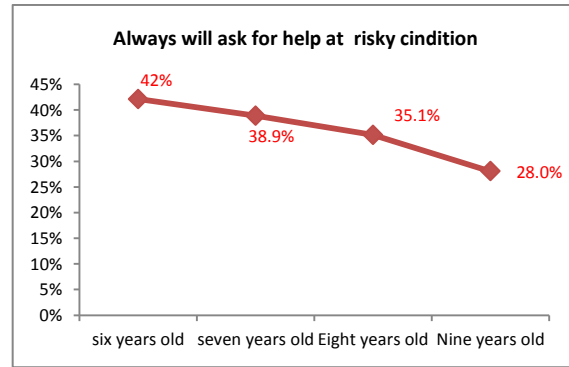
Childhood accident is a major public safety problem that requires urgent attention, especially when children are not responding to safety procedure; showed in figures (1, 2) it found that about 11% rarely ask for help from their parents when they face a risky situation in total evaluation, and more than 73% they will always and most of the time will ask for help form their parents, in age concern found that increase come with increase in age, positive relation. 42% of children at 6 years old will always ask for help to 39%, 35% , 28% for seven, eight and nine years old respectively. And it found the distribution of the data is the same using Kruskal-Wallis test and $p > 0.05$ statistically not significant, while in gender concern found that the distribution is not the same and statistically significant $p < 0.05$
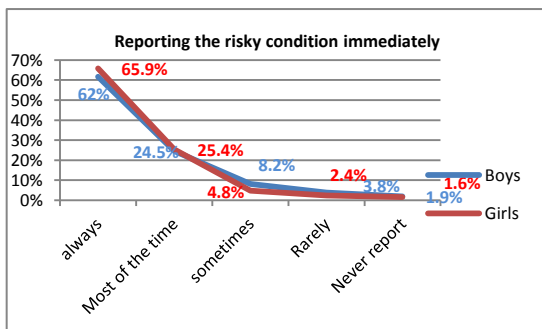
Figure (3) presents gender on reporting immediately   Figure (4) presents age factor on reporting immediately
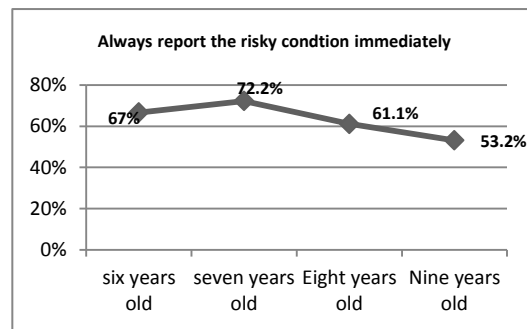
Investigation of the child will report immediately any suspicious conditions at risky situation, showed in figures (3, 4). Parents had said that in total, children at older age will report less than the younger, it found 53% at nine years old will always report immediately any risky situation, then eight and seven years old 61% and 72% respectively, statistically not significant between age $p > 0.05$ gender had recorded almost the same percentage between boys and girls in all five likert scale, it found $p > 0.05$

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
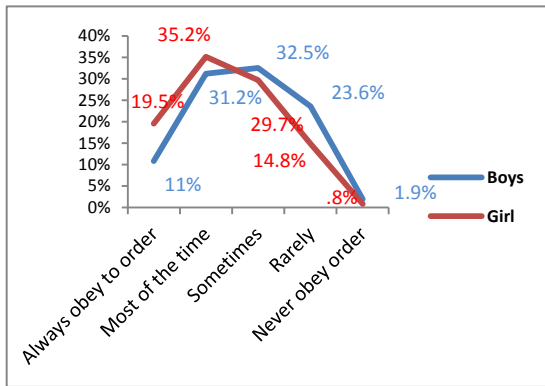
Figure (5) presents gender to obey to order   Figure (6) presents age to obey to order

In evaluating how children obeying to safety order in parent's perception, it found in total 20% never and rarely will obey to order of safety, about 50% they respect safety order and 30% sometimes will obey and sometimes will not, as age not statistically significant $p > 0.05$ and in gender the girls much better than the boys in reporting any suspicious risky situation immediately and statistically significant between them $p < 0.05$
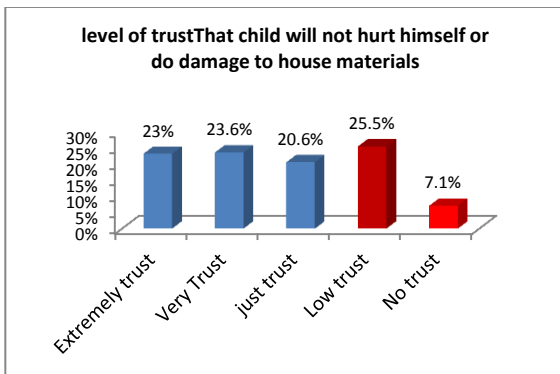
Figure (7) present Total trust of child   Figure (8) presents age on low and no trust
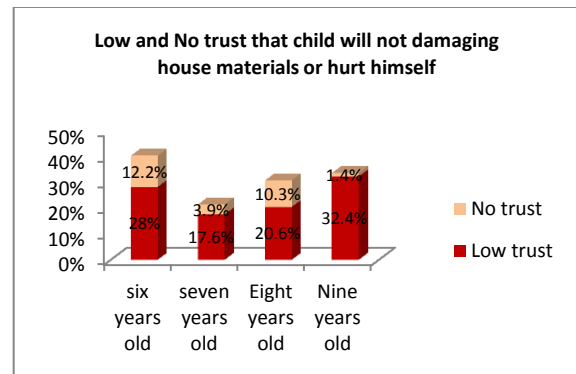
Trusting the child will not do damage to house material and to themselves, it found that 33% in all participants had no and low trust of their children in five likert scale, showed in figures (7, 8) and 47% had a high respect from parents that will not do damage to house materials or to themselves, and 20% just trusted. The age of six years old is the highest in low trust comparing to other age, then the nine years old in second and eight years old in third in low trust the best at seven years old and cross age the distribution of the date is not significant $p > 0.05$ In gender is the same it found no statistically significant between gender on trusting $p > 0.05$

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
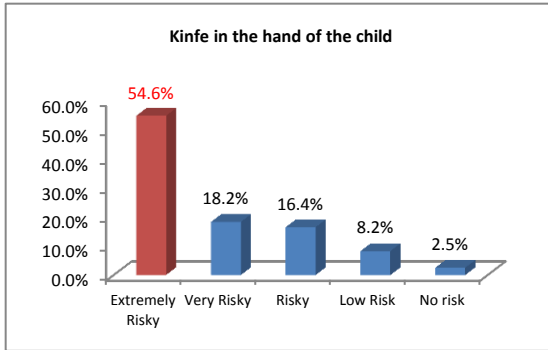
5.2 Risk exposure

Figure (9) presents Total risk of knife in the hand
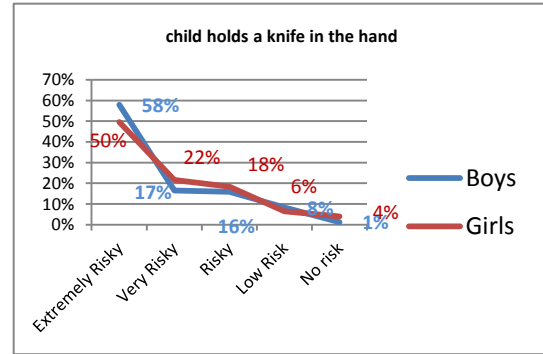
Figure (10) presents gender risk of knife in the hand

In the assessment of risk exposure to children with knives stored at home in the level of reach of children it found that 61% most of the time and always store knives in the access and reach of children's hand, at the same time 55% they said that it is extremely risky when the child holds a knife in the hand in the house, showed in figures (9, 10) and 18% very risky when a child holds a knife in the hand. In age and gender the distribution of the data was the same and statistically not significant $p > 0.05$ in both the access to knives at home to children and when they hold the knife.
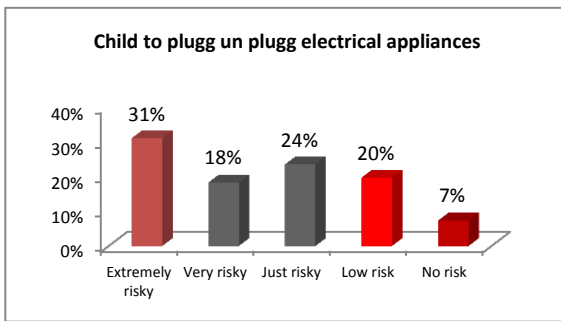
Figure (11) presents Total risk exposure with electrical risk
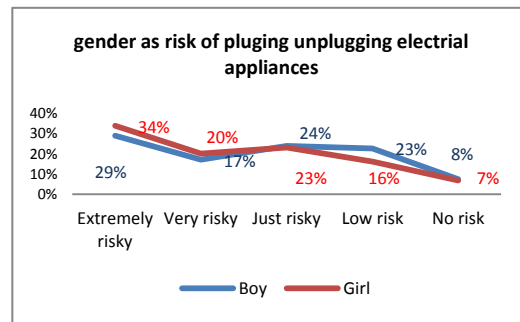
Figure (12) presents gender with electrical risk

Electric shock considered fatal risk to children and adult; figures (11, 12) show about 27% in all participants as parents of child will consider their child to plug unplug electric house appliances as a low and a no risk at all for the child, on the other side 49% they see it as very risky or extremely risky for their child, while 24% considered it as just risky. The distribution for the data cross age and gender were not significant $p > 0.05$.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس
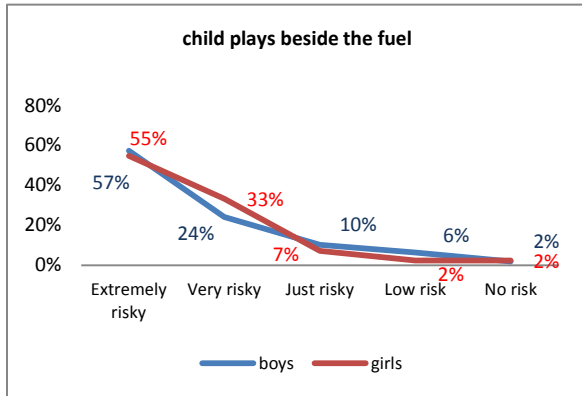
Figure (13) presents gender on risk of playing beside fuel
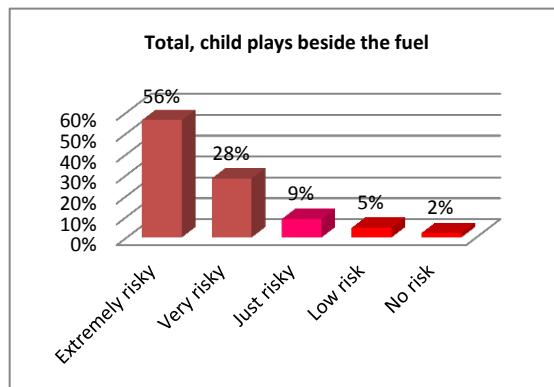
Figure (14) presents Total risk of playing beside fuel

Flammable fuel is dangerous substance to be in a reach of children, as showed in figures (13, 14) it found 84% of parents consider children play beside the fuel is extremely risky and very risky condition, about 5% considered as a low risk and 9% just risky situation, the distribution of the data between age and gender were not statistically significant p > 0.05

5.3 Fall
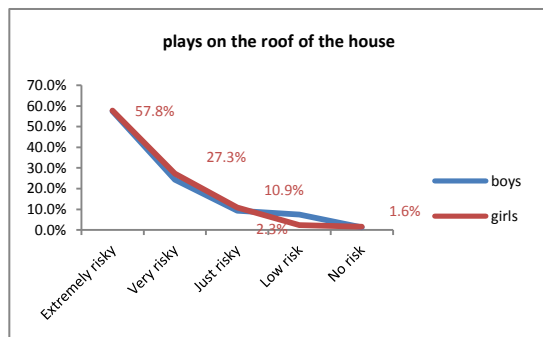
Figure (15) presents gender on risk of fall
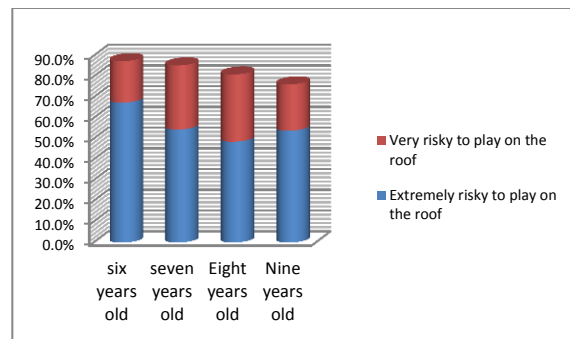
Figure (16) presents age on risk of fall

Falls are the most common cause in many countries of injury-related hospital stays and emergency department visits involving children. Limb fractures and head injuries and traumatic brain injuries are most likely to result in lifelong disability, it found the 50% of children are exposed to fall from the stairs in the houses as the fence of stairs are less than a meter or not exist at all, and the boys are exposed to risk of fall from stairs more than the girls as availability of stairs fences, with statistically significant p < 0.05, however statistically not significant cross age factor p > 0.05
Parent's perception of evaluating risk exposure of fall to child plays on the roof of the house is in figures (15, 16) 85% as very risky and extremely risky, while 10% just risky and 5% low risk or no risk at all on a five likert scale, and statistically not significant in both factors gender and age to fall from a roof of the house p > 0.05

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
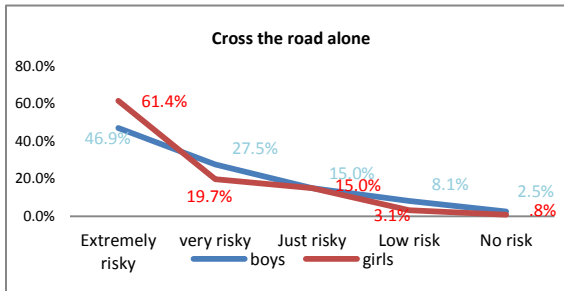
5.4 Crossing roads

Figure (17) presents gender on risk of crossing roads
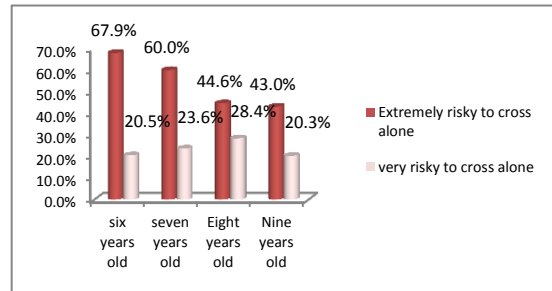
Figure (18) presents age on risk of crossing roads

Children in road traffic may lack the knowledge, skills and levels of concentration needed to manage the road environment, no matter how benign the road conditions. In the evaluation of risk exposure through parent's perceptions of their child it found in total 54% considered extremely risky to allow child to cross the road alone, then 23% a very risky condition, in contrast 8% of parents considered as a low or no risk at all, and 15% just risky for them, in comparison showed in figures (17, 18) between ages is extremely risky to cross a road alone it found decreases in risk with older age 68% , 60%, 45% 43% as extremely risky situation for separate age evaluation (6, 7, 8, and 9 years old) respectively, while in gender more risky situation with girl was evaluated than boy as parent's perception on child to cross a road alone, 47% extremely risky for boys and 61% for the girls as extremely risky, and 8% as a low risk for boys and 3% as a low risk for girls, the distribution between gender and age were not the same and statistically significant p < 0.05

5.5 Safety of public space
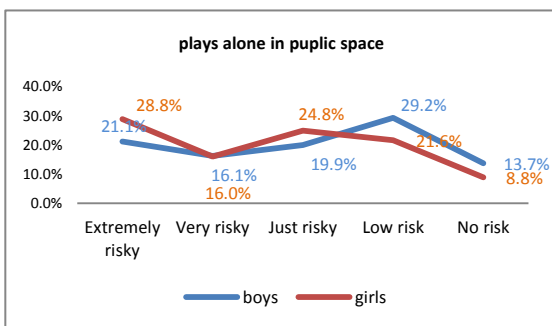
Figure (19) presents child risk to play alone in public
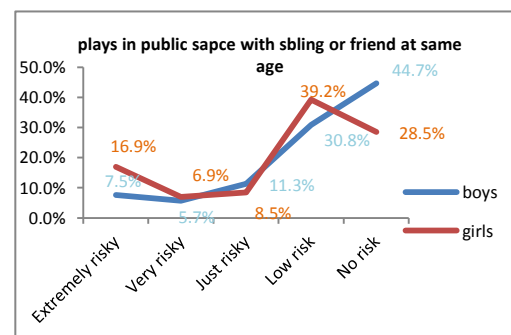
Figure (20) presents child risk to play with sibling or friend

The present study showed that children relate to play in public space for fun and active playground and their parent's perception, figures (3, 4) present evaluation of playing outdoors to score 29% extremely risky to allow their

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

child to play alone in neighbourhood's public space for girls, 16% very risk for both boys and girls, while in the opposed opinion 37% considered low risk and no risk at all and 20% considered as just risky for them to play in public space alone in total percentage, in comparison with child plays with sibling or a friend at the same age, 70% considered as low and no risk at all. Extremely risk assessment decreased with increasing in age, the distribution were the same, no statistically significant found cross age factor, when plays alone or with sibling p > 0.05 In gender concern, parents always expressed that girl will expose to more risky condition than boy when plays alone or even with sibling or a friend at the same level of age, 7% extremely risky for boys to play with sibling or friend in public space to 17% as extremely risky for girls, in the other side 45% for boys with sibling no risk at all to play in public space while 29% no risk at all for girls to play with sibling or friend at the same age, and it found statistically significant cross gender when child plays alone or when plays with sibling or friend p < 0.05 for both.

5.6 Health check-up
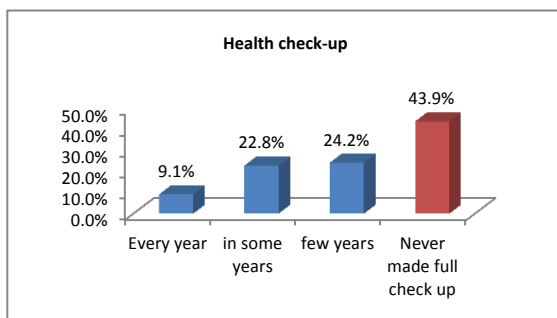
Figure (21) presents total annual health check-up
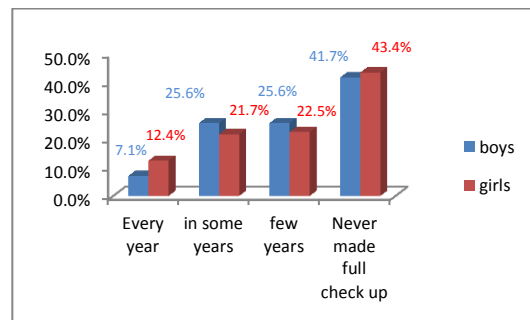
Figure (22) presents gender annual health check-up

Children's health is primary with no doubt it is a necessary to evaluate annually if of children's health are fit or not, regularly health check-up aims to maintain physically and mentally fitness for children, the study found that only 9% from total 355 participant made annual health check-up, showed in figures (21, 22), while 44% never made full health check-up for their child in the whole past years, while 47% do health check-up in some years and not in the other years, cross age found same distribution and statistically not significant, in gender statistically were not significant too, p > 0.05 for both.

6. Discussion

Understanding the child-risk exposure in home and neighbourhood is necessary to gain a deeper understanding of determinants, children in their life exposed to variety of risks and need to be alert and how to deal at dangerous situations, This study explored 6 to 9 years old primary schoolchildren, these ages considered starting career as student occupation in many definitions, the assessment through parent's perceptions is the best of evaluation of risk exposure as mentioned in many publications, as children still in developing of the maturity and their cognitive of hazardous and risky behaviours still not enough to identify and process a proper management especially when facing risky situations or hazardous materials, using a participatory research design. The results suggested that younger as six years old will ask for help more than older age from their parents as might to become more knowledgeable and independent from parents and feel of maturity even though their ability not enough to control and manage a risky situation as adult, the suggestion still applicable on reporting immediately at older ages while reporting less quickly at younger ages, however still a percentage in total to be in consideration 11% rarely will ask for help, and 33% of parents have low trust and no trust of their children will not do damage to house materials or hurt themselves, this is a real risk could lead to unexpected consequences. The girls will report the risky situation

مؤتمـر البحـوث الطبيـة الثانـى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

immediately more than boys, as well as in obeying to order of safety at home or outdoor, which this study proves girls more conscious of risk exposure in all ages comparing to boys with statistically high and significant.

Our results suggest that knives at home in a reach of children's hand are a risky environment and high risk exposure to children. This founding is supported positively and associated with parents consideration of it, 73% very risky and extremely risky when the child holds a knife in the hand, 61% most of the time knives are in reach of children hand which is a risk factor could give serious consequences, as a third of the participants will allow their children to deal with electrical house appliances as have not been recommended in safety books of that come with electrical appliances advising not to allow children to deal with it to avoiding electrical chock or damage to the device especially when misused boy children, when parents neglected the order of safety that will increase the risk of exposure. In factor of allowing children play beside flammable liquids 5% of total participants will allow their child to play around the fuel and see it as a low risk, this is a high risk to store fuel and let children play beside, especially when the parents accepting this behaviour, in all safety data sheets of flammable substances and published papers insisted this type or exposure unacceptable and will lead to unexpected results, and a very high risky condition.

our results may be limited in type of falls that children exposed as a risk factor, only fall from a roof and stairs were investigated in this study and found children exposed to high risk of fall, 50% of the stairs at home which is used by child were not with a proper fence or without fence in total of participants. In the fall from the roof we experienced that most of parent's perception on this evaluation is high 85% extremely risky and very risky, which indicate that there is a high risk threating children. In addition, though only a small percentage as 5% of children in low risk of a fall from a roof could be to higher safety procedures, which other participants do not have comparing to other in the study. Falls are also the most common cause of fatal and serious head injuries among children.

Most of the factors that increase the risk of road traffic injuries for the general population do so similarly for children. The road environment is constructed with consideration for adults. It is not built for use by children, and when children come into contact with it they are placed at greater risk. The set of risk factors that increase a child's susceptibility in road traffic can be considered a lack of safety precautions, in this study more than the half of participants admitted the road is extremely risky to let a child cross alone, this research shows that there is a positive relation between increase in age and decrease in risk of road accident, and the boys had less risk factor than girls, with statistically significant different. A possible explanation is that increasing with age increase confidence, ability and control to manage road traffic, and could be to boys is more familiar with outdoor environment than girls as much time spent outside the house comparing to girls.

Children need a place to play; they also need space with informality and freedom to move around, In this research question investigating in general perception including all risk factor from parents, how safe for your child to play alone or with neighbourhood's child or with sibling in the neighbourhood's public space, it found that more risky for girl to play in neighbourhood's public space than boy, even in the comparison when they play with sibling or neighbourhood's friend, this suggests that girl more vulnerable to risk than boy this result approved with statistically significant different between gender. In age concern there is a positive relation younger will be at more risk to play in public space than older, alone or even with sibling, this result is logical 9 years old will make a different in cognitive of risk level and control of the hazardous at outdoor comparing to 6 years old. However, still high percentage in over all of risk exposure to children as parent's perception when they play in public space.

Many parents had neglected the necessity of annual health check-up, this is a high risk factor as presented in many publication to notice earlier diseases to be treated properly, which is encouraging to make annual health check-up to prevent health deterioration, just 9% of Tripoli resident as a parent to child participated in the study do annual health check-up, this is a high risk factor that parents had not enough attention and awareness to complete.

7. Conclusions

This is the first participatory study of 6–9 years old parent's perception to evaluate risk exposure to children at home and in neighbourhood in Tripoli society, consent from parents have taken to participate in the study. Our findings

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

are an important contribution to both the literature and practice as they provide concrete evidence of how much children in Tripoli exposed to risk, Parents indicated that a twenty of children rarely obey to safety order, supported with eleven percent will rarely ask for help from parents when facing trouble, or any risky situation, added with thirty three percent of parents had no and low trust of their children to do not damage house materials or hurt themselves. Our findings highlight the importance of an integrated of all these that will give high alert indication or how much children are exposed to risk and need prevention. It is not sufficient to let children have access at home to sharp knives, which could result to bad consequences, as about two third of participants store knives in reach of children's hand, at the same time three quarter from the participants consider knife in child's hand very risky condition as a low trust of the child will hurt him/herself or do damage to house materials. Children should not be allowed to deal with electrical appliances at any matter, risk of an electrical shock is high when supported with a third of participants. Allow child to play beside flammable and toxic fuel, when stored at home is a high risk exposure to children. Our research shows that fifty percent of children are vulnerable to risk of fall as parents indicate that stairs had not any fences or the fences are short to protect child form fall down, as well as fall from the roof of the house more than eighty percent fear the child will fall down from the roof, because the risk very high and safety protections are poor. Our study presents the perception of safety road traffic from parents, its great risk to let child cross the road alone, more than three quarter percent considered that as very and extremely risky. We view an important role for child playing alone in neighbourhood public space or with a sibling, it show high risk for children over a quarter of participant considered as extremely risky for child to play in public space lone. We found that forty four percent of participants never made health check-up for the child, which is consider high risk of being infected by serious disease that can be easily prevented at early stages. Our study identified some of risk exposure to children who live in Tripoli, and the risks were in high alert.

7. Recommendation

Modifying the environment indoor and outdoor to make it more user-friendly to children has become an important approach in accident prevention, benefiting people of all ages, not just children. Governments have made commitments to protect children from all forms of accidents. The legal obligations lie with governments, there is evidence that legislation has increased the uptake of preventive measures and reduced childhood injuries in many countries. However, all sectors of society share the responsibility to prevent accidents to children and to deal with those risk factors affectively. Factors contributing to success must include: good surveillance data; a commitment to research; regulations and legislation for safer environments; broad-based safety education campaigns involving partnerships of different agencies and committed leadership on safety issues, the promotion of safety devices and home visiting, clearly education one of successful strategies.

References

Convention on the Rights of the Child. New York, NY, United Nations, 1989 (A/RES/44/25) (http://www.unhchr. ch/html/menu3/b/k2crc.htm, accessed 21 January 2008).

Bartlett S. The problem of children's injuries in low- income countries: a review. Health Policy and Planning, 2002, 17:1–13.

Wilson M et al. Saving children: a guide to injury prevention. New York, NY, Oxford University Press, 1991.

Toroyan T, Peden M, eds. Youth and road safety. Geneva, Switzerland, World Health Organization, 2007 (http:// whqlibdoc.who.int/publications/2007/9241595116_eng. pdf, accessed 18 February 2008).

Thomson J et al. Child development and the aims of road safety education: a review and analysis. Norwich, Th e Stationery Office, 1996 (Department of Transport Road Safety Research No. 1).

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Sinnott W. Safety aspects of domestic architecture. In: Jackson RH, ed. Children, the environment and accidents. London, Pittman Medical, 1977:76–90.

Ward C. The child in the city. London, Bedford Square Press, 1990.

Bartlett S. Children's experience of the physical environment in poor urban settlements and the impli- cations for policy, planning and practice. Environment and Urbanization, 1999, 11:63–73.

Nicol A. Carrying the can: children and their water environments. London, Save the Children, 1998.

Rivara FP et al. Epidemiology of childhood injuries. II. Sex differences in injury rates. American Journal of Diseases of Children, 1982, 13:502–506.

Bergman AB, Rivara FP. Sweden's experience in reducing childhood injuries. Pediatrics, 1991, 88:69–74.

Ramsay S. Child-injury death rates: do international comparisons help? The Lancet, 2001, 357:454.

Christie N et al. Children's road traffic safety: an international survey of policy and practice. London, Department for Transport, 2004.

Falls. Geneva, World Health Organization, Violence and Injury Prevention and Disability Department (http://www.who.int/violence_injury_prevention/other_injury/ falls/en/index.html, accessed 20 March 2008).

Christ off el KK et al. Standard definitions for childhood injury research: excerpts of a conference report. Pediatrics, 1992, 89:1027–1034.

Bartlett SN. Th e problem of children's injuries in low- income countries: a review. Health Policy and Planning, 2002, 17:1–13.

Hyder AA et al. Falls among children in the developing world: a gap in child health burden estimations? Acta Paediatrica, 2007, 96:1394–1398.

Garrettson LK, Gallagher SS. Falls in children and youth. Paediatric Clinics of North America, 1985, 32:153–162.

Abdullah J et al. Persistence of cognitive deficits following paediatric head injury without professional rehabilitation in rural East Coast Malaysia. Asian Journal of Surgery, 2005, 28:163–167.

Hyder AA et al. The impact of traumatic brain injuries: a global perspective. Neurorehabilitation, 2007, 22:341.

Williamson LM, Morrison A, Stone DH. Trends in head injury mortality among 0–14 year olds in Scotland (1986–95). Journal of Epidemiology and Community Health, 2002, 56:285–288.

Brookes M et al. Head injuries in accident and emergency departments. How different are children from adults? Journal of Epidemiology and Community Health, 1990, 44:147–151.

Zargar M, Khaji A, Karbakhsh M. Injuries caused by falls from trees in Tehran, Islamic Republic of Iran. Eastern Mediterranean Health Journal, 2005,11:235–239.

Rennie L et al. Th e epidemiology of fractures in children. Injury, 2007, 38:913–922.

Ball DJ. Trends in fall injuries associated with children's outdoor climbing frames. International Journal of Injury Control and Safety Promotion, 2007, 14:49–53.

Mitchell R et al. Falls from playground equipment: will the new Australian playground safety standard make a difference and how will we tell? Health Promotion Journal of Australia, 2007, 18:98–104.

The economic burden of unintentional injury in Canada. Toronto, ON, Smartrisk; Emergency Health Services Branch, Ministry of Health, Ontario, 1998.

Simmons D. Accidents in Malawi. Archives of Disease in Childhood, 1985, 60:64–66.

Rivara FP et al. Population-based study of fall injuries in children and adolescents resulting in hospitalization or death. Paediatrics, 1993, 92:61–63.

. Roudsari BS, Shadman M, Ghodsi M. Childhood trauma fatality and resource allocation in injury control programs in a developing country. BMC Public Health, 2006, 6:117

Janssen, I.; LeBlanc, A.G. Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. Int. J. Behav. Nutr. Phys. Act. 2010, 7, 40. [CrossRef] [PubMed]

Verloigne, M.; van Lippevelde; et al. Levels of physical activity and sedentary time among 10- to 12-year-old boys and girls across 5 European countries using accelerometers: An observational study within the ENERGY-project. Int. J. Behav. Nutr. Phys. Act. 2012, 9, 34. [CrossRef] [PubMed]

Ridgers, N.D.; Stratton, G.; Fairclough, S. Assessing physical activity during recess using accelerometry. Prev. Med. 2005, 41, 102–107. [CrossRef] [PubMed]

Gray, C.; Gibbons, R.; Larouche, R.; Sandseter, E.B.H.; Bienenstock, A.; Brussoni, M.; Chabot, G.; Herrington, S.; Janssen, I.; Pickett, W.; et al. What is the relationship between outdoor time and physical activity, sedentary behaviour, and physical fitness in children? A systematic review. Int. J. Environ. Res. Public Health 2015, 12, 6455–6474. [CrossRef] [PubMed]

Darbyshire, P.; MacDougall, C.; Schiller, W. Multiple methods in qualitative research with children: More insights or just more? Qual. Res. 2005, 5, 417–436. [CrossRef]

Parrish, A.M.; Yeatman, H.; Iverson, D.; Russell, K. Using interviews and peer pairs to better understand how school environments affect young children's playground physical activity levels: A qualitative study. Health Educ. Res. 2012, 27, 269–280. [CrossRef] [PubMed]

Childhood & Society Research Centre: Kindgerichte Publieke Ruimte. Available online: http://k-s.be/ kindgerichte-publieke-ruimte/ (accessed on 1 July 2015). 25. Langhout, R.D.; Thomas, E. Imagining participatory action research in collaboration with children: An introduction. Am. J. Commu. Psychol. 2010, 46, 60–66. [CrossRef] [PubMed]

The Netherlands Institute for Social Research SCP: Statusontwikkeling van Wijken in Nederland 1998–2010. Available online: http://www.scp.nl/Onderzoek/Lopend_onderzoek/A_Z_alle_lopende_onderzoeken/ Statusscores (accessed on 1 February 2015).

Lee, Y.; Takenaka, K.; Kanosue, K. An understanding of Japanese children's perceptions of fun, barriers, and facilitators of active free play. J. Child Health Care 2013. [CrossRef] [PubMed]

King, P.; Howard, J. Factors influencing children's perceptions of choice within their free play activity: The impact of functional, structural and social affordances. J. Playwork Pract. 2014, 1, 173–190. [CrossRef]

Ishii, K.; Shibata, A.; Sato, M.; Oka, K. Recess physical activity and perceived school environment among elementary school children. Int. J. Environ. Res. Public Health 2014, 11, 7195–7206. [CrossRef] [PubMed]

Thomson, S. Adulterated play: An empirical discussion surrounding adults' involvement with children's play in the primary school playground. J. Playwork Pract. 2014, 1, 5–21. [CrossRef]

. Brockman, R.; Jago, R.; Fox, K.R. The contribution of active play to the physical activity of primary school children. Prev. Med. 2010, 51, 144–147. [CrossRef] [PubMed]

Over view of Tuberculosis cases in Al -Kwefia Chest & Tuberculosis Hospital

Benghazi city- Libya

Salah A Mursi*, Mailud El-Amari, Adel ElMshiti***,faten Mohamed,zahia el gebaly,osama ali,iman Othman,ibrahem abdula,mlak naser,aya Mohamed*** ***

*A.Proffesor Community medicine department medical school Benghazi University. S.R. chest&TB .al-kwefia hospital. **A.Proffesor.health education department, faculty of public health. Benghazi University. ***Specialist in anesthesiology,SHG cardiac surgery center Voelklingen,Germany, Richardstrase 5-9 ,66333,Volklingen, ****intern doctors . Medical school. Benghazi University

Correspondence. Email: salah.mursi@yahoo.com

Abstract

Tuberculosis (T.B) remains the most frequent and important infections disease causing morbidity and mortality globally ,

Worldwide the rate of decline in T, incidence remained at only 1.5% from the years 2014 to 2015

The majority of case occur in the world's poorest nations who struggle to cover the costs associated with management and controls of T.B

Material and Methods:

A retrospective study to T.B cases admitted to the hospital in the years 201/2015

Results

T.B cases among Libyan patients count for79.3% in 2015 while in the year 2010 it was 73.5% most of the cases were males 68.6% in years 2015 , 71.8% in 2010

Distribution of cases according to diagnosis 81.8% PTB 8.7 E.P.TB 0.6 %, sputum negative for T.B. 0.6% multidrug resistance MDR and 4.6% leave against Medicine advice LAMA

HIV was the common co infection associated with T.B. 16.6% and diabetes Mellitus D.M represents 41.6% and 29.2% of cases in 2015-2010

Discussion & conclusion

Most of cases were males, represents 71.8% -68.6% 2010-2015 compared to 91.0% in 2014 study. For age groups the majority are equal or less than 30 yrs. in 2010, while in 2015 the frequency go to those 30-50 years.

The present study shows only two cases with MDR, it also shows that TB. Cases with D.M represent 29.2% & 41.6% in 2010 -2015 .

LAMA cases 4.2 -4.6 % respectively 2010-2015 .and relapse case represent 0.3% in the year 2010

This might be due to less attention given to care or un availability of drugs in the health seething.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطـب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Recommendation:

An active case finding & case finding & case holding should be carried out practically to the hidden population refuge and internally displaced persons IDPS. Associated with active and passive health education about T.B

Introduction

Al Quefia chest and tuberculosis (TB) hospital It is a teaching hospital of 215 beds located in Al Quefia village which is approximately 15 km from Benghazi city. Cases are referred to the hospital from regional chest centers and other chest centers and hospitals in the neighboring cities. (1)

TB remains the most frequent and important infectious disease causing morbidity and mortality globally. According to WHO Global tuberculosis report of 2016, The TB epidemic is larger than previously estimated. However, the number of TB deaths and the TB incidence rate continue to fall globally. In 2015, there were an estimated 10.4 million new (incident) TB cases worldwide, of which 5.9 million (56%) were among male, 3.5 million (34%) among female, and 1.0 million (10%) among children. People living with Human Immune deficiency Virus accounted for 1.2 million (11%) of all new TB cases. (2)

The traditional case detection rate (CDR), defined as the proportion of notified cases among the estimated number of new and relapse TB cases, thought to have occurred in a given year, is a problematic indicator in TB epidemiology, though it could potentially provide very useful information on the "diagnostic capacity" of a TB control program. (3)

Worldwide, the rate of decline in TB incidence remained at only 1.5% from 2014 to 2015. This needs to accelerate to a 4–5% annual decline by 2020 to reach the first milestones of the End TB Strategy.(2)

In 2015, there were an estimated 480 000 new cases of multidrug-resistant TB (MDR-TB) and an additional 100 000 people with rifampicin-resistant TB (RR-TB). (2) Global burden of TB incidence in 2016 is 41% . Country reported TB data 2015, estimated that cases of TB for some countries that total of cases notified 1014 while the treatment coverage 39% for Libya, in Afghanstine total of 37001, while the treatment coverage 58%, and for Tunisia, total number of notified cases of 3357, while treatment coverage reached 80% as reported.. TB was estimated to account for nearly 1.5 million deaths, making it the second most common cause of death due to an infective disease. Furthermore, it is estimated that around one-third of the world's population has latent TB. (4,5) due to the high failure rate associated to MDR-TB and in the African region(due to the high rate of deaths or defaulting linked to HIV co-infection). (6)

 (MDR-TB) is a condition where the *M. tuberculosis* strain is resistant to two most frequently used drugs *i.e*. first-line oral specifically Isoniazid, rifampicin and it was first developed in USA during 1990s (7,8)

People living with HIV/AIDS (PLHIV) are at extremely high risk of TB, due to the immunological impairment associated to this infection and to frequent co-existence of deprived social conditions. (9)

 (MDR-TB) is defined as resistance to, at least, isoniazid and rifampicin among first-line drugs, while Extensively Drug Resistant TB (XDR-TB) refers to MDR-TB with additional resistance to, at least, any fluoroquinolone and any one of three second-line injectable drugs (i.e. capreomycin, kanamycin and amikacin). (10)

The majority of cases occur in the world's poorest nations, who struggle to cover the costs associated with management and control of TB. **(11)**

The present study explore the magnitude of TB cases had been admitted to Al Quefia hospital during a period of two years (2010 & 2015)

Material and Methods

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Data was obtained from the medical records of all TB patients admitted to Al Quefia hospital in the year 2010 and 2015.   A retrospective method was applied for the study, The data was collected from the medical files of patients admitted in the hospital during the time which is kept in the statistical department of Al Quefia hospital.

The date is analyzed according to gender, age, residence, site of TB and the presence of other pathologies including TB, Extra pulmonary tuberculosis (EPTB) and other illness.

The data is analyzed using SPSS system, version 16 for windows.

Results

Based on the retrospective study in the month of November 2016, in Benghazi Libya, the results of the analyzed data is as following:

Male cases was **68.6%** in year of 2015, and **71.8%** in year of 2010.   Looking for age groups, 31-50 years count for (**45.3%)** in year of 2015, and 21-30 years count for (**36.7%**) while in the year 2010 about half age less or equal to 30years .

TB cases among Libyan patients count of **79.3%** compared to **20.6%** of non-Libyan patients in year of 2015, while in the year 2010 was 73.5% compared to 26.6 for none-Libyan.

Considering location of stay of patients Benghazi city is the   count for 64.3% and 65.7%in year of 2015 and 2010 respectively. For the diagnosis of patients PT **(81.8%)** while **8.7%** presented with EPT, and about **0.6%** of cases with sputum negative for TB. Another 0.6% for MDR cases. However, LAMA cases, represent 4.6% and 4.2% respectively for 2015-2010

Hospitalization range from 1-10 days as **39.5%, 29.6% respectively for 2015-2010, while the l**ongest duration in 2015 for 2 cases as 41-50 days, and more than 40 days in 2010 count for 16.6%.

HIV was common communicable disease associated with TB cases which represent **16.6%** same for hepatitis B, **DM** was common non-communicable disease associated with TB cases, represent **41.6% and 29.2%** of cases in 2015-2010 respectively.

Table1- Main characteristics of the total cases admitted

to the Al-Kwafia hospital

Main characteristics	2010 n=309		2015 n=150	
	No.	%	No.	%
Gender				
Male	222	71.8	103	68.6
Female	87	28.2	47	31.3
Age groups in years				
<= 30	152	49.9	55	36.7
31 – 50	103	33.3	68	45.3
50	54	17.5	27	18.0
Nationality				
Libyan	227	73.5	119	79.3

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

None – Libyan	82	26.5	31	20.6
Residence				
Benghazi city	203	65.7	101	64.3
Out skirt of Benghazi city	106	34.3	49	32.7

Table 2.   Distribution of TB cases by diagnosis which admitted

to Al-Kwafia hospital

	2010 n=307		2015 n=149	
Diagnosis	No.	%	No.	%
PTB (sputum+ve)	263	85.1	122	81.8
Extra PTB	15	4.9	13	8.7
Sputum –ve *	10	3.2	1	.6
MDR	1	0.3	1	.6
LAMA	13	4.2	7	4.6
Death	4	1.3	5	3.3
Relapse	1	0,3	---	---
Total	209	100.0	149	100.0

Positive clinical finding and radiological abnormality, and not responding to broad spectrum antibiotics.

Or Patient who is severely ill with radiological abnormality.

Or Tow sputum negative but culture sensitivity by Z nelson stain positive.

Table 3.   Duration of patients Hospitalization

 (in Days)

Duration (in days)	2010 n=307		2015 n=149	
	No.	%	No.	%
1-10	91	29.6	59	39.5
11-20	76	24.8	50	33.5
21-30	56	18.2	31	20.8
31-40	33	10.7	7	4.6
41-50	25	8.1	2	1.3
>= 50	26	8.5	___	___
Total	307	100.0	149	100.0

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table4.   Some of the reported diseases found

Accompany with TB cases.

Diseases	2010 n=48		2015 n=12	
	No.	%	No.	%
HIV	20	41.6	2	16.6
Hepatitis B & C	3	6.1	2	16.6
D.M	14	29.2	5	41.6
Others *	11	22.9	3	25.0
Total	48	100.0	12	100.0

2010 HTN, Bronchial Asthma,

2015 bronchial asthma, bronchiectasis, Pneumonia, HTN, chronic renal failure.

Discussion & Conclusion

Tuberculosis (TB) is a global public health crisis. In the present study we look at the trend of the TB disease in our setting ,show that gender male count more than female for both years 2010 and 2015 , 71.8 – 68.6% compared to 91.0% in 2014 study, (13) but for age groups in 2010 high frequency among those who are less than or equal to 30 years, while in 2015 frequency go to those of 30 – 50 years which might be due to less concern about vaccination of TB ,or less concern about detection among younger age in 2015, as result of poor school health program.   None Libyan count for about one fourth which indicate that medical chick up for coming people was not complete and it need to be looked up . for the location of patients it appear that no deference in our present study.

Regarding the diagnosis finding in our study show that high proportion of patients was with Pul TB (sputum) or Extra(PTB) only two cases who show MDR for the years 2010-2015 , in 2014 four cases one Libyan the rest others. (13)   However, In a study 1978 in Al- Kwafi hospital show 771 cases among Libyan , with MDR of 0.7% , compared to present study of MDR 0.3 & 0.6 during 2010 – 2015 respectively. (1)

Regarding the diseases accompanied with TB in present study HIV account for 16.6% , while in 2014 study it was 12.0% which show increase might be due to none Libyan cases, and 3.0% for hepatitis C & B compared to 16.6% for the present study, while 90.5% were suffering from TB, which higher from 2014 study 85.0%. (13)

For effective TB control, it is very important to detect cases as early as possible and to ensure that those diagnosed complete their treatment and get cured (7). TB case notification and treatment success rates are used to measure the TB control program performance.

Health seeking behavior and related delays are of importance in TB care from two important perspectives; firstly TB requires timely treatment and secondly it requires protracted treatment. Required level of knowledge and positive health behavior helps the patients in taking timely help from appropriate health facility. (13)

Studies on TB have shown that lack of knowledge about the causes, modes of transmission and treatment affects both health seeking behavior of patients and programme control strategy as well. Health seeking from a public health facility is highly desirable However studies reveal that symptomatic primarily resort to self medication and approach private practitioners and traditional healers as their first point f contact.   {14,15,16,17,18}

People with a weak immune system, as a result of chronic diseases such as diabetes, are at a higher risk of progressing from latent to active tuberculosis.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

a person's risk of developing TB. About 15% of TB cases globally may be linked to diabetes In the present study those TB patients with DM show 29.2 & 41.6% in the 2010–2015, while other infectious Bronchiectasis, pneumonia, HTN, chronic renal failure, which indicate that attention should be given to such infectious

The likelihood that a person with TB will die or relapse is significantly higher if the person also has diabetes. And the mortality in 2010 – 2015 patient show that 1.3 – 3.3% , LAMA cases 4.2 – 4.6% respectively and relapse cases 0.3% in the year 2010, might be due to less attention given to care given to those people, or might be un availability of drugs in health setting.

The role played by environmental improvements, better housing, sanitation, improved nutrition, or other factors related to public health or the social determinants of health.
The decline in tuberculosis mortality in the developed world has resulted
Mostly from improved living conditions and not because of modern medicine [18].

Recommendations

Case finding and case holding should be carried out on a regular time particularly to people like displaced persons for the area Benghazi and surrounding.

Follow up of cases of infectious diseases of TB and related such as HIV, DM, HBV, HCV. As will as improving the referral system from different health setting.

Health education programs toward TB and related diseases should be focus on at risk groups like displaced persons and those in overcrowded area, and within the public through TV, Radio, Internet, Social media

Chemoprophylaxis such as INH should be made available for those at risk of get infected.

More research work in TB and related health problems should be encouraged to explore more about the problem, in different population groups and location.

Medical record department in Al Quefia hospital should be improved, to keep record of cases with complete details.

References:

Personal contact with the director general of Al Quefia hospital, ministry of health, Benghazi Libya.
WHO. Global TB report 2016 http://www.who.int/tb/publications/global_report/en/
World Health Organization (WHO) Treatment of tuberculosis guidelines. 4th ed. Geneva: 2010. (WHO/HTM/STB/2009.420). Available at:http://whqlibdoc.who.int/publications/2010/9789241547833_eng.pdf?ua=1.
who TB country data Www.who.int/tb/countrydata>profiles/en/2015/
who Tuberculosis www.searo.who.int/tb/en/2016
World Health Organization (WHO) Global Tuberculosis Report 2013. Geneva: 2013. Available at:http://www.who.int/iris/bitstream/10665/91355/1/9789241564656_eng.pdf?ua=1.
Dooley, S.W., Jarvis, W.R., Marion, W.J. and Snider, D.E. (1992) Multidrug-Resistant Tuberculosis. *Annals of Internal Medicine*, **117**, 257-259. http://dx.doi.org/10.7326/0003-4819-117-3-257
Edlin, B.R., Tokars, J.I., Grieco, M.H., Crawford, J.T., Williams, J., *et al*. (1992) An Outbreak of Multidrug-Resistant Tuberculosis among Hospitalized Patients with the Acquired Immunodeficiency Syndrome. *New England Journal of Medicine*, **326**, 1514-1521. http://dx.doi.org/10.1056/NEJM199206043262302
Joint United Nations Programme on HIV/AIDS (UNAIDS) Getting to zero: 2011–2015 Strategy. Geneva: 2010. Available at:http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2010/JC2034_UNAIDS_Strategy_en.pdf

Zignol M, Hosseini MS, Wright A, et al. Global incidence of multidrug-resistant tuberculosis. J Infect Dis. 2006;194(4):479–85.http://dx.doi.org/10.1086/505877. [PubMed]

Davidsons Principles and Practice of Medicine 22ed, tuberculosis, p.643, 2014

WHO 2007 , Tuberculosis care and control in refugee and displaced populations (an interagency field manual) second edition.

Janmejaya Samal, 2016 Health Seeking Behaviour among Tuberculosis Patients in India: A Systematic Review. Journal of Clinical and Diagnostic Research. 2016 Oct, Vol-10(10): LE01-LE06

Legesse M, Ameni G, Mamo G, Medhin G, Shawel D, Bjune G, et al. Knowledge [23]and perception of pulmonary TB in pastoral communities in the middle and Lower Awash Valley of Afar region, Ethiopia. *BMC Public Health*. 2010;10:187.

Kanodia SK, Dixit AM, Shukla SR, Seth AK, Balothia V, Gupta R. A study on [24]knowledge, beliefs and attitude towards leprosy in students of Jaipur, Rajasthan. *Indian J Lepr*. 2012;84:277–85.

Mankar MJ, Joshi SM, Velankar DH, Mhatre RK, Nalgundwar AN. A comparative [25]study of the quality of life, knowledge, attitude and belief about leprosy disease among leprosy patients and community members in Shantivan Leprosy Rehabilita. *Public Health Res*. 2011;3:378–82.

Thilakavathi S, Manickam P, Mehendale SM. Awareness, social acceptance and [26]community views on leprosy and its relevance for leprosy control, Tamil Nadu. *Indian J Lepr*. 2012;84:233–40.

Nsagha D, Bamgboye E, Oyediran ABO. Operational barriers to the implemen27] tation of multidrug therapy and leprosy elimination in cameroon. *Indian J Dermatol Venereol Leprol*. 2009;75:469..

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Microbiological infectivity in Medical Laboratory Benghazi, Libya

Mailud.El-Amari, Salah Mursi, M.A. Ghanim,. M.Fituri, WahengbamPS(Waheed)
Benghazi University Faculty of Public Health

Abstract

We surveyed environmental surfaces in our clinical microbiology laboratory one at Reference laboratory, Benghazi and other at Pediatric Hospital Laboratory to determine bacterial contamination during a routine working day. This study aimed to identify the extent of contamination of surfaces. Microbes may transmitte from surfaces to working staff in the Laboratories or the visiting people who visited to the laboratories for the purpose of delivering sample or receiving report. Sample of swabs were taken from some surfaces most frequently used by the workers from the reference laboratory, and some swabs taken from the Laboratory in Pediatric Hospital. The samples were cultured on the blood agar media. The contamination identified in the reference laboratory were 54(85.70%) out of 63 samples however, in Pediatric Hospital Laboratory were 15(71.40%) out of 21 samples. Conformity test was done for bacteria using Phoenix 100. The Recommendations includes personal protection and good hygienic condition of the Laboratory Environment.

Introduction

Contaminations of microbial organisms have become increasingly prevalent in acute care hospitals, as well as in long-term care facilities as reported by Centers for Disease Control and Prevention. [1] In addition, these organisms raised the concern for potential contamination of the clinical microbiology laboratory. [2] Since these organisms persist on surfaces [3, 4] and experts believe for sufficient evidence to state that inanimate surfaces likely play a role in transmission of microbial organisms [5]

Frequent environmental contamination within the microbiology laboratory poses three major risks for healthcare workers and patients. First, laboratory workers may become colonized with these organisms and inadvertently carry them to other parts of the hospital or to the community. Second, cross-contamination of specimens can occur so that false infection or colonization of

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

patients is reported from the laboratory. Third, medical personnel visiting the laboratory for consultation or during teaching rounds may unknowingly contact a surface. [6]

Nosocomial infections have been recognized, even more alarming in the 21st century for affecting the quality of health care. In the hospital at Alexandria University in 2003-04, the amount of contamination of microorganism from sputum, urine and blood was high in peoples working in intensive care units and 400 patients were with nosocomial infections in total and 38 people admitted were having nosocomial infections due to cross infection from the equipments used in surgery. Ventilators were contaminated causing associated pneumonia by Klebsiella & Pseudomonas. Catheter contamination causing urinary treat infections by *E coli, Candida albican* & klebsiella were also seen. [7]

Today, nosocomial infections account for 50% of all major complications of hospital infection; the remainder are due to medication errors, patient false and other non-infectious adverse events constitutes a major problem globally , with major social , economical , moral and personal effects, that increases the morbidity and mortality of patients. [8, 9, 10, 11]

The study in hospitals at Tripoli in 2006-07, found contamination with bacteria and fungus in their hands of worker in repackaging of medicines and need for necessity to look to eliminate the bio hazards effects. [12]

In the Great River Eye Hospital Benghazi (2007) OPD patients with corneal ulcer were having presence of bacterial growth mostly with S. aurous. [13]

The presence of contaminants within the clinical laboratories in Benghazi and the extent by seriousness of spread inside and outside laboratories, and to the community are high as these contaminants transmit to workers and sometimes to the peoples visiting the laboratory and affecting adversely. Laboratory working staff should understand why infection control is important, the approaches being taken by the hospital infection control program to meet its objective to reduce nosocomial infections, and how the laboratory can support and cooperate with the program. [14]

So the present study attempts to assess the potential presence of contaminations of microorganisms on environmental work surfaces and adjacent clean areas in the clinical laboratory and to look at the magnitude for the success of the hospital infection control effort.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The material & methods

Place of study:

We surveyed environmental surfaces in our clinical microbiology laboratory one at Reference laboratory, Benghazi and other at Pediatric Hospital Laboratory to determine bacterial contamination during a routine working day. Disinfectants, including isopropyl alcohol, sodium hypochlorite, and phenol and quaternary ammonium compounds were used for disinfecting the contaminated surfaces at the completion of work and after accidental spills

Period of study:

The study was conducted from April, 2008 to June, 2008.

Collection of Sample and culture:

For the purpose of the study, Surfaces were defined as those commonly contacted by the working staffs during a routine working day like bench tops, telephones, keyboards, door handles, biohazard waste containers, chairs, pipettes, gloves, and gowns etc. and also include desks, computer as well as restroom surfaces etc.

Swabs were collected from surfaces mostly used in the Laboratories by the working staff. Staining process was done to see the gram positive or negative cocci or bacilli. The collected samples were also cultured on blood agar media to see for microbial growth. Sub-culture and repeat the analysis for confirmation of growth was done on another blood agar plate and Phoenix 100 Test was used to identify the organism for confirmation.[15, 16, 17, 18, 19]

Analysis of data:

Analysis was projected in tables according to the aims of the study and in numbers of colonies of bacterial growth, number and percentage of culture positivity etc.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشرى طرابلس - قسم الأسرة والمجتمع

Results:

From the most used surfaces in the Reference laboratory & Pediatric hospital Laboratory, the total swab samples collected was 63 & 21 respectively from showing culture positivity of 82.1 %.(Table-1)

The contaminations identified were identified in 54(85.70%) out of 63 samples in Reference Laboratory, however in Pediatric Hospital Laboratory were 15(71.40%) out of 21 samples. Rate of growth which was high in places like the outer main door handles & keyboard of integer machine, the chair handles, door handles in biochemistry laboratory while in microbiology laboratory shows positive growth in eye base of microscope, microscope adjustment knob. In coffee room growth was present in door handle & food table and the highest growth was seen in outer door handle of the entry of laboratory (Table-2 & 3).

Comparing the rate of contaminants in both sampling places we found the presence of organisms were more in the Reference Laboratory, than in the El Fatah Pediatric Hospital Laboratory. The samples taken from the majority of the surfaces were found to be culture positive and highest growth in the door handles (Table-4).

The percentage of culture positive samples and the percentage were very high in all surfaces of Reference Laboratory (Table-5). Gram stain shows +ve gram stain and Diplococci were seen and probability expected was Acinobacter, Micrococcus and *Staph. albus* (Table-6 & Table-7). This conformity test was done with phoenix100 which shows *Staph. albus* and *Escherichia coli* organism.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Discussion:

The present study found that most surfaces in the medical Laboratories are contaminated. The various study demonstrated that recovery of microbial organism from laboratory environment is common, confirming our findings. [6] However, this contaminant not expected to be in a large number, the working staff knows how protect themselves and protect their environment by using the appropriate disinfectants and everybody takes all necessary precautions and steps of hygiene safety in laboratories to reduce the risk expected as a general rule. [14, 20]

It was observed that the burdens of contamination in the Reference Laboratory are higher than in the El-Fatah Pediatric Hospital Laboratory (85.70% and 71.40% respectively). Reasons are many and one of them may be inadequate and poor methods of cleaning the surfaces with disinfectants. Lack of information and process of cleaning and detergents used are reasons as supported by many studies. [21, 22]

The study conducted in a hospital at Alexandria University showed that there are 38 people admitted to the hospital were having nosocomial infections due to cross infection from the equipments used in surgery. Ventilator associated pneumonia due to Klebsiella were 54.50% and Pseudomonas were 45.50%. Contamination with catheter causing urinary treat infections due to E coli, *Candida albican*, klebsiella were 53.30%, 36.70% and 6.70% respectively indicating that the hospital environment may be filled with the many causes of infection. [7] Studies conducted in Tripoli showed contamination on the hands of workers in packaging of medicine and the equipments used by workers, the need for precautions regarding the reduction of contamination are mentioned. [12]

The medical laboratories are places known for high risk of transmission of pathogens which enforced specialists to create specialized committees in the fight against hospital infection involving a number of disciplines as recommended by various experts for control of spread from contaminations in medical laboratories. [14, 21, 23]

25% of the 28 surfaces surveyed contained five *E. faecalis* and two *E. faecium* isolates. Study contamination of the outpatient clinic environment has been reported in areas caring for patients colonized with this organism. [24]The present study shows clearly that the surfaces, tools and equipment used in medical laboratories contains a large quantity of contaminants, which may be

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

the cause of transmission to Laboratory worker or even visitors who visit the laboratory and the workers themselves may be a source of transmission.

A recent report from England found that infections acquired in laboratories were employees of microbiology laboratories. [25] Environmental contamination has been implicated in patient-to-patient transmission. [26] Colonization of healthy hospital employees has been recently documented. [27] Therefore, our results raise the possibility that transmission to workers or visitors in the clinical microbiology laboratory may occur.

Disinfectants, including isopropyl alcohol, sodium hypochlorite, and phenol and quaternary ammonium compounds were used for disinfecting the contaminated surfaces at the completion of work and after accidental spills. Many study demonstrated that many commonly used disinfectants were all highly effective at removing micro organisms from surfaces when used. [28]

Conclusion

From the present study, the working surfaces in medical laboratory in Reference Laboratory & El Fatah Pediatric Hospital Laboratory, Benghazi are found to be contaminated. The situation need to be considered by the laboratory authority and working staff to protect themselves from this infections and to play role in protecting the people visiting the laboratory for one reason or another . The authority must pay more attention to provide laboratory with all protective equipments and procedure to reduce the risk of spreading microorganism in laboratory environment. Continuing surveillance and educating working persons are lacking.

Recommendations

In Medical laboratory surfaces must be disinfected at the completion of work and after accidental spills in order to minimize the potential acquisition of antimicrobial organisms.

We recommend that disposable lab coats and well-fitting gloves are worn at all times and for all work functions and that these be removed when personnel exit the microbiology laboratory. Additionally, strict daily cleaning must be done, since it will adequately decontaminate the environmental surfaces in the microbiology laboratory.

 Everyone entering the laboratory should use good hand hygiene when leaving so that any transiently acquired organisms are removed from their hands before returning to patient care area. Such measures should be considered as a routine practice for microbiology laboratories that frequently recover pathogens from the clinical specimens that they process.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The doors design should be changed in all medical laboratories with electronically open and non touch device to the doors hand.

There is need for awareness training for the working staff of the laboratories about the potential risks to the staff, the visiting people as well to patients.

References

1.   Centers for Disease Control. 1995. Recommendations of the Hospital Infection Control Practices Advisory Committee (HICPAC). Morb. Mortl. Wkly. Rep. 44(RR12):1–13. (www.cdc.gov/ncidod/hip/NNIS/ar_surv99.pdf)

2.   Peterson, L. R., and G. A. Noskin. 2001. New technology for detecting multidrug-resistant pathogens in the clinical microbiology laboratory. Emerg. Infect.Dis. 7:306–311.

3.   Noskin, G. A., V. Stosor, I. Cooper, and L. R. Peterson. 1995. Recovery ovancomycin resistant enterococci on fingertips and environmental surfacesInfect. Control Hosp. Epidemiol. 16:577–581.

4.   Noskin, G. A., P. Bednarz, T. Suriano, S. Reiner, and L. R. Peterson. 2000. Persistent contamination of fabric-covered furniture by vancomycin-resistanenterococci: implications for upholstery selection in hospitals. Am. J. InfectControl 28:311–313.

5.   Weber, D. J., and W. A. Rutala. 1997. Role of environmental contamination in the transmission of vancomycin-resistant enterococci. Infect. Control Hosp. Epidemiol. 18:306–309.

6.   B. M. Willey, D. E. Low, and A. J. McGeer, 1999 Abstr. 39th Intersci. Conf. Antimicrob. Agents Chemother., abstr. 2106.

7.   S.A.Sallam , M.A.Arafa , A.A.Razek , M.Naga and M.A.Hamid 2005. Device_Related Nosocomial infection in intensive care units of Alexandria university .Students Hospital 2003-2004 La Revwe de sante de la mediterrance orientale , Vol 11,No 1/2.

8.   Gaynes Rp. 1997. Surveillance of nosocomial infections: a fundamental ingredient for quality. Infection control and hospital epidemiology .18 (7):475-8.

9.   Infections nosocomiales: Souci de specialist ou preoccupation de tous? [Nosocomial infection: concern of specialist or preoccupation of all?] 1994. swiss Noso , 1 (1):1 .

10.   Nanivadeker SM. 1997.Nosocomial infection, An epidemiologic and microbiological perspective: guidelines for antibiotic policy, Bombay hospital journal, 39(1):314-9.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطـب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

11.   El-shazly M,Osman H, Shehata S. 1997. Study of mortality in the main university hospital in Alexandria, Bulletin of the High Institute of Public Health, 27 (2): 104-7.

12.   Raja M.Moman, Mohamed R.Al_Saher and Dojana M.Rashid. 2006-07. Evaluation of microbial contamination of repackaged Tablets in Tripoli Hospital, Jamahiriya medical Journal Vol .7 No .4 (winter)

13.   Abdelsalam A.Geilani, Abeir baltomer ,soumeendra shoo 2007. Bacteriologyical study on corneal ulcers in the eye outpatient clinics .Great River Eye Hospital , Benghazi 2007 The Libyan journal of infectious diseases Vol . 1 No .2- July.

14.   T.Grace Emort and Robert p. Gaynes.1993. An overview of Nosocomial Infections, Including the Role of the Microbiology Laboratory. OCT, p. 428-442 Vol.6, No.4.

15.   Heritage, E.G.V.Evans and A.Killington 1996. Introductory Microbiology journal, Cambridge University Press. First Publication, Low price edition.

16.   Identification Methods for Microbiologists.1979. Second edition Edition by F.A.Skinner and D.w Lovelock, Applied Bacteriology

17.   Medical Laboratory Manual for Tropical Countries 1984. Microbiology by Monica cheesbrough. Volume (II).

18.   Elmer W. Koneman, stephe D.Allen Willim M. Janda,   Paul C. schreckenberger. 1997. Washing to Contamination Winn Jr. Diagnostic microbiology, Lippincott-raran publishers.

19.   Collee J.G, J. Duguid,   P.Fraser,   A.G. marmion B.P. 1989. Practical medical microbiology,chuchill Livingstone.

20.   Damani NN. 1997. Manual of infection control procedures .Oxford, Oxford university press.

21.   World Health Organization.2002. Guidelines on prevention and control of hospital associated infection .New Delhi, who regional office for South East Asia.

22.   Zaki SA.1988. Nosocomial infection in Alexandria University Hospital: Control and Preventive Measures .Postgraduate Doctor Middle East, 11 (2):88-96.

23.   Salama OE. 1991 A study of Nosocomial infection in a Saudi Arabia Teaching Hospital. Journal of Hospital Infection.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

24.   Smith, T. L., P. C. Iwen, S. B. Olson, and M. A. Rupp. 1998. Environmental contamination with vancomycin-resistant enterococci in an outpatient setting. Infect. Control Hosp. Epidemiol. 19:151–518.

25.   Walker, D., and D. Campbell. 1999. A survey of infections in United Kingdom14aboratories, 1994–1995. J. Clin. Pathol. 52:415–418.

26.   Livornese, L. L., S. Dias, C. Samuel, B. Romanowski, S. Taylor, P. May, P. Pitsakis, G. Woods, D. Kaye, M. E. Levinson, and C. C. Johnson. 1992. Hospital-acquired infection with vancomycin-resistant *Enterococcus faecium* transmitted by electronic thermometers. Ann. Intern. Med. 117:112–116.

27.   J. Baran, Jr., J. Ramanathan, K. M. Riederer, and R. Khatib. 1999 Abstr. 39th ICAAC, abstr. 1999).

28.   Saurina, G., D. Landman, and J. P. Quale. 1997. Activity of disinfectants against vancomycin-resistant *Enterococcus faecium*. Infect. Control Hosp. Epidemiol. 18:345–347.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table-1 Swab showing Culture positive & negative result in Reference Laboratory and Pediatric Hospital Laboratory

Test	Reference Laboratory		Pediatric Hospital Laboratory		Total	
	No	%	No	%	No	%
positive	54	85,7	15	71,4	69	82,1
Negative	9	14,3	6	28,6	15	17,9
Total	63	100	21	100	84	100

Tables-2 shows presence and burden of contamination in surfaces in Reference laboratory

Samples by section	Growth	Burden of Growth
Immunology laboratory		
* keyboard	+	++
* Centrifuge	+	+++
* The incubator handle	+	++
* The refrigerator handle	+	++
* The door handle	+	+
* Mouse of the Table	+	++
* Head of chair	+	++
* The Table (Bunche)	+	+++
Hematology laboratory		
* Table of CBC	+	+++
* Microscope adjustment knob	+	+
* Centrifuge	+	+++
* The door handle	+	++

مؤتمر البحوث الطبيـة الثانى
كلية الطـب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

* Eye base	+	++
* Mouse on the Table	+	++
* Head of the refrigerator	+	+
* CBC machine	+	++
Parasitology laboratory		
* The door handle	N.G	N.G
* The Table	+	++
* Centrifuge	+	++
* Table of urine	N.G	N.G
* Table of stool	N.G	N.G
* Eye base	+	+
* Microscope adjustment knob	+	++
Coffee		
* The door handle	+	++
* Food Table	+	++
* The racks handles	+	+
* The chair handle	+	++

Tables-2 shows presence and burden of contamination in surfaces in Reference laboratory(Continued)

Samples by section	Growth	Burden of Growth
Biochemistry laboratory.		
* Data machine	+	+++
* Mouse on the Table	+	+++
* keyboard of integer	+	+++
* The chairs handle	+	+++
* Centrifuge	N.G	N.G
* The incubation handle	+	+
* The doors handle	+	+++
* The refrigerator handle	+	++
Microbiology laboratory .		
* The door handle	+	++
* Mouse on the Table	+	++
* The incubator handle	+	+
* The refrigerator handle	+	++

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

* The edge of the Table (Bunche)	N.G	N.G
* Eye base	+	+++
* Cropping Table	+	+
* Microscope adjustment knob	+	+++
Hormones laboratory		
* Head of incubation	+	++
* Mouse on the Table	+	+++
* The door handle	+	+
* The refrigerator handle	+	+
* The Table	+	+++
* Centrifuge	N.G	N.G
* The chair handle	+	+

samples by section	Growth	Burden of Growth
The samples room		
* The door handle	N.G	N.G
* The tap	N.G	N.G
* The Table	+	+
* The banister handle	+	+++
Delivery of samples immunodeficiency		
* The Table	+	++
* Mouse on the Table	+	+
* The door handle	N.G	N.G
* The outer rack	+	+++

Delivery results		
* The Table	+	+
* The door handle	+	+
* The outer rack	+	+++
The store office		
* The door handle	+	++
The outer entry of laboratory		
* The door handle	+	+++

Samples by section	Growth	Burden of Growth
The outer entry		
* The door handle	+	++

No Growth.
+   = < **50.**
++= **50-100.**
+++ =>**100.**

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The laboratory night		
* The door handle	+	++
* The Table of CBC	+	+
Hormones laboratory		
* The door handle	N.G	N.G
* The refrigerator handle	N.G	N.G
Cafeteria		
* The door handle	+	+
* The banister handle	+	+
Microbiology laboratory		
* The door handle	N.G	N.G
* keyboard of B.D machine	+	+
* Microscope adjustment knob	+	+
* Eye base	+	+
* The Bunche (1)	N.G	N.G
* The Bunche (2)	+	+
* The Bunche (3)	+	+
* The Bunche (4)	+	+
* The urine Bunche	+	+
Hematology laboratory		
* The door handle	+	+
* The phone	+	+

Table-3 shows presence and burden of contamination in surfaces in the Pediatric Hospital Laboratory. (Continued)

Samples by section	Growth	Burden of Growth
Biochemistry laboratory		
* The door handle	+	+
* The refrigerator handle	+	+
The rest room		
* The door handle	N.G	N.G

N.G = No Growth.
+ = <50.
++ = 50-100.
+++ = >100.

مؤتمـر البحـوث الطبيـة الثانى
كليـة الطـب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table-4 Comparison of contaminations in various surface in the Pediatric Hospital Laboratory and Reference Laboratory.

Samples by section	The Reference Laboratory		El Fatah Pediatric Hospital Laboratory	
	Growth	Burden of Growth	Growth	Burden of Growth
The outer entry				
The door handle	+	+++	+	++
Biochemistry Laboratory				
The door handle	+	+++	+	+
The refrigerator handle	+	++	+	+
Microbiology Laboratory				
The door handle	+	++	N.G	N.G
Hormones laboratory				
The door handle	+	+	N.G	N.G
The refrigerator handle	+	+	N.G	N.G
Hematology Laboratory				
The door handle	+	++	+	+
Coffee				
The door handle	+	++	+	+

N.G = No Growth.
+ = <50.
++ = 50-100.
+++ = >100.

Table-5 shows the percentage of contamination in surfaces from Pediatric Hospital Laboratory and Reference Laboratory.

The Places	Reference Laboratory			AL-Fatah Pediatric Hospital Laboratory		
	Number of samples	Number of samples (Positive)	%	Number of samples	Number of Samples (Positive)	%
The refrigerator handle	5	5	100	2	1	50
Mouse	6	6	100	/	/	/
Incubator	4	4	100	/	/	/
The chair handle	4	4	100	/	/	/
The Table	6	6	100	/	/	/
Eye base	3	3	100	1	1	100
Keyboard	2	2	100	1	1	100
Machine	2	2	100	/	/	/
The racks	3	3	100	/	/	/
Microscope adjustment knob	3	3	100	1	1	100
The banister handle	1	1	100	1	1	100
The phone	/	/	/	1	1	100
The door handle	12	9	75	8	4	50
Centrifuge	5	3	60	/	/	/
The Bunches	6	3	50	6	5	83.3

مؤتمر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table-6. Various microbes identified from the surfaces in Reference Laboratory.

Place that sample take	Gram Stain	Specie	Probability Expected	Confirmations test
The door handle in micro Laboratory	+	Diplococcic	N.A	N.A
Microscope lenses in Proctology Laboratory	−	Bacilli	Acinobacer	N.A
The refrigerator handle in Biochemistry Laboratory	−	Bacilli	N.A	N.A
The refrigerator handle in Hematology Laboratory	+	cocci	Micrococcus	N.A
Outer racks -Delivery results	+	cocci	*Staph albus*	*Staph albus*
Outer racks -Delivery of samples immunodeficiency	+	Diplococcic	N.A	N.A
Banister handle in The samples room	+	Diplococcic	N.A	N.A

N.A = Not Available.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table-7. Various microbes identified from the surfaces in Pediatric Hospital Laboratory)

Place that sample take	Gram Stain	Species	Probability Expected	Confirmations test
The door handle in Micro Laboratory	+	cocci	*Staph albus*	*Staph albus*
Urine Bunches microbiology Laboratory	-	Bacilli	N.A	*Escherichia coli*

N.A = Not Available.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Work related Hazards among X-rays Workers

Benghazi Hospitals

Omar Sudani Jiehan Elbusaifi M EL-Feituri Kasm Elaani   Miulod Elamari, Salah Mursi
Al- arab Medical Science University-Faculty of Public Health-Department of Occupational Health-Benghazi-Libya

Introduction

Work environment influences health of workforce; its negative aspects are aggravated in occupations with direct exposure to radiations [1]. Work environment of radiation workers (especially radiographers) impact upon health of professionals. And thereby it is imperative to attend on occupational health and safety in radiographic units [2]. Protection of workers and promotion of their health in line with increasing productivity requires safety and security in the work place in addition to hygienic standards. Identification of adverse effects of workplace on individuals and modification of working conditions shall protect work force thereby enabling increased productivity [3].

X-ray technicians and professionals are at risk of greater radiation exposures especially due to their intimate contact and exposures. Conditions like radiation dose, radiation shielding design, personal protection practices etc., are of importance in ensuring occupational health to these workers. Radiation dose measures the energy deposited in a medium by ionizing radiation [4]. Radiation shielding design depend on the type of equipment used and beam direction, X-ray energy, control room location and some other things like total mAs used which indicates the total X-ray dose administered. Personal protection practices uses to measure radiation dose exposure. These components affect not only the radiation workers, patients, visitors and also those in proximity to the radiation setting. Effect of radiation to workers decreases by using Cardinal principle (time, distance, and shielding). Effect of radiation to neighboring people decreases by using wall and floor lead shielding [5].

It is in this context of increase importance of environmental and occupational health issues pertaining to radiation setup, this study is carried out. The aim of this study is to evaluate environmental and occupational conditions of X-ray workers attached to various hospitals in Benghazi city.

Material and method

The study design was cross-sectional study on X-ray departments in Benghazi city. The study conducted during working time, considering observing the working environment of the X-ray department. For the purpose of the present study a checking list was prepared to make a valid observation about the environmental and occupational factors that may play a role in exposing

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

the radiology staff as well as the patients and visitors to the department in the hospitals. Data collected was analyzed qualitatively to general conclusion.

Results

In hospital study, the type of equipment used in hospital as in (Fig.1). Majority equipment used was normal X-ray.
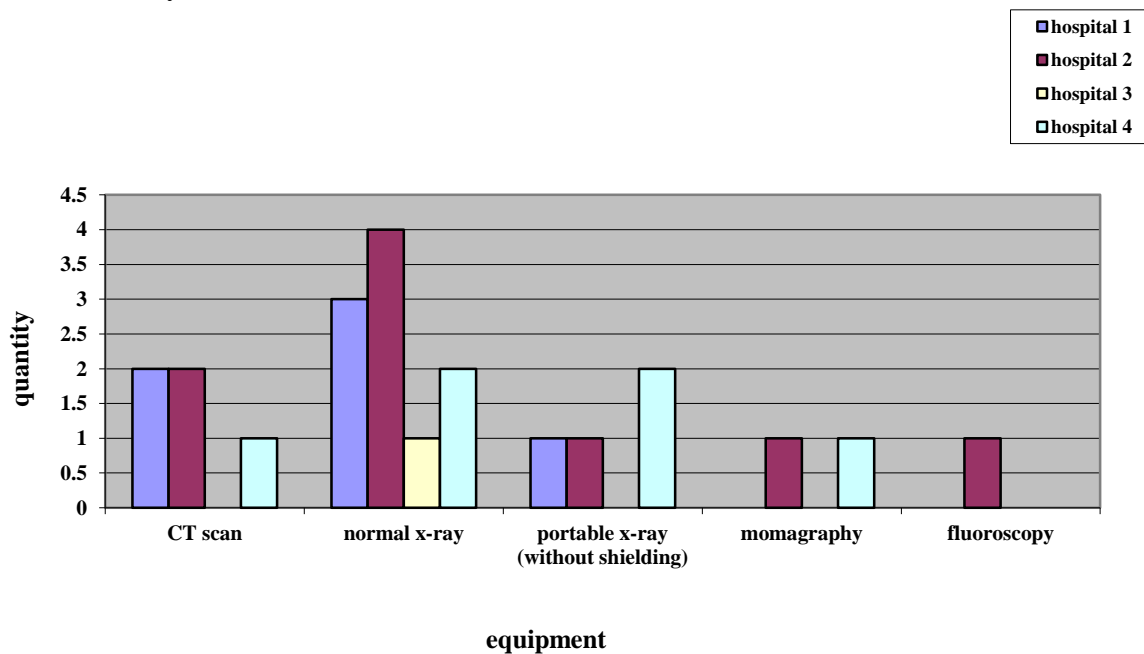
equipment

Fig. 1 Type of equipment used

Concerning the types of protective shield devices used, approximately 50% used lead shielding in hospital 2, and all workers in hospital study did not used dosimeter device (Figure 2).

مؤتمر البحوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس
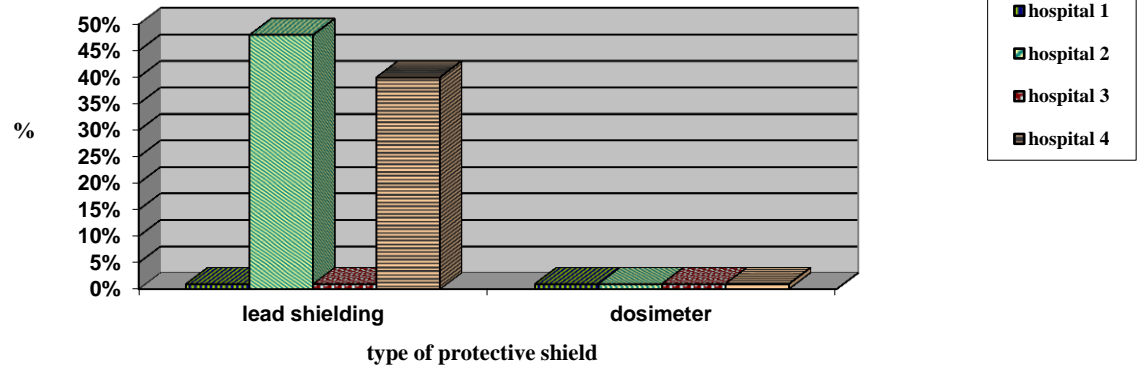
Fig. 2 The use of personal protective shield by the technicians

19.2% female workers, 81.8% male workers had divided into 6 room in hospital 2, approximately (560-600) patients are daily examined, the result showed no workload to workers in hospital study, Table 1.

Table 1 Distribution of number of workers, patients and X ray rooms in hospitals study

Hospitals	Workers				No. patients/day	No. X-ray rooms
	Male		Female			
	No.	%	No.	%		
1	13	59.1	9	40.9	170	5
2	54	81.8	12	19.2	560	6
3	6	50	6	50	40	2
4	9	56.3	7	43.7	50	3
Total	82	70.7	34	29.3	820	16

In the questionnaire, workers were asked to indicate the patients observing that they experienced observe through lead glass in most hospitals, (Fig. 3).

methode of obseve the examination
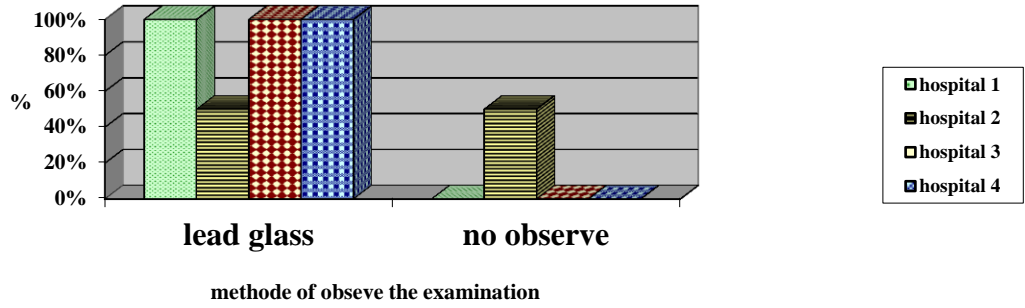
Fig. 3 Method used by technicians to observe the patient during the examination

Concerning the area of X-ray rooms, (50%) were than $2m^2$; also (50%) were equal or more $2m^2$, (Fig.4) .
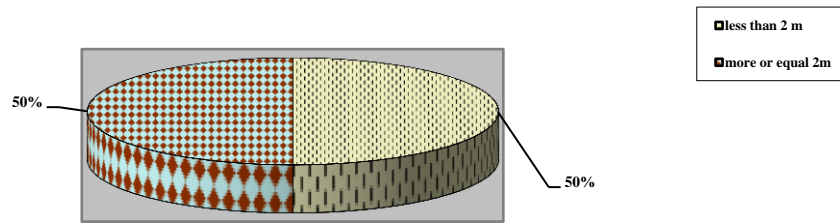
Fig. 4 Area of X-ray rooms

(75%)of administration and rest rooms had existed in x-ray areas, (Figure5).
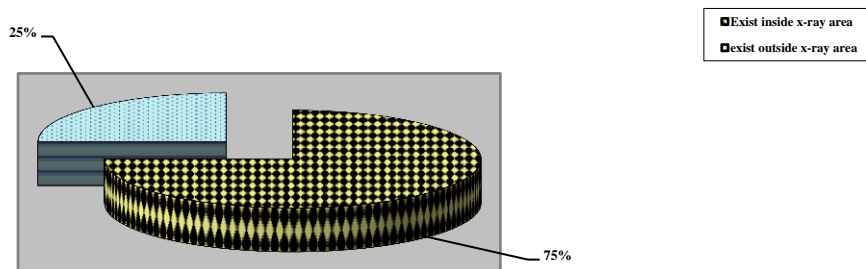
Fig. 5 Administration and rest room

In hospitals study, (50%) had applied wall environmental standards in X-ray rooms, (Fig. 6).

Discussion

According to the Recommendations of the International Commission on Radiological Protection, the medical surveillance of workers exposed to radiation should be based on the general

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع

جامعة طرابلس

principles of occupational medicine, which aim "to assess the workers' health, to help in ensuring initial and continuing compatibility between the health of the workers and the conditions of their work; and to provide a baseline of information useful in the case of accidental exposure or occupational disease [6]. The medical surveillance programmed should be related to the job nature and the health conditions required of the worker for the effective performance of the task. The occupational physician should be familiar with the work process and the job requirement of the radiation worker, and the hazards of the workplace [7]. In hospitals study the measurement of radiation exposure for workers did not recorded, because all workers have no protective equipment. Medical examinations of workers did not done. No warning sign of radiation in radiation place. Some constructions of x-ray rooms had not designed as shielding from radiation exposure for workers and people in the surroundings area.

Conclusion

During the study concluded that the ionizing radiation workers protection (X-Ray workers) and the medical management of exposure are complex. A good occupational health programmed for radiation workers should include medical surveillance, personal dosimeter monitoring, accident investigation, and medical intervention where necessary. This requires a coordinated approach by the safety professional, the health physicist, the occupational physician and other health workers, and the radiation workers themselves.

References

1. Richard J. Burk, OCCUPATIONAL RADIATION-SAFETY STANDARDS AND REGULATIONS ARE SOUND, Health Physics Society, 2000, http://www.hps.org

2. International Labor Office(ILO), Radiation protection of workers (ionizing radiations) Geneva 1987, (ISBN 92-2-205996-4).

3. Elizabeth Carey, manual Environment, Health and Safety University of North Carolina at Chapel Hill, 1999, http:// www.ehs.unc.edu.

4. University of South Florida, Research X-ray Safety Manual, Division of Research Compliance, Radiation Safety Office, 2003.

5. University of Cincinnati, Radiation Protection Procedures Manual (Authorized User Manual), 1996.

6. Cember, H., Introduction to Health Physics, 3d ed, McGraw-Hill, New York, 1996.

7. Recommendations of the International Commission on Radiological Protection. ICRP publication No. 26. Annals of the ICRP (Oxford), 1977:1-54.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

An Integrated Approach To Health Promotion

Mailud.El-Amari,M.Faituri, faculty of public health,

Benghazi university.

Abstract:

Health education and promotion became the main part of health care of patients in any community, however, it integrate factors: the environment, social, organisational and individual. Which we believe it effect the success of any program aiming to make improvement in the over al state of health.

Introduction

This paper describes four levels of health promotion: environmental, social, organisational and individual, all of which have to be understood and integrated for successful health promotion interventions programmes (See Figure 1). Many health promotion activities are only partially successful because they do not genuinely take account of the need for integration. This is a pity because great store has been placed on the potential of health promotion. It has been identified as important by organisations as diverse as the World Health Organisation (WHO) [1] the British Government [2],   However, without the integration proposed in this

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

paper health promotion may become merely empty,   and everyone is likely to be disappointed.

A closer examination of the many definitions of health promotion reveals not only a good deal of variation in the way the term is used [3], but also much internal inconsistency and political and ideological hostility.[4] For example, for the WHO health promotion means the processes of enabling people to take control of and improve their health;[5, 6] for HM Government it seems to mean running a variety of services, especially health checks in primary care with a strong emphasis on individual responsibility;[2]   while for the Society of Health Education and Promotion Specialists (SHEPS), health promotion means everything that they did previously as health educators plus other activities including community development and advocacy with a high political profile [7].

With some success, Some attempted, to bring conceptual clarity to this profusion of activities, as ideas and principles [8, 9], but the linkages to the scientific community, and to policy makers, planners and indeed the recipients of all this activity remain problem.[10,] Over the years health educators have developed and described a range of models and approaches which deal with many of the concerns of this paper (see Beattie, 1991 for a review [11]). For example, the work of Tones and his colleagues[15] describes three categories of individual and social health education, and other authors have argued for integration.[3] We suggest that for theoretical and practical the integration to be achieved, an account must be to the relationships between the individual, organisational, social and environmental.

مؤتمر البحـوث الطبيـة الثانى
كلية الطـب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference

مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

These four levels of health promotion we my say that it is :-
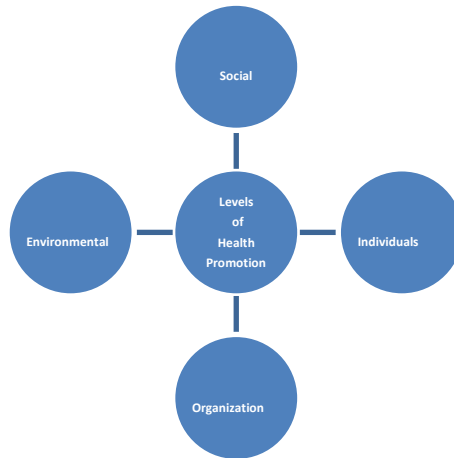
Figure 1 The suggested four levels of health promotion

Environmental

Physical environments may be pleasant , or dangerous, or any combination.[5, 13] Physical environments affect the total organism at the microbiological level: [14] they also affect the organism at the level of the macro-environment including things as homes, transport systems, working conditions.[15] Physical manipulation of the environment may be health promoting, health protecting or health damaging. The environment therefore cannot be ignored in a health promoting intervention. At least the environment provides the ecological background within which other types of intervention occur. [16]

To accompany this environmental aspect of health promotion is an important multidisciplinary conceptual base to which autonomous scientific disciplines contribute, each in their own way. The environmental concern operates at several levels: cellular, organ system, and the whole person level, as well as at the group and species level. Therefore disciplines such as biology, physiology, anthropology, the environmental sciences and ecology have an important theoretical and practical role. Concepts such as system maintenance, and equilibrium, are among the theoretical models which allow explanation and prediction in this area.

Social

The second interesting level of health promotion is at the level of social structure - patterns of group behaviour. Analysis of social structure can draw on such disciplines as sociology, political and economy. Interventions at this level might include a number of methods for altering group behaviour such as education, advertising and propaganda, community development projects, pressure group techniques such as demonstrations and media events, changes in legislation and law enforcement.

The relationship between group behaviour and individual behaviour is a frequent source of confusion. Social structures do not determine individual behaviour, neither are they simply the aggregate of numerous individual decisions. Rather the relationship between the individual and Society is interdependent and mutual.[17] This is because social structures flow from the knowledge; ideas and rules which, on the one hand, the individual derives from

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

their understanding of society, while on the other hand these choices themselves are Constitute of the nature of society.

The dynamic and complex nature of social structures contributes to the fact that they are extremely difficult to manipulate: deliberate attempts to plan society are burdened with the problem of unintended consequences.[18] This has frequently been seen in relation to health, so that advertising campaigns aimed at reducing narcotic drug use actually seem to stimulate curiosity about it, educational programmes to provide information on the risks of smoking are strikingly ineffective, and laws to prevent.

The uncertainties of social planning are, to some extent, unavoidable, being the necessary adaptation of general principles to specific local circumstances. Health promotion should proceed in an similar fashion. The integrated model can allow us to see the individual's experience of and within social structures which guides conduct [19] . If scientific descriptions or government interventions fail to take account of this and to integrate across the Levels identified in this paper, they may be ineffective, on group behaviour.

Organisations

The third level of potential intervention and analysis is that of organisation. organisations defined with reference to their structures, their operation and their decision-making mechanisms. [20]

At a conceptual level the idea of organisation is easy to grasp, in so far as institutions such as factories, hospitals or health centres have physical boundaries. But organisations are not simply the buildings which house them or

the fences that surround them. An organisation is a set of relationships between people, patterned according to rules, procedures and example. These rules define the nature of the hierarchical and authoritative relationships between individuals. The organisation is also a set of relationships of an informal kind. Human beings talk to and interact with each other in ways which are not simply a product of the official institutional mission or relationships. Finally, relationships (formal and informal) exist with persons or agents external to the organisation—clients, consumers or users. These relationships and people's understandings of them constitute the social structures of organisations. Some organisations have, as an precise function, the delivery of health promotion as such. An example of an precise function would be a Community Health Department or a Health Education & Promotion Department. But there are other types of organisations such as schools, hospitals and health centres where the main function is not the delivery of health promotion or health education, but where there may be a commitment to the provision of such services as part of a broader set of organisational goals. [21]

All organisations, however, have a health promoting role via their own internal organization. Organisations are the interface between the social level and the individual level.

They are the settings in which people experience and define the world in which they live. People's knowledge and understanding of the social structure tends to be mediated through organisations.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Individual behaviour

Human behaviour and its understanding are not simply matters of common sense to be understood purely by sixth sense — there are scientific tools to hand. It is not useful to regard human response as absolutely individual, or as identical in everyone. Psychological models follow a middle course. In particular psychological models are on the well-founded empirical observation that subject to socio-Structural constraints, individual behaviour is partly predictable and that the force for human action comes from within the individual.

A number of psychological theories have found widespread acceptance in certain types of health promotion,[22] for example, contains several ideas about the way individuals either believe themselves to be 'in control, to be controlled by others, or see life principally as a matter of luck, chance or fate. If the intention from the health promotion viewpoint is to help people to stop smoking it makes a great deal of sense to approach both the health education and any accompanying skills differently, as to whether the targeted individuals are internally or externally oriented, or whether they view life fatalistically. The same convincing strategy is unlikely to work for the three kinds of people. A different approach, the health belief model,[23] has been applied to a number of situations where preventive action is required, and within which assessment and attribution of risk is important. These and other models of human behaviour [24] provide individually targeted interventions a degree of precision following from the predictability which allows rational measures, and the possibility of evaluation. However, psychology alone, even with its sophisticated models of individual behaviour, cannot be the basis of health promotion. The psychological dynamics of

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

individuals have to be integrated with the mentioned levels of health promotion identified in this paper.

Conclusion

The idea of integrated approach of health promotion is neither original nor new [25] and indeed it may seem self-evidently true that environment, social structure, organisations and behaviour all interlock together in the way health care is provided—as indeed these elements interlock together in all ways of life. However, it is rarely the case that when a health promotion initiative is introduced it openly tackles all four levels in an integrated way. What tends to happen is that a particular intervention is partial, being based Principally at one level. The example, health check campaigns which are frequently locked firmly into the organisational level. They usually provide a check, advice, leaflets and a cholesterol measure or other similar information. However, interventions only at an organisational level fail to address the environment in which health-damaging products such as cigarettes are located and easily available. They also ignore the social structure which limits opportunities, creates 'needs' to smoke, and socializes young people into 'the acceptability and desirability of smoking. They overlook the behavioural mechanisms and skills which would be required by young people to extricate themselves from social situations where risky behaviour might be encouraged.

By contrast, we would advocate a style of health promotion which is on one hand more focused with regard to objectively valuable interventions but which adopted a more comprehensive and multilevel strategy for ensuring that these

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع

جامعة طرابلس

interventions were effective in terms of health outcome.

Of course it would be quite wrong to suggest that health education and health promotion specialists and others are unaware of the limitations and prejudice of what they do. And frequently they are not to blame.

Health promotion receives a relatively small amount of the health budget, and policies are typically delivered from higher political levels, going through fashions in ways that pay little or no attention to it. Funding and resources may seem inadequate for the multilevel approach we advocate but, without such an integrated, all-through model, successful intervention is compromised. A critical mass is necessary. If efforts and resources are spread too small they will simply be wasted. While we recognise the complexity of health promotion, we do not offer a negative agenda. Instead we make appeal that from the outset of any health promotion project—before planning begins, before evaluation is considered, before effort is devoted to develop appropriate indicators the four levels of environment, social structure, organisation and individual are used as a check list to consider the likely consequences flowing from the desired intervention.

References

1.   WHO (1986). The Ottawa Charter for Health Promotion: An International Conference on Health Promotion: The Move Towards a New Public Health. Ottawa, Ontario: Health and Welfare.

2.   HM Government (1987). Promoting Better Health: The Government's Programme for Improving Primary Care. London: HMSO.

3.   Green, L. W. & Raeburn, J. M. (1988). Health Promotion: What is it? What will it become? Health Promotion, 3, 151—159.

4.   Kelly, M. P. (1990). The World Health Organisation's definition of health promotion: three problems. Health Bulletin, 48, 176—180.

5. KickbuSch, I. (1987). Issues in health promotion. Health Promotion, 1, 437—442.

6. Nutbeam, D. (1986). Health Promotion: Concepts and Principles in Action: A Policy Framework. Discussion Document. WHO: Regional Office for Europe.

7. society of Health Education and Health Promotion Officers (1990). Extended Policy and Planning Meeting. Birmingham: Aston Business School.

8. Tannahill, A. (1985). What is Health Promotion? Health Education Journal, 44, 167—168.

9. Downie, R., Fyfe, C. & Tannahill, A. (1989). Health Promotion. Oxford: Oxford University Press.

10. Kelly, M. (1989). Some problems in health promotion research. Health Promotion, 4, 317—330.

11. Beattie, A. (1991). Knowledge and control in health promotion: a test case for social policy and social theory. In: Gabe, J., Calnan, M. & Bury, M., The Sociology of the Health Service. London: Routledge.

12. Tones, K., Tilford, S. & Robinson, Y. (1990). Health Education: Effectiveness and Efficiency. London: Chapman and Hall.

13. Seyle, H. (1985). History and present status of the stress concept. In:

مؤتمر البحـوث الطبيـة الثانى
كلية الطـب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Monat, A. & Lazarus, R., Stress and Coping. New York: Columbia University Press.

14. Levine, A. J. (1992). Viruses. New York: Scientific American Library.

15. Martin, C. J., Platt, S. & Hunt, S. M. (1987). Housing conditions and ill health. British Medical Journal , 294, 1125—1127.

16. McKeown, 1. (1976). The Role of Medicine: Dream, Mirage, Nemesis? London: Nuffield Provincial Hospitals Trust.

17.Giddens, A. (1982). Hermeneutics and social theory. In: Giddens, A., Profiles and Critiques in Social Theory. London: Macmillan.

18.Oakshott, M. (1962). Rationalism in Politics and other Essays. London: Methuen.

19.Schutz, A. (1953). Common sense and scientific interpretation of human action. Philosophy and Phenomenological Research, 14, 1—37.

20.Child, J. (1984). Organisation: A Guide to Problems and Practice, 2nd Edition. London: Harper and Row.

21.Health authority, 2001.   Annual report of the health services, health education and promotion section, Benghazi, Health Authority.

22.Wallston, B. 5. & Wallston, K. A. (1978). Locus of control and health: a review of the literature. Health Education Monographs, 6, 107—117.

23.Becker, M. H. (1979). Psychosocial aspects of health related behaviour. In: Freeman, H., Levine, S. & Reader, L., Handbook of Medical Sociology, 3rd Edition. Englewood Cliffs, NJ: Prentice Hail.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

24.   Ward, W. B. & Lewis, F. M. (1991). Adapting health education and promotion programming to social health issues: an introduction to Volume III. In: Ward, W. B. Lewis, F. M. (eds), Advances in Health Education and Promotion: A Research Annual, Vol. 3. London: Jessica Kingsley.

25.   Green, L. W. (1984). Health education models. In: Matarazzo, J. (ed.), Behavioral Health: A Handbook of Health Enhancement and Disease Prevention. New York: Wiley.

Echinacea purpurea promotes maturation of dendritic cells in vitro[1]

Muftah El-Feituri[2-3] , Diethelm Wallwiener[1], Brigitte Gückel[1], , Simone Kayser[1], , Mailud El-Amari[3],and Hinnak Northoff[2]

Affiliation

[2]Department of Transfusion Medicine, University of Tübingen, Germany

[3]Faculty of Public Health, Al-Arab Medical University

Correspondence.

Dr. rer. nat. Muftah El-Feituri[2], E-mail muftahelFeituri[2]@gmail.com

Phone: 00218 914203931-00218927591335

Abstract

In this study, we analysed the effect of *Echinacea purpurea* on the maturation of monocyte derived dendritic cells (mDC) of healthy human donors. *Echinacea p.* was either used as a single maturation stimulus or in addition to various concentrations of IL-1β, TNF-α, and IL-6. Used as a single stimulus, *Echinacea p.* induced an upregulation of DC markers such as CD83 and CD80 as well as the expression of the chemokine receptor CCR7. Furthermore, in combination with IL-1β, TNF-α, and IL-6 *Echinacea p.* showed a clear additive effect on DC maturation. This was accompanied by an increase in PGE2 in supernatants of mDC cultures. Our study implies that *Echinacea p.* is able to trigger mDC to enhance their antigen presenting functions and migration capacity which could result in a more efficient activation of resting T-cells in the lymphoid compartment.

Keywords

Echinacea Purpurea, dendritic cells, proinflammatory cytokines, prostaglandin E2, chemokine receptor 7, antigen presentation

Abbreviations

CCR-7: Chemokinereceptor 7

CD: Cluster of differentiation

CCL-19: Chemokineligand 19

CCL-21. Chemokine ligand 21

Echniacea p.: Echinacea purpurea

FITC: Fluorescein-isothyocyanate

GM-CSF: Granular macrophage colony-stimulator factor

IL: Interleukine

mDC: Mature dendritic cells

PBMC: Peripheral blood mononuclear cells

PE: Phycoerythrin

PGE2: Prostaglandin E2

TNF-α

Introduction

Echinacea purpurea L., Asteraceae, is a widely used herbal medicine to treat respiratory tract infections based on its immunostimulating properties. Although several clinical studies claim health benefits in the therapy of common cold its effectiveness has not been proven beyond a reasonable doubt [1-3]. However, pharmacological effects of *Echinacea p.* on effector cells of the immune system – in particular activation of macrophages and natural killer cells - have been demonstrated convincingly [4-7]. Several studies have shown that upon contact with *Echinacea p.* macrophages release proinflammatory cytokines [5,8].

DC play a key role in the initiation of adaptive immune responses. Depending on their maturation stage they can prime immune responses or have the ability to induce tolerance [9]. While immature DC are efficient in capturing and proccessing antigens, only mature DC are able to prime naïve T-cells after antigen presentation. DC maturation can be induced by so called "danger signals" such as bacterial and viral products, heat shock proteins, as well as by proinflammatory cytokines. Mature DC are mainly characterised by the expression of CD83 and an upregulation of several costimulatory molecules [10,11]. Together with PGE2 the chemokine receptor CCR7 is neccessary for DC migration from the sites of infection to secondary lymphoid organs guided by its ligands CCL19 and CCL21 [12,13]. Recently it was shown that CCL19 and CCL21 further have an anti-apoptotic effect on DC via binding to CCR7. [14].

In our study, we analysed the influence of *Echinacea p.* on immature DC with regard to activating effects on this cell population. In this context we focused our investigation on the expression of "maturing molecules" like CD83 and CCR7 as well as on the secretion of PGE2.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Material and Methods

Echinacea purpurea

The *Echinacea purpurea* preparation used was a pressed juice from *Echinacea p.* (1.7 - 2.5:1, kindly provided by MADAUS AG, Cologne, Germany), conserved with ethanol (18%), freezed-dried and reconstituted in endotoxin-free X-Vivo-medium (Biowhittaker, Verviers, Belgum) to make final concentrations as indicated.

The endotoxin concentration, as determined by *Limulus* assay (Pyrochrom; Haemochrom, Essen, Germany) was <21pg endotoxin / mg *Echinacea p.*

Dendritic cells

mDC were cultured in X-Vivo-15 medium supplemented with 2 mM L-Glutamine (Life Technologies, Paisley, UK), 100 µg/ml Streptomycin, 100 U/ml Penicillin (Biochrom, Berlin, Germany) and 1% of autologous plasma or pooled AB-serum (ccPro, Neustadt, Germany) ("mDC-medium"). Immature mDC were generated from peripheral blood mononuclear cells (PBMC) of healthy donors enriched by plastic-adherence and cultured in mDC-medium supplemented with 1000 U/ml IL-4 (R&D-Systems, Wiesbaden, Germany) and 100 ng/ml GM-CSF (Immunex, Seattle, USA). At day 7 nonadherent immature mDC were collected and cultured for additional 48 h in mDC-medium containing IL-4 and GM-CSF further supplemented with or without a standard cytokine-cocktail ("cyt.-cocktail") consisting of of IL-1β (8 ng/ml) (R&D-Systems), TNF-α (8 ng/ml) (PAN Biotech, Aidenbach, Germany) and IL-6 (8 ng/ml) (R&D-Systems) or 1:20 dilutions of the standard cytokine-cocktail. Where indicated, Echinacea (1.8 mg/ml) or PGE2 (833 ng/ml) (Pharmacia & Upjohn, Erlangen, Germany) was added.

Flow cytometry

Phenotypisation of nonadherent mDC was performed using the following monoclonal antibodies by flourescence activated cell sorting (FACS): IgG_1-FITC, IgG_{2a}-FITC, IgG_1-PE, IgG_{2a}-PE as isotype controls, CD14-FITC, CD80-PE (all from BD Bioscience, Heidelberg, Germany,) CD86-FITC, CD54-FITC (both from Diaclone, Besancon, France), CD83-PE, (Coulter Immunotech, Marseille, France), CCR7-PE (R&D-Systems). Cells were analyzed using a FACS Calibur and Cell Quest software from BD Biosystems.

PGE2-ELISA

Secretion of PGE2 was determined by ELISA in culture supernatants (SN) of mDC according to manufacturer's instructions (R&D-Systems).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Results and Discussion

Immature mDC of five healthy donors were cultured with or without the addition of 1.8 mg/ml *Echinacea p.* This concentration has been demonstrated before to enhance pathogen-stimulus dependent cytokine production in leucocytes (own unpublished data). FACS staining revealed an increase of a CD83+ and a CD80/86+ cell population in *Echinacea p.* treated mDC cultures compared to non stimulated control mDC (Fig. 1). Interestingly, *Echinacea p.* also induced the expression of the anti-apoptotic and migratory marker CCR7. These results indicate the differentiation of a distinct mature mDC fraction by using *Echinacea p.* as a single activating stimulus.

To investigate additive effects on cytokine-matured DC, *Echinacea p.* was added to immature DC from four different donors together with the cytokines IL-1β, IL-6, and TNF-α. Addition of *Echinacea p.* provoked a more pronounced upregulation of CCR7$^+$ cells in all cases tested. CD83 and CD80/86 expressions could be enhanced by *Echinacea p.* in mDC of donors 1 and 2. In these cultures DC maturation with cytokines alone was not as complete as achieved for donors 3 and 4 (Figure 2A). The most dominant effect of *Echinacea p*. on CD83 and CD80/86 expression was observed for donor 2, who showed a suboptimal mDC maturation using the standard cytokine-cocktail alone.

As PGE2 is a key factor for CCR7 expression of mDC matured with proinflammatory cytokines, its exogenous addition is neccessary to obtain functional mDC *in vitro* [15]. We asked, whether the effects of Echinacea treatment could mimic PGE2-induced CCR7 expression. Our data demonstrate that using *Echinacea p.* for DC maturation resulted in a similar proportion of CCR7$^+$ cells as compared to PGE2 treatment (Figure 2B).

Recent studies showed that besides CCR7 expression, PGE2 itself is neccessary to control DC migration by fascilitating CCR7 dependent signal transduction [16,17]. We quantified PGE2 secretion in mDC and found a significant upregulation of PGE2 in the presence of *Echinacea p.* in cytokine-cocktail matured mDC (Figure 2A). These PGE2 concentrations (2-6 ng/ml) appear to be low, however, Scandella et al. [17] demonstrated that concentrations about 15 ng/ml PGE2 can significantly enhance CCL19- and CCL21-mediated migration of mDC. Zeller-Rieser et al. [15] demonstrated that the PGE2-synthesis of mDC is suppressed by IL-4 *in vitro.* Indeed, in the presence of IL-4, which is always present in our DC-cultures we found no PGE2-secretion - neither in immature mDC nor after maturation by the cytokine-cocktail – however addition of Echinacea resulted in PGE2 induction in non-cytokine-cocktail as well as in cytokine-cocktail matured DC (data not shown and Figure. 2A). In accordance with this observation, IL-12p40 secretion - known to be induced by PGE2 – [18] was amplified up to 3-fold in the presence of *Echinacea p.* (data not shown).

We further asked wether *Echinacea p.* could overcome suboptimal DC maturation due to lower cytokine concentrations. In our study suboptimal DC culture conditions (1:20 dilution of standard cytokine concentrations) resulted in an upregulation of CD83 and CD80/86 if *Echinacea p.* was added. This effect was more pronounced than the additive effect under standard cytokine conditions. Furthermore the addition of *Echinacea p.* to DC matured with diluted cytokines induced a CCR7 expression as high as under standard cytokine-concentrations (Figure 2C).

As DC play a master role in the initiation of adaptive immune responses, we were able to propose a way in which *Echinacea p.* could link innate and adaptive immune responses. Considering health benefits on respiratory infections it can be assumed that *Echinacea p.* enforces antigen presentation by enhancing DC maturation and migration. Echinacea contains numerous chemical consituents. Although arabinogalactan was demonstrated to induce IL-1β and TNF-α-secretion in macrophages [4], there is still no consensus on exactly which component is the most active immunomodulator as well as on the optimal route of administration (oral vs. parenteral). Future studies should tend to detailed analysis of the single components of *Echinacea p.* as well as to functional characterisations of Echinacea-matured DC *in vitro*

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

and *in vivo*. Last but not least as *Echinacea p.* is a save and well-tolerated compound, [19,20] it seems worth to verify its potential as an adjuvant for dendritic cell based immunotherapies.

Literature

Hoheisel M.D, Sandberg M., Bertram S., Bulitta M., Schaefer M.D. Echinagard treatment shortens the course of the common cold: a double-blind, placebo-contolled clinical trial. European J of clin res 1997; 9:261-268.

Schulten B., Bulitta M., Ballering-Bruehl B., Koester U., Schaefer M. Efficiacy of Echinacea purpurea in Patients with a common cold. Arzneim-Forsch 2001; 51:563-568.

Barrett B. Medicinal properties of Echinacea: a critical review. Phytomedicine 2003;10:66-86.

Luettig B., Steinmuller C., Gifford G.E., Wagner H., Lohmann-Matthes M.L.. Macrophage activation by the polysaccharide arabinogalactan isolated from plant cell cultures of Echinacea purpurea. J Natl Cancer Inst 1989; 81:669-75.

Burger R.A., Torres A.R., Warren R.P., Caldwell V.D., Hughes B.G. Echinacea-induced cytokine production by human macrophages. Int J Immunopharmacol 1997; 19:371-9.

See D.M., Broumand N., Sahl L., Tilles J.G. In vitro effects of echinacea and ginseng on natural killer and antibody-dependent cell cytotoxicity in healthy subjects and chronic fatigue syndrome or acquired immunodeficiency syndrome patients. Immunopharmacology 1997; 35:229-35.

Gan X.H., Zhang L., Heber D., Bonavida B. Mechanism of activation of human peripheral blood NK cells at the single cell level by Echinacea water soluble extracts: recruitment of lymphocyte-target conjugates and killer cells and activation of programming for lysis. Int Immunopharmacol 2003; 3:811-24.

Rininger J.A., Kickner S., Chigurupati P., McLean A., Franck Z. Immunopharmacological activity of Echinacea preparations following simulated digestion on murine macrophages and human peripheral blood mononuclear cells. J Leukoc Biol 2000; 68:503-10.

Lutz M.B., Schuler G. Immature, semi-mature and fully mature dendritic cells: which signals induce tolerance or immunity? Trends Immuno l 2002; 23:445-9.

Guermonprez P., Valladeau J., Zitvogel L., Thery C., Amigorena S. Antigen presentation and T cell stimulation by dendritic cells. Annu Rev Immunol 2002; 20:621-67.

Banchereau J., Paczesny S., Blanco P., Bennett L., Pascual V., Fay J., Palucka A.K. Dendritic cells: controllers of the immune system and a new promise for immunotherapy. Ann N Y Acad Sci 2003; 987:180-7.

Scandella E., Men Y., Gillessen S., Forster R., Groettrup M. Prostaglandin E2 is a key factor for CCR7 surface expression and migration of monocyte-derived dendritic cells. Blood 2002; 100:1354-61.

Martin-Fontecha A., Sebastiani S., Hopken U.E., Uguccioni M., Lipp M., Lanzavecchia A., Sallusto F. Regulation of dendritic cell migration to the draining lymph node: impact on T lymphocyte traffic and priming. J Exp Med 2003; 198:615-21.

Sanchez-Sanchez N., Riol-Blanco L., De La Rosa G., Puig-Kroger A., Garcia-Bordas J., Martin D., Longo N., Cuadrado A., Cabanas C., Corbi A.L., Sanchez-Mateos P., Rodriguez-Fernandez J.L. Chemokine Receptor CCR7 Induces Intracellular signaling that Inhibits Apoptosis of Mature Dendritic Cells. Blood 2004; 104:619-25.

Zelle-Rieser C., Ramoner R., Artner-Dworzak E., Casari A., Bartsch G., Thurnher M.. Human monocyte-derived dendritic cells are deficient in prostaglandin E2 production. FEBS Lett 2002; 511:123-6.

Luft T., Jefford M., Luetjens P., Toy T., Hochrein H., Masterman K.A., Maliszewski C., Shortman K., Cebon J., Maraskovsky E. Functionally distinct dendritic cell (DC) populations induced by physiologic stimuli: prostaglandin E(2) regulates the migratory capacity of specific DC subsets. Blood 2002; 100:1362-72.

Scandella E., Men Y., Legler D.F., Gillessen S., Prikler .L, Ludewig B., Groettrup M. CCL19/CCL21-triggered signal transduction and migration of dendritic cells requires prostaglandin E2. Blood 2004; 103:1595-601.

Kalinski P., Vieira P.L., Schuitemaker J.H., de Jong E.C., Kapsenberg M.L. Prostaglandin E(2) is a selective inducer of interleukin-12 p40 (IL-12p40) production and an inhibitor of bioactive IL-12p70 heterodimer. Blood 2001; 97:3466-9.

Giles J.T., Palat C.T. 3rd, Chien S.H., Chang Z.G., Kennedy D.T. Evaluation of echinacea for treatment of the common cold. Pharmacotherapy 2000; 20:690-7

Izzo A.A., Ernst E.. Interactions between herbal medicines and prescribed drugs: a systematic review. Drugs 2001; 61:2163-75.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

جامعة طرابلس

Legends for Figures

Figure 1. Effect of Echinacea on immature DC. Immature dendritic cells were generated as described in materials and methods using autologous plasma. On day 7 IL-4 and GM-CSF was substituted and cells were cultured in presence or absence of Echinacea. On day 9 mDC were harvested and compared by FACS-analysis. (**a**) Expression of analysed markers are shown as fold increase of positive cell fractions following Echinacea-treatment relative to non Echinacea-stimulated control mDC (normalised to 1). The values represent the average of four (CD83) or five (CD80/86, CCR7) different donors, respectively, +/- SD. (**b**) DC phenotypisation by FACS of one representative donor shown as two colour-stainings in dot-blots.

Figure 2. Effect of Echinacea on cytokine-mediated DC maturation. Immature DC were matured in mDC-medium containing pooled AB-serum for 48 h using IL-1β, IL-6, and TNF-α (cyt. cocktail). IL-4 and GM-CSF was substituted. DC cultures were further supplemented or not with Echinacea or PGE2, respectively. Differently generated DC-subsets were analysed for the expression of CD83, CD80/86 and CCR7 by FACS-analysis. (**a**) Immature DC of 4 different donors (D1-D4) were either matured using the standard cyt.-cocktail alone (black bars) or in presence of Echinacea (open bars). Expression data were determined by FACS-staining. Supernatants of DC cultures were used to analyse PGE2 secretion. PGE2 concentrations were measured using a standard ELISA in duplicates (+/- SD). (**b**) CCR7 expression of mDC stimulated with the cyt.-cocktail with or without further addition of PGE2 or Echinacea. Results represent means of two different donors (+/- SD). (**c**) Results of CD83, CD80/86 and CCR7 expression of mDC stimulated with the cyt.-cocktail undiluted or 1:20 diluted with (open bars) or without (black bars) addition of Echinacea IL-4 and GM-CSF was added in standard concentrations.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

DIAGRAMS OF FIG. 1 (A) AND FIG 2 (B).

FIG 1 (a) & 2 (b)
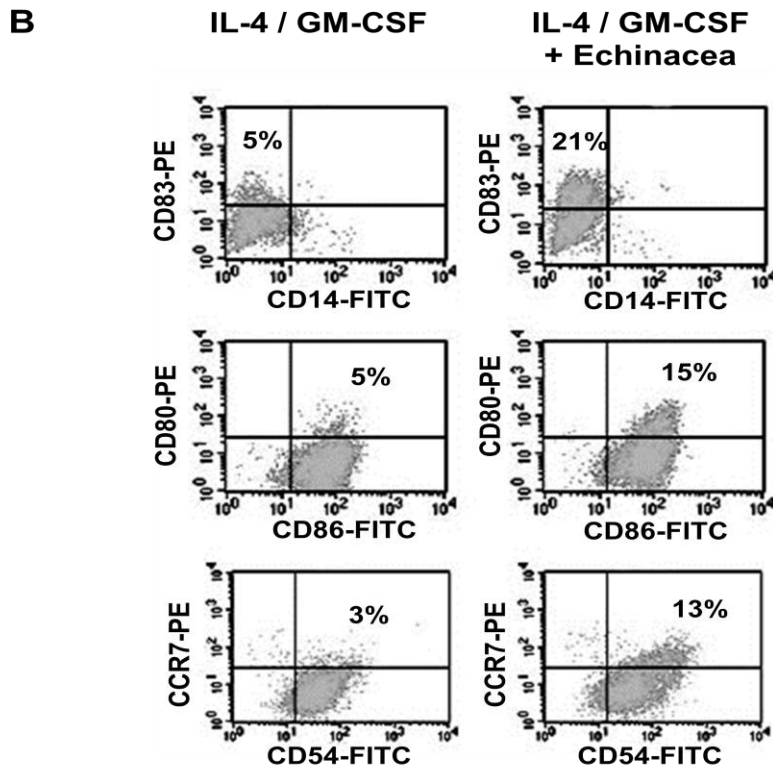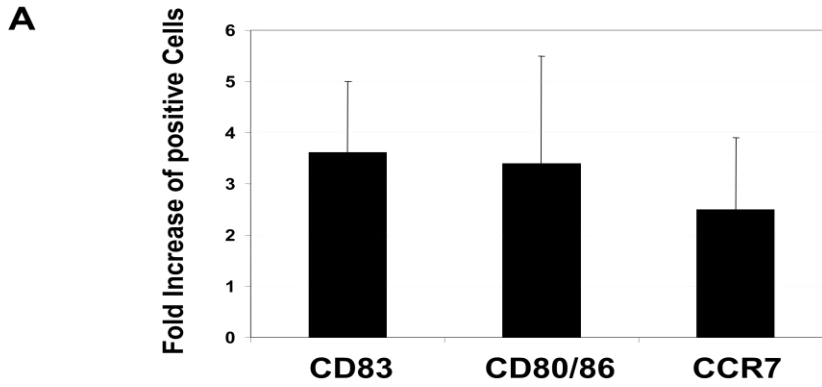
Effect of sodium Valoproate in childhood epilepsy Tripoli children hospital

Seham Eshrif[1], Sabria Alturki[2]
[1]Pediatric department, [2]Family& Community medicine department
Faculty of medicine, Tripoli University, Tripoli -Libya

Abstract

Background: Childhood epilepsy is a common cause of neurological morbidity (incidence 4-7.8/10,000); early recognition and treatment are keys to the best possible outcome. Social impact in childhood is often severe, producing isolation and loss of self esteem.

Objective: To determine the Efficacy of Na valporate as monotherapy in different types of epilepsy & in different pediatric age groups and to define side effects of Na valporate.

Methodology: cases series from 150 cases were randomly selected from files of patient whose in regular follow up in neurology clinic at Tripoli Pediatric Hospital, in period from January 2006 to December 2009; data collected by using a preformed case sheet which contain following items Sex, Age including current age, age of onset of seizure, time of valporate introduction, period of regular valporate intake, Type of seizure, Duration of seizure, Frequency of seizure, Neonatal history, Developmental history, Neurological examination, Family history, EEG& MRI finding, History of previous antiepileptic medication, Seizure control, Adverse effects of valporate.

Results: There were 150 cases with mean age (7 ± 4.4 years), male to female ratio was 1:1 and regarding the age of onset of seizure the mean age was 4.3 ± 4.5 years. 67.2% of patients have normal perinatal period. And about Seizures type distribution 73% of patients have generalized seizure type, where as duration of seizure 56.6% were very brief(less than one minute), 28.7% lasted for 1-5 minutes. Regarding the seizure control Almost over half (56.8%) of patients became seizure free or have > 50% seizure reduction with VPA monotherapy (average dose 26.2 mg/kg/day). Adverse drug reactions were recorded in <20% of patients, included hair loss 2 % , tremor 2.7%, weight gain 2%, cognitive decline 9.3%, seizure aggravation 0.7%.

Conclusion: Na Valoproate as a monotherapy can be effective in seizure control in more than half of patients and idiopathic etiology with late age of seizure onset (> 4 years) and less frequency seizure, short seizure duration are predictive factors for good response to VPA and the most common adverse effects of Na valporate were hair loss, tremor, seizure aggravation, weight gain, cognitive decline.

Introduction

Childhood epilepsy is a common cause of neurological morbidity, in developed countries; the overall incidence of childhood epilepsy from birth to 16 years is approximately 40 cases in 100,000 children per year [1]. The incidence in the first year of life is about 120 in 100,000. Between 1 and 10 years of age, the incidence plateaus at 40–50 cases in 100,000 children, and then drops further in the teenage years to about 20 in 100,000. Hauser estimates that about 1 percent of all children will have at least one a febrile seizure by age 14 years, and that 0.4–0.8 percent will have epilepsy by age 11 years [2]. In less developed countries, there is suggestive evidence for a higher incidence of childhood epilepsy, possibly related to higher incidence of trauma and central nervous system infections [3]. It may be time limited or long term. Early recognition and treatment are keys to the best possible outcome, May be associated with serious, difficult-to-treat syndromes including infantile spasms Lennox-Gastaut , genetically related conditions and developmental disorders. Also its social impact in childhood is often severe, producing isolation and loss of self esteem [4].

Definition of epilepsy:

Epilepsy was defined conceptually in 2005 as a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures. This definition is usually practically applied as having two unprovoked seizures >24 h apart. The International League against Epilepsy (ILAE) accepted recommendations of a task force altering the practical definition for special circumstances that do not meet the two unprovoked seizures criteria. The task force proposed that epilepsy be considered to be a disease of the brain defined by any of the following conditions: (1) At least two unprovoked (or reflex) seizures occurring >24 h apart; (2) one unprovoked (or reflex) seizure and a probability of further seizures similar to the general recurrence risk (at least 60%) after two unprovoked seizures, occurring over the next 1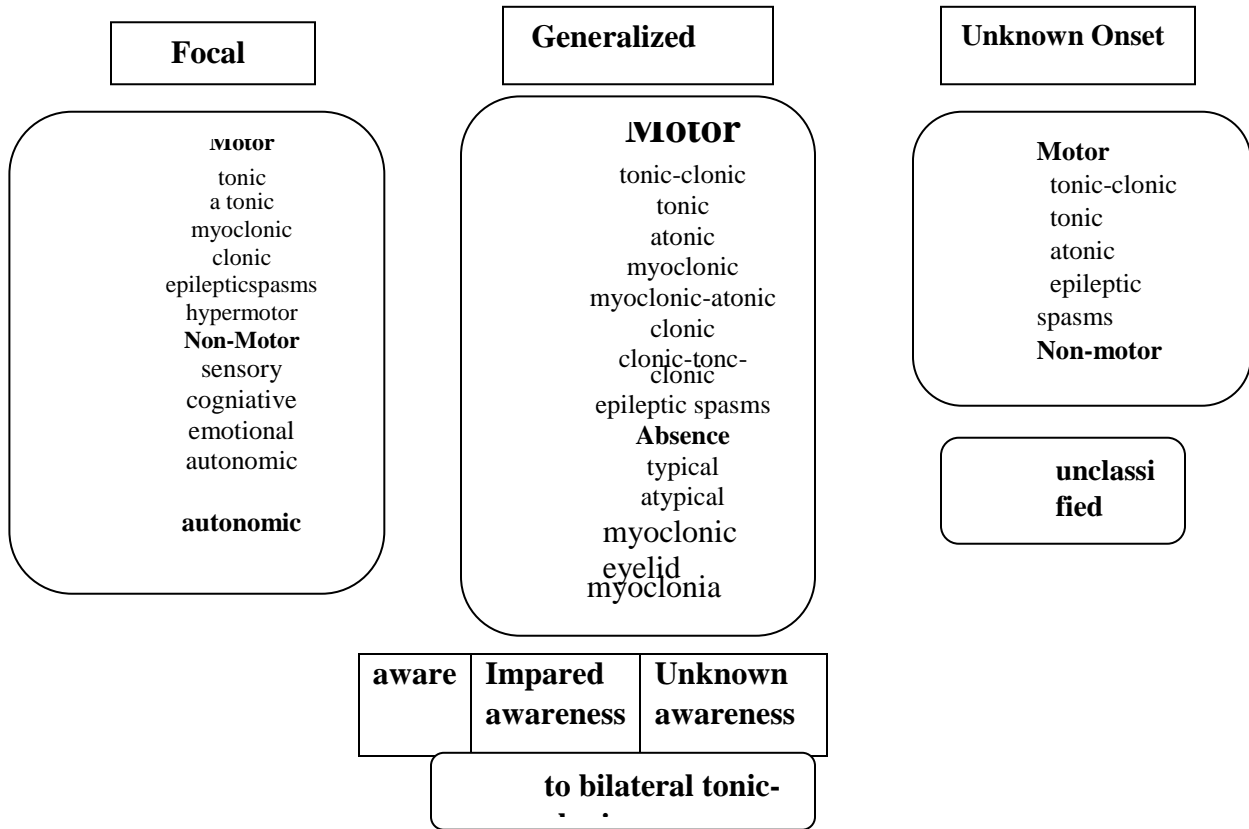0 years; (3) diagnosis of an epilepsy syndrome. Epilepsy is considered to be resolved for individuals who either had an age dependent epilepsy syndrome but are now past the applicable age or who have remained seizure-free for the last 10 years and off antiseizure medicines for at least the last 5 years. "Resolved" is not necessarily identical to the conventional view of "remission or "cure." Different practical definitions may be formed and used for various specific purposes. This revised definition of epilepsy brings the term in concordance with common use [5]

Table 1. Conceptual definition of seizure and epilepsy –2005 report   [5]

An epileptic seizure is a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain. Epilepsy is a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures, and by the neurobiologic, cognitive, psychological, and social consequences of this condition. The definition of epilepsy requires the occurrence of at least one epileptic seizure.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 2. Operational (practical) clinical definition of epilepsy 2016   **[5]**

Epilepsy is a disease of the brain defined by any of the following conditions
1. At least two unprovoked (or reflex) seizures occurring >24 h apart
2. One unprovoked (or reflex) seizure and a probability of further seizures similar to the general recurrence risk (at least 60%) after two unprovoked seizures, occurring over the next 10 years
3. Diagnosis of an epilepsy syndrome
Epilepsy is considered to be resolved for individuals who had an age-dependent epilepsy syndrome but are now past the applicable age or those who have remained seizure-free for the last 10 years, with no seizure medicines for the last 5 years.

Epilepsy classification:

Table 3 - International Classification of Seizure Types **[6]**

ILAE 1981 classifications	ILAE 2010 classifications

Partial Seizures
    Simple partial seizures
 	
With motor signs
With somatosensory or special sensory hallucinations
With autonomic symptoms
With psychic symptoms
Complex partial seizures
Simple partial followed by impairment of consciousness
With impaired consciousness at onset
Partial seizures evolving to secondary generalized seizures
Simple partial seizures evolving to generalized
 	
    Complex partial seizures evolving to generalized
 	
Simple partial seizures evolving to complex partial seizures
Generalized Seizures
Absence seizures
Atypical absence seizures
Myoclonic seizures
Clonic seizures
Tonic seizures
Tonic-clonic seizures
Atonic seizures
Unclassifiable Epileptic Seizures
	Generalized Seizures
	Absence seizures
	Myoclonic seizures
	Clonic seizures
	Tonic seizures
	Tonic-clonic seizures
	Atonic seizures
	Focal seizures
	Frontal lobe seizures
	Parietal lobe seizures
	Temporal lobe seizures
	Occipital lobe seizures

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

ILAE Seizure Classification 2016

Focal	Generalized	Unknown Onset

Focal

Motor
tonic
a tonic
myoclonic
clonic
epilepticspasms
hypermotor
Non-Motor
sensory
cogniative
emotional
autonomic

autonomic

Generalized

Motor
tonic-clonic
tonic
atonic
myoclonic
myoclonic-atonic
clonic
clonic-tonc-clonic
epileptic spasms
Absence
typical
atypical
myoclonic
eyelid
myoclonia

Unknown Onset

Motor
tonic-clonic
tonic
atonic
epileptic
spasms
Non-motor

unclassified

aware	Impared awareness	Unknown awareness

to bilateral tonic-

Na Valoproate:

Valporic acid was first synthesized in 1882 by Burton as an analogue of valinic acid ,for many decades it's only use was in laboratory as solvent for organic compounds. In 1962 the French researcher Pierre Eyrod discover the anticonvulsant properties of Valporic acid .Valporate introduced into clinical practice since 50 years .Valporate is available for oral and parentral use .Oral forms are almost completely bioavailable but the rate of absorption varies between formation. The chrono tab. Administered once or twice daily is a modified release form that minimizes fluctuation in serum drug concentration during doses interval. It is elimination is markedly decreased in newborn compared with older children and adults. Elimination by glycuronidation only become fully effective by age 3-4 years Plasma protein binding is 80-94% and tends to decrease with increasing drug concentration. In children aged 2-10 yr. plasma clearance 50% higher than those in adults. It increase plasma concentration of concomitant drugs like phenobarbiton , lamitragine by inhibiting their metabolism **[4]** .IV valporate may be effective for convulsive and non convulsive status epileptics that is refractory to conventional drugs . In infant potential benefits should be carefully weighed against the risk of liver toxicity. The risk is 1in 800 in infant below 2 yr. receiving polytherapy **[4]**. GIT intolerance is relatively frequent dose related adverse effect in children .Body weight increase and

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

tremor observed in older children **[7].**   Despite the challenge of newer drugs valporate remain a gold stranded antiepileptic drug for children.

AIM: To assess the effects of valproate (VPA) as monotherapy on seizure response/control in different types of childhood epilepsy and to Define side effects of Na valporate in pediatric patients.

Methodology: Case series of 150 medical records were randomly selected from medical records of patient whose diagnosed as epilepsy and treated with Na Valoproate (syrup/tablet) , they are in regular follow up in neurology clinic at Tripoli Children Hospital, in period from January 2006 to December 2009. The seizure control defined as (seizure free OR > 50% seizure reduction) on a given period of time. Performed case sheet used to extract the data from selected medical records Data classified according to

Sex & Age including current age, age of onset of seizure& Type of seizure .GTC, GT, A tonic, absence, Myoclonic, infantile spasm,, simple or complex partial, partial with secondary generalization, multiple seizure type& Duration of seizure. Seconds, 1-5minuts, 10-15minuts, >15minuts& Frequency of seizure. Many/day, 1-3/day, 1-3/wk , 1/ 2-3month& Valporate dose (mg/kg/day)& Neonatal history. normal, birth asphyxia, prematurity, sever neonatal jaundice& Developmental history. Normal, delayed (physical and mental), mental retardation, poor school performance& Neurological examination. Normal, Dysmorphic, Microcephaly, spastic, Neurocutanous manifestations& Family history. Consanguinity, epilepsy& EEG finding. Normal, generalized or localized discharges& MRI , Normal or abnormal& History of adding of another antiepileptic drugs in case of valporate failure as monotherapy& Seizure control (Duration of seizure free interval, seizure reduction at a given time interval)& Adverse effects of valporate. Seizure aggravation, tremor, weight increase, hair loss, cognitive function (according to family notes on school performance) Temporal mild GIT symptoms not included.

The collected data coded and SPSS software version 16 used for analyses . Frequency , percentage, mean, standard deviation .Chi – square used to find the difference between categorized data,   P value < 0.05 considered significant.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Results : The revised 150 medical records of pediatric patients with epilepsy who are in regular follow up in neurology clinic show male to female ratio was 1:1. Table 4 shows some of the personal characters of the patients, the age at presentation to our clinic was ranged between 1.3 years to 16 years with mean age (7 ± 4.4 years), regarding the age of onset of seizure was ranged from less than one month to 14 years with mean age 4.3 ± 4.5 years. 67.2% of patients have normal perinatal period, 17.6% were have birth asphyxia, 12.5% were delivered prematurely and 3.3% have history of sever neonatal jaundice. Table 5 presents the summary statistics for distribution of patients according to seizure character, concerning the type of seizures: 73% had generalized seizure, Partial (23%) and multiple types (3.3%). For the duration of seizure 56.7% were very brief (less than one minute), 28.7% lasted for 1-5 minutes, 12.7% have duration of (10-15 minutes), and 2% of cases have prolonged status epilepticus. Only 19.3% of cases have family history of epilepsy. About parents consanguinity was positive on 36.7%, negative on 60% of cases and was no data available on 3.3% 0f cases. Interictal EEG was normal in 10% of patients, 52% have abnormal EEG finding (localized or generalized discharges, polyspike and slaw waves) and no data available in 38% of cases. MRI was done for 56.2% of patients were normal on 32.9% of them and abnormal finding found on 32.3%. Almost over half (56.8%) of patients became seizure free or have > 50% seizure reduction with VPA monotherapy (figure 1) with an average dose 26.2 mg/kg/day. Adverse drug reactions were recorded in <20% of patients, (hair loss 2 % , tremor 2.7%, weight gain 2%, cognitive decline 9.3%, seizure aggravation 0.7%)

Table 4- Personal characters of epileptic patients

character	frequency	%
Age of presentation (years)		
1 - 4	52	34.7
>4 – 7	45	30
>7 – 11	21	14
>11 – 16	32	21.3
Sex		
Male	75	50
Female	75	50
Neonatal history		
Normal		
Birth asphyxia	82	67.2
Prematurity	21	17.6
Sever neonatal jaundice	15	12.3
Developmental history	4	3.3
Normal		
Physical and mental delay		
Mental retardation	61	40.7
Poor school performance	76	50.7
Neurological examination	10	6.7
Normal	3	2.0
Spastic		
Microcephaly	101	67.3
Neurocutanous syndrome	14	9.3
Dysmorphic	25	16.7
	5	3.3
	5	3.3

Table 5- Distribution of patients according to seizure character

character	frequency	%
Age of seizure onset		
Neonatal period	20	13.3
Late infancy	20	13.3
Toddler	40	26.7
Preschool age	32	21.3
School age	38	25.3
Type of seizure		
GTC	55	36.7
GT	15	10.0
Simple partial	5	3.3
Myoclonic	22	14.7
Absence	4	2.7
A tonic	15	10.0
Multiple seizure type	5	3.3
Complex partial	9	6.0
Partial with secondary generalization	20	13.3
Duration of seizure		
Seconds	85	56.7
1-5 minutes	43	28.7
10-15 minutes	19	12.7
> 15 minutes	3	2.0
Frequency of seizure		
Many /day	61	40.7
1-3/week	25	16.7
1/1-6 months	64	42.7
Side effects		
Tremor	4	2.7
Hair loss	3	2.0
Wight gain	3	2.0
Cognitive decline	14	9.3
Seizure aggravation	1	0.7

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 6- Relation between seizure control and other data

Personal character	Response to sodium valoprate		P value
	Controlled	Uncontrolled	
Age of presentation (years)			0.037
1 – 4	42.3	57.7	
>4 – 7	59.1	40	
>7 – 11	76.2	23.8	
>11 – 16	64.5	35.5	
Sex			0.003
Male	69.3	34.7	
Female	47.9	52.1	
Neonatal history			0.001
Normal	85.2	14.8	
Birth asphyxia	28.6	71.4	
Prematurity	6.7	93.3	
Sever neonatal jaundice	25.0	75.0	
Developmental history			0.001
Normal	78.3	21.7	
Physical and mental delay	38.7	61.3	
Mental retardation	50.0	50.0	
Poor school performance	100	0.0	
Neurological examination			0.001
Normal	66.0	34.0	
Spastic	14.3	85.7	
Microcephaly	41.7	58.3	
Neurocutanous syndrome	100	0.0	
Dysmorphic	20	80.0	

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 7- Relation between seizure control and seizure character

Seizure character	Response to sodium valoprate		P value
	Controlled	**Uncontrolled**	
Age of seizure onset			0.016
Neonatal period	25.0	75.0	
Late infancy	55.0	45.0	
Toddler	53.8	46.2	
Preschool age	65.6	34.4	
School age	70.3	29.7	
Type of seizure			0.001
GTC	53.7	46.3	
GT	6.7	93.3	
Simple partial	60.0	40.0	
Myoclonic	47.6	52.4	
Absence	50.0	50.0	
A tonic	66.7	33.3	
Multiple seizure type	0.0	100	
Complex partial	100	0.0	
Partial with secondary generalization	100	0.0	
Duration of seizure			0.073
Seconds	56.6	43.4	
1-5 minutes	65.1	34.9	
10-15 minutes	47.4	52.6	
> 15 minutes	0.0	100	
Frequency of seizure			0.235
Many /day	55.0	45.0	
1-3/week	44.0	56.0	
1/2-3 months	63.5	36.5	

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس – قسم الأسرة والمجتمع
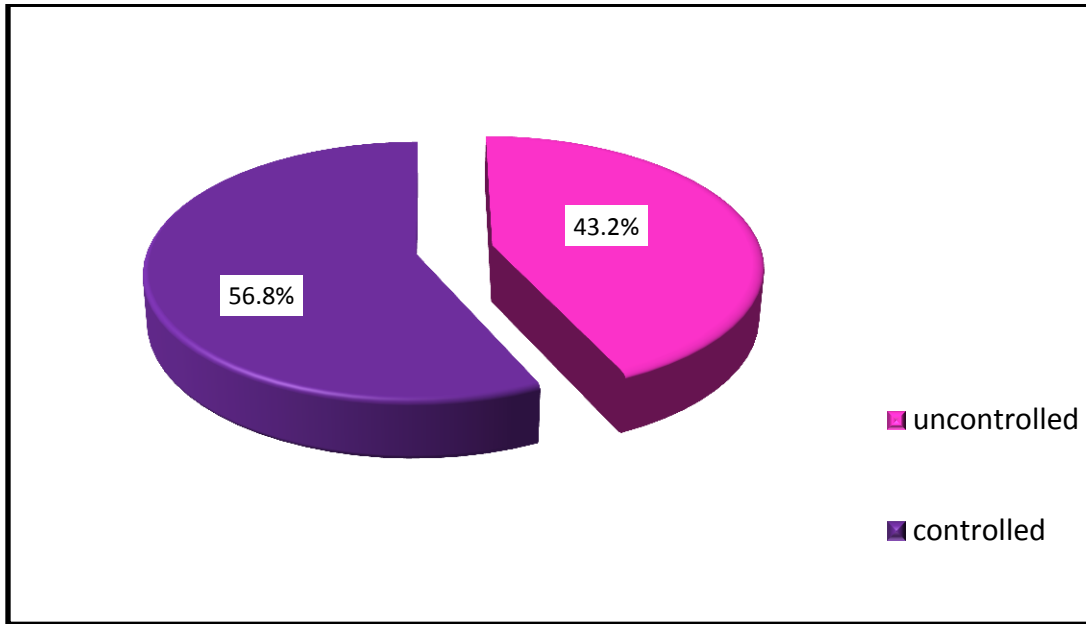
Figure 1- Distribution of children with epilepsy according to response to sodium valoprate

Discussion:

It was noted in previous studies **Guerrini R [4]** and Deleu D, Al-Hail H, Mesraoua B, Mahmoud HA; Gulf Vipe Study Group **[8]** that the response to VPA as monotherapy is very effective for seizure control and reduction in both generalized and partial seizures, As a result of its broad spectrum of efficacy in a wide range of seizure types and epilepsy syndromes, valproate is a drug of choice for children with newly diagnosed epilepsy (focal or generalized), idiopathic generalized epilepsy, epilepsies with prominent myoclonic seizures or with multiple seizure types, and photosensitive epilepsies, In Guerrini R et al study comparative trials with carbamazepine, phenytoin, and phenobarbital in focal epilepsy and with ethosuximide in absence epilepsy, valproate was as effective and showed a favorable tolerability profile, with minimal adverse cognitive and CNS effects. The low potential for paradoxical seizure aggravation and the long-term efficacy of the drug are additional important factors that contribute to its excellent profile **[4]**. In current study we found that male pts have better response than female (69.3 % versus 47.9%), also there is correlation between age of seizure onset and seizure control, seizure control was 25% for those with seizure onset at neonatal period and 70% for seizure onset at school age which also conducted in Dragoumi P et al study that the percentage of cases who changed therapy was higher in preschoolers (34%) and decreased with age**[9]** and these results match those observed in earlier studies Putignano D et al study whitch conclude that polytherapy was more frequent in younger children and old AEDs were most frequently prescribed as a monotherapy; Valproic acid (50.5%) and carbamazepine (33.3%) **[10]**. Consistent with other studies done by <u>Deleu D</u> et al and <u>Perunova NIu</u> study that VPA effectively controlling both generalized 47.7% and

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

partial seizures 94.1% [**8 , 11**]. In Guerrini R et al study comparative trials with ethosuximide in absence epilepsy, valporate was effective and showed a favorable tolerability profile, with minimal adverse cognitive and CNS effects **[4]** but in our study VPA was effective in 50% 0f cases with absence epilepsy these results are likely to be related to the small number of cases with absence seizure included in this study and one of them VPA was stopped and shifted to Ethosuxamide because of adverse effects (hair loss) and not because of poor effect in seizure control. Another important finding was that patients with multiple seizure type and patients with prolonged seizures (status epilepticus) they have poor response to VPA monotheraoy and other anticonvulsant drugs like (Clobazam and Topramate) added for 48% of cases with multiple seizure types and (Clonazepam and Vigabatrin) added for 11% of patients who have multiple seizure types and need combined therapy. these results consistent with those of Dragoumi P et al which found that early seizure onset, multiple seizure types and status epilepticus are predictive of an initial poor response to treatment in children with idiopathic epilepsy **[9]**. The results of this study show that Patients with normal perinatal period, development, and neurological examination have favorable response these are in agreement with those obtained by Poudel P1 et al study **[12]** . VPA was well tolerated Similar to results of previous studies, the most common adverse effects were cognitive decline 9.3% these results support previous research of Masur D et al which provides Class I evidence that valproic acid is associated with more significant attentional dysfunction than ethosuximide or lamotrigine in children with newly diagnosed childhood absence epilepsy**[13]**. This study found other Valoproate side effects as hair loss in 2 %, tremor in 2.7% **,** seizure aggravation in 0.7% of patients and these side effects also recorded in Guerrini R et al study**[4]**, weight gain in 2% are in line with those of previous Kanemura H et al studies which suggest that an increase in serum insulin and insulin/glucose levels may cause weight gain, possibly by stimulating appetite, and that weight changes seem to be reversible with intensive behavior therapy without discontinuation of VPA **[7].**

Conclusion: The study concluded that Na Valoproate as a monotherapy can be effective in seizure control in more than half of patients and idiopathic etiology with late age of seizure onset (> 4 years) and less frequency seizure, short seizure duration are predictive factors for good response to VPA.

Recommendation: combined therapy (VPA with other anticonvulsants) for Patients who presented with multiple seizure types and patients with frequent prolonged seizures. a further multi centre study on larger sample need to be conducted to reach more conclusive result.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

References:

1-Camfield et al., 1996b; Hauser et al., 1993 Incidence, prevalence and aetiology of seizures and epilepsy in children, Epileptic Disorders Volume 17, issue 2, June 2015

2-Hau ser and Hesdorffer, Epilepsy: Frequency, causes and consequences. New York: Demos Publications, 1990, 392 pp

3- Peter R. Camfield and Carol S. Camfield . Swaiman's Pediatric Neurology: An Overview Pediatric Epilepsy.15th ed . 2011; 706

4- Guerrini R1. **Valproate** as a mainstay of therapy for pediatric **epilepsy**.Paediatr Drugs. 2006;8(2):113-29.

5- Robert S. Fisher. A practical clinical definition of epilepsy: Epilepsia, 55(4):475–482, 2014

6- From the Commission on Classification and Terminology of the International League Against Epilepsy.Proposal for Revised Clinical and Electroencephalographic Classification of Epileptic Seizures Epilepsia 1981;22:489.

7- Kanemura H, Sano F, Maeda Y, Sugita K, Aihara M. Valproate sodium enhances body weight gain in patients with childhood epilepsy: a pathogenic mechanisms and open-label clinical trial of behavior therapy. Seizure. 2012 Sep;21(7):496-500.

8- Deleu D, Al-Hail H, Mesraoua B, Mahmoud HA; Gulf Vipe Study Group- Short-term efficacy and safety of valproate sustained-release formulation in newly diagnosed partial epilepsy VIPe-study. A multicenter observational open-label study. Saudi Med J. 2007 Sep;28(9):1402-7.

9- Dragoumi P, Tzetzi O, Vargiami E, Pavlou E, Krikonis K, Kontopoulos E, Zafeiriou DI1. Clinical course and seizure outcome of idiopathic childhood epilepsy: determinants of early and long-term prognosis. 2013 Dec 18;13:206.

10- Putignano D, Clavenna A, Campi R, Bortolotti A, Fortino I, Merlino L, Vignoli A, Canevini MP, Bonati M. Antiepileptic drug use in Italian children over a decade.Eur J Clin Pharmacol. 2016 Nov 26. [Epub ahead of print]

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

11-Perunova NIu. [The use of depakene and depakene-chrono in idiopathic generalized epilepsy]. Zh Nevrol Psikhiatr Im S S Korsakova. 2003;103(9):45-7.

12- Poudel P1, Chitlangia M1, Pokharel R2.Predictors of Poor Seizure Control in Children Managed at a Tertiary Care Hospital of Eastern Nepal. Iran J Child Neurol. 2016 Summer;10(3):48-56.

13-Masur D, Shinnar S, Cnaan A, Shinnar RC, Clark P, Wang J, Weiss EF, Hirtz DG, Glauser TA; Childhood Absence Epilepsy Study Group. Pretreatment cognitive deficits and treatment effects on attention in childhood absence epilepsy. Neurology. 2013 Oct 29;81(18):1572-80.

Effect of cutaneous Leishmaniasis (CL) on some blood parameters in human

Afan A. M; Alawama A. S; Abusaida H. M; and Annajar B. B; and Abuain K. B.

Abstract

Alteration in hemopoiesis is common following infectious disease. However, few studies have addressed the mechanism underlying changes in hemopoietic function or assessed the direct impact of infectious agents on the cells that regulate the mechanism of blood cells production. In CL. caused by infection with the protozoan parasite leishmania donovani, is associated with increases in patient's hemopoietic activity. This project try to investigate the effect of CL on blood parameters such as hemoglobin (Hb), red blood cell (RBC) count, white blood cell (WBC) count, packed cell volume (PCV), platelet count and erythrocyte sedimentation rate (ESR). 99 males mean ages 33.05 years and 73 females mean ages 34.5 years were included in this study. Hb level, RBC count, PCV and ESR showed significant *(P< 0.05)* elevation in patients who develop CL compared with the normal subjects, while elevation of WBC count and platelet showed no significance *(P > 0.05)*.

Introduction

Leishmaniasis is endemic in 88 countries throughout Africa, Asia, Europe, and North and South America (11). There are an estimated 12 million cases worldwide, with 1.5 to 2 million new cases each year (12). More than 90% of the world's CL. occurs in Afghanistan, Algeria, Iran, Iraq, Saudi Arabia, Syria, Brazil, and Peru (10)**.** In Libya, two main clinical forms are known in the human, the first type is a visceral leishmaniasis which is exclusive in east and south Libya, the causative agent is *Leishmania ifantum* while a dogs and humans act as reservoir host. The other type is cutaneous leishmaniasis (Oriental sore or Baghdad boil) is endemic in the north westerly part of Libya except Tripoli and its surrounded area (1). The first study in Libya was done in 1910 were two cases recorded in Tripoli region, and in-between 1912-1923 about 30 cases in Tripoli hospital were recorded. All these cases were found in the north westerly part of the country, as for in 1971 began an occurrence of disease as epidemiological features in several region in north west Libya.

Leishmaniasis is a disease caused by a group of parasites belonging to the leishmania family. This organism has been found to be a complex grouping of species, at least 20 of which cause infections in humans. Depending on the leishmania species, several different diseases can develop. The parasites can be limited to the skin (*cutaneous leishmaniasis*), may involve skin and mucous membrane (*mucocutaneous leishmaniasis*) or may involve internal organs that contain many macrophages like lymph nodes, liver, and spleen (*visceral leishmaniasis* or kala-azar) (2). The incubation period for lieshmaniasis is usually from weeks to months but can be long as years. The disease begins as an erythematous papule at the site of the sand fly bite on exposed parts of the body. An infected person

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

may be asymptomatic or may develop fever, weight loss and other severe symptoms relating to organ involvement such as hepatosplenomegaly and it is usually fatal without treatment (10). Laboratory examination reveals a marked leukopenia with relative monocytosis, lymphocytosis, anemia and thrombocytopenia. IgM and IgG levels are extremely elevated due to both specific antibodies and polyclonal activation (3).

The incidence of the disease is a sporadic in the appearance and high incidence of the infection to children may be lead to death if did not be diagnosed.

Materials and Methods

In this study all patients (99 males and 73 females) referred from clinics and health centers. During the period of 1-3 months the diagnosis criteria included the presence of a typical leishmanial skin ulcer and one of the following: i) detection of the protozoan in culture ii) histological slides by using a microscope or positive leishmania interdermal skin test. Everybody with amastigote forms in the blood smear was considered as infected person. All blood samples were collected from the clinic hospitals and the hematological manifestations were reviewed. Sodium stibogluconat (antimony sodium gluconate; pentostam) was used in this study as a drug for treatment of all CL cases because this drug is the most effective compound presently available. 5mm of venous blood was taken from each patient, then transferred into a an anti coagulant tubes (type AFMA – Disg) for CBC.

All hematological parameters for each subject were recorded, gathered, classified, and stipulated in tables for statistical analysis. *t*-test was used to determine any statistically significant difference compared with the healthy subjects as a normal (75 males and 60 females). Any results considered to a significant if *P* value less than 0.05 ($P< 0.05$)

Results

In general, data obtained from this study showed that males were infected more than females (58% and 42%, respectively). Table 1 shows the effect of CL on some blood parameters of the effected patients (both sexes) before and after treatment with pentostam drug compared with the healthy (normal) subjects. The data was analyzed and divided into two types of comparison; i) between untreated and normal subjects ii) between treated and normal subjects.

Table1: Mean values of some hematological parameters of the normal, treated, and untreated subjects

Blood Parameters	Control		Before treatment		After treatment	
	male	female	male	female	male	female
Hb (gm/dl)	14.4±0.3	12.25±0.3	15.5± 0.2	13.3±0.4	14.5± 0.3	12.2± 0.4
RBC count (10^6/cmm)	4.7±0.7	4.3±0.1	5.6 ± 0.1	4.6 ± 0.1	4.9± 0.1	4.4±0.1
PCV (%)	40.9±0.7	37.5±0.9	44.8± 0.9	40.2 ± 0.1	43.0± 0.8	38.2± 0.8
WBC count (10^3/cmm)	7.15±0.5	7.7±0.6	7.1±0.3	7.4± 0.4	7.4±0.3	6.9± 0.4
Platelet count (10^3/cmm)	229.9±13	271.6±17.9	263.7± 16.6	287.1 ± 16.9	255.8± 11.6	256.8± 15.2
ESR (mm/hour)	7.9±0.8	13.5±1.5	10.37± 1.9	17.2± 2.6	15.0± 2.8	19.6 ± 2.7

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The data shows that both male and female patients (specially males) have significant elevation of Hb concentration, RBC count, HCT, and ESR compared with the control (Fig 1,2,3,6) (*P< 0.001, P<0.05*). Meanwhile, Figure 5 shows non- significant (*P>0.05*) increase in platelet count in infected males. No change was found in the total WBC count between the normal and untreated infected patients in both sexes (Fig 4)**.** No changes was found in Hb concentration, RBC count, PCV, WBC count in treated patients with pentostam drug compared with the normal subjects (Fig 1,2,3,4). On the other hand, ESR remains elevated after treatment (*P<0.01*) (Fig. 6). In contrast, the number of platelets shows no change in females, while in males the number is insignificantly increased (Fig 5).
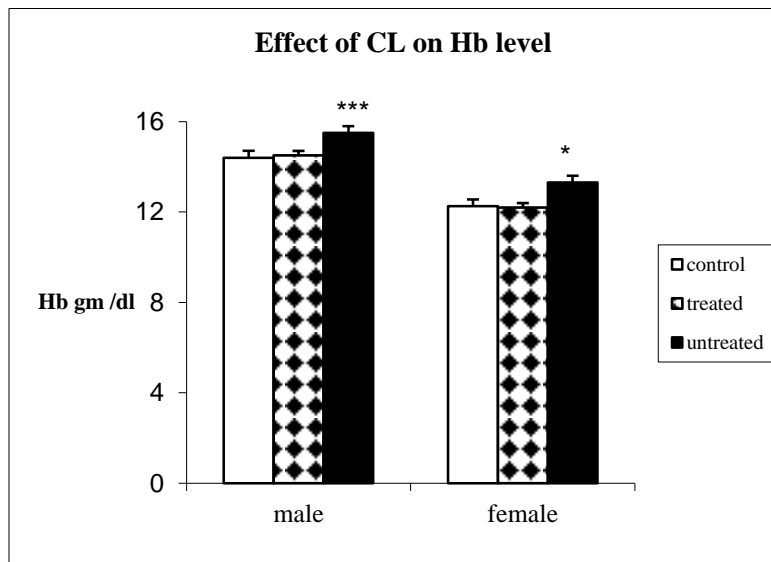
Figure (1): Effects of CL on Hb level in three different groups: control (hollow bar), treated (square bar) and untreated (black bar) at each time bar together with standard error bars. No statistical difference between normal subjects and treated patients was found. In this and subsequent figures the results of Student t-test, comparing means and standard error of patients to healthy subjects, are presented as stars over each group of patients bar indicating the P-value. * = (P < 0.05), ** = (P < 0.02), *** = (p < 0.01). Bars without stars are not significantly different from their normal. For all figures, n for males = 174 (75 control, 51 treated and 48 untreated), and n for females = 133 (60 normal ,38 treated and 35 untreated)

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
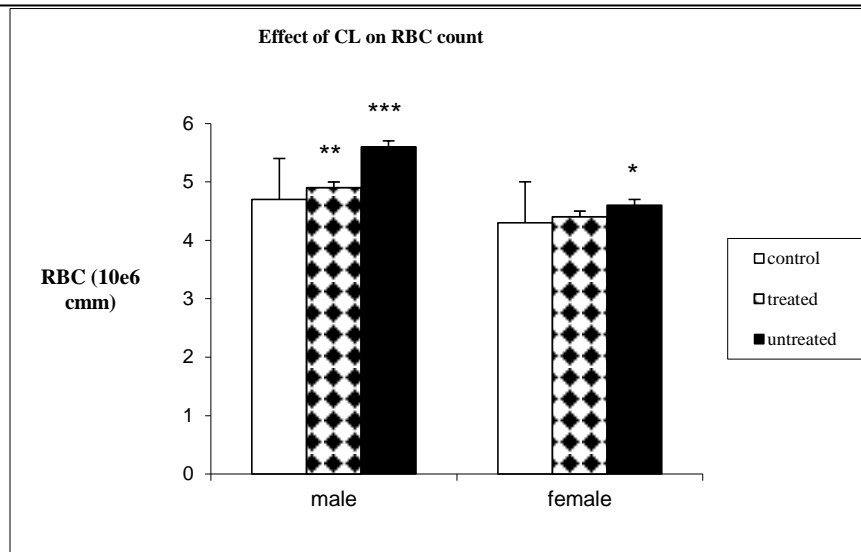
Figure (2): Effects of CL on RBC count in three different groups: normal subjects, treated and untreated patients. Patients show no change in RBC counts after treatment with pentostam compared with normal, while untreated patients show increase particularly in males.
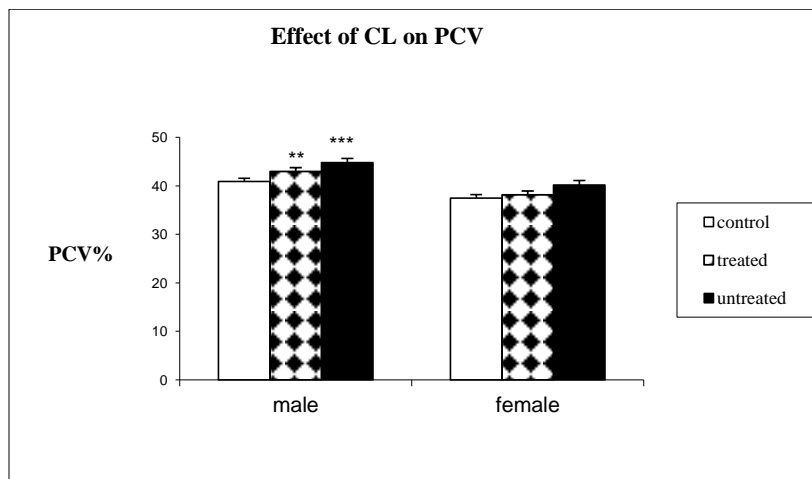
Figure (3): Effects of CL on PCV percentages. No significant difference was found between normal, untreated and treated group in females, however, in males PCV is significantly elevated.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
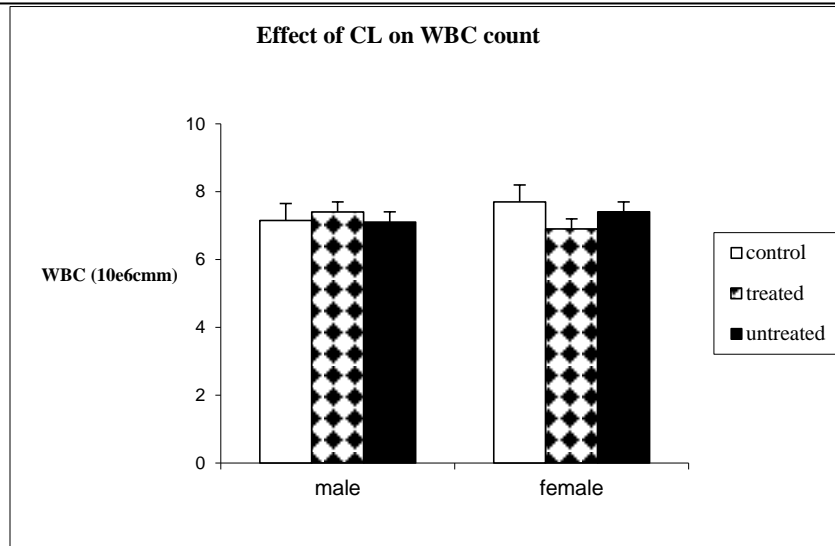
Figure (4): Effects of CL on WBC count. Bars show no statistical difference in WBC count between treated and untreated compared with the normal persons in both sexes.
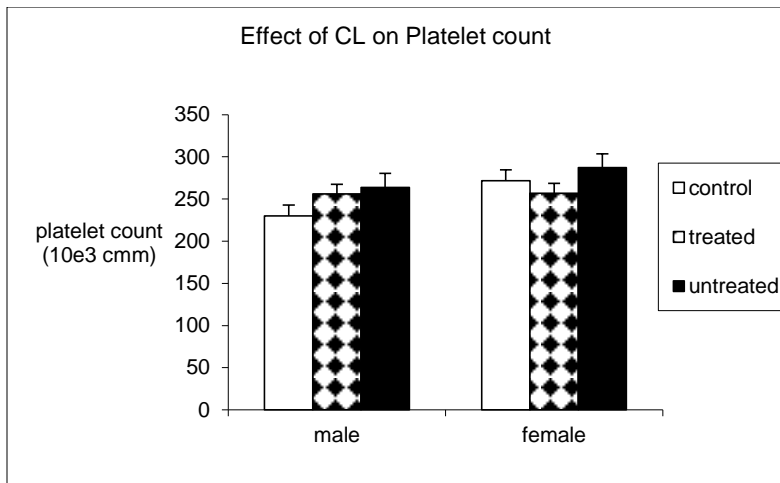
Figure (5): Effects of CL on platelets count: Bars show no statistical difference in platelet count between treated and untreated compared with the normal persons in both sexes.

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
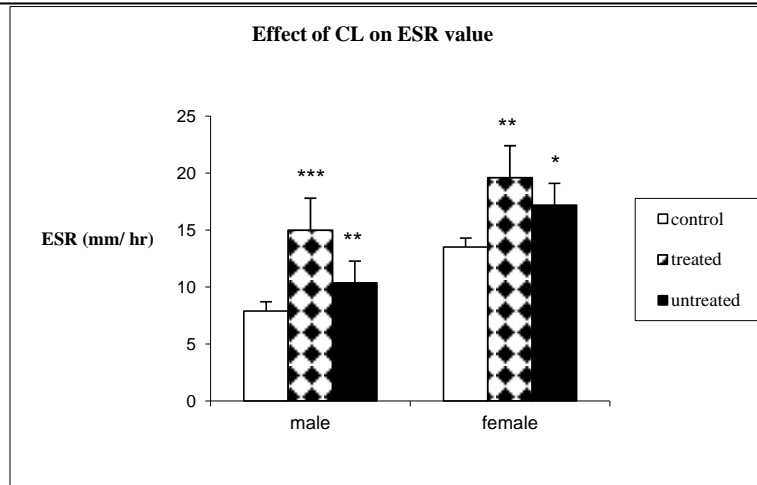
Figure (6): Effects of CL on ESR value: Bars show significant difference in treated & untreated patients compared with normal subjects.

Discussion

Cutaneous lieshmaniasis has long served as a barrier to socioeconomic development in poor countries. The disease burden impacts both the public health sector and the economic growth of country.

Libyan CL has recently seen a rise in incidence in mountain area brought both vector and reservoir animals closer to human settlements, while the mortality rate of CL is very rare compared to other parasitic disease. This disease is burden high, as lesions and ulcers are often disfiguring, debilitating, and produce serious scars that result in lifelong social stigmas. A study completed in Libya over 8 years started from 2001 showed that the number of reported cases increased from 436 in 2001 to 1036 in 2008, illustrating the quick spread of transmission cycle.

Recently, many evidences have been accumulated demonstrating the effect of CL on the WBC's count specially macrophages while very few researches were focused on other hematological parameters. This study suggests that CL can be direct or indirect effect the hemopoietic system particularly RBC's count, the Hb, PCV, and platelet count. This is coinciding with few researches that addressed the mechanisms underlying changes in hematopoiesis by direct impact of infectious agents on the primary haemopoeitic system.

Previously, in vivo experimental visceral leishmaniasis, it has been investigated that the parasites persist in the spleen and bone marrow is associated with increase in hematopoietic stromal cell activity, particularly macrophage progenitor cells (3,5). These results are in agreement with the present results, but perhaps in our cases, the CL accelerates the activity of the erythrocyte stromal cell line rather than leukocyte line.

Saeed, Amal et al (1998) showed that there is a lack of erythropoietin hormone (Epo) in anaemic kala-azar patients and increase in blood Hb during treatment with sodium stibogluconate, however, serum ferritin decreased concomitantly whereas serum iron level was unchanged. However, our data suggested that the parasite may stimulate the secretion of Epo hormone and

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم طب الأسرة والمجتمع

this may explain the raising of the RBC count and consequently increase in PCV in the patient before treatment, and clearly, after treatment with sodium stibogluconat the blood parameters return to nearly normal. This suggests that the drug may inhibit the cells in the kidneys to release excessive Epo hormone and acts as an antagonist to Epo hormone.

Many Clinical researches were don on LV showed that infected people typically have chronic fever, weight loss, and sometimes an enlarge spleen or liver, some patients have swollen glands and usually have elevated liver function tests. All cases showed also a decrease in reticulocyte count, RBC's, Hb, WBC count, and/or platelet count receptively (5,6,8,9,13). Meanwhile, Patricia *et al* (2008) stated that no different between uninfected and infected animal with leishmania infantum chagasi in the hematological and the biochemical parameters.

In this research, it seems to be that haemopoietic system particularly erythropoiesis could be effected by leishmania parasite. This conclusion is supported by many previous researchers who found that opsonized leishmania amastigotes bind to specific human erythrocytes receptor named CR1 receptor. This receptor is the most logical physiological cofactor candidate for the enzymatic degradation of promastigote. Moreover, it has been found that progression infection implies the parasite to transfer from RBC's to acceptor WBC's and enhance their antigen receptor (4). Surprisingly the data available demonstrates that, with no explanation, the majority of patients who develop the alteration of the blood parameters are mainly before 40 years old.

More hematological work is needed to investigate exactly how the leishmania parasite can stimulate the bone marrow to increase the production of RBC's as well as platelet number.

References

1. Berman JD, Gallalee JV. (1985). Antileishmanial activity of human red blood cells containing formycin A. J. Infect. Dis. Vol. 151(4): 698-703. (9)

2. Martinez S, Marr JJ. (1992). Allopurinol in the treatment of American cutaneous leishmaniasis. N Engl J Med. 326:741-4.

3- Saeed, Amal M. ; Khalil, Eltahir A. G. Elhassan, Afaf M. A.; Hashim, Faisal A.; Elhassan, Ahmed M.; Fandrey, Joachim; Jelkmann, Wolfgang. (1998). Serum erythropoietin concentration in anaemia of visceral leishmaniasis 9kala-azar) before and during antimonial therepy. British Journal of Hematolgy. 100(4-11): 720-724. (4)

4- Merecedes Dominguez; Alfredo Torano. (1999). Immune adherence-mediated opsonophagocytosis: The mechanism of leishmania infection. J.Exp. Med. Vol. 189: 25-35 (5)

5- Sara E. J. Cotterell. Christian R. Engwerda. Paul M. Kaye. (2000). Leishmania donovani infection of bone marrow stromal macrophages selectively enhances myelopoiesis, by a mechanism involving GM-CSF and TNF-α. Blood. Vol. 95: 1642-1651.

6- Kevin McGrew. (2001). Leishmaniasis. Vol. 5.

7. Davies CR, Kaye P, Croft SL, Sundar S. (2003). Leishmaniasis: new approaches to disease control. BMJ. 326:377-82

8- Peter. Weina. (2004). Lieshmaniasis information for clinicians. A collaborative effort of DHCC, AFIOH/RSR, DHSD, USACHPPM, & WRAMC. (7)

9- Talari S. A., Shajari .G, Talaei. R(2006). Clinical Finding Of Cutaneous Leishmaniasis As A New Focus Of Iran. The Internet Journal of Infectious Diseases. 5(2). 1528-8366

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

10. Mandy Kovach. (2008). American cutaneous leishmaniasis: Implementation of integrated vector management program in Trujillo, Venezuela. HumBiol. 153: 1:16

11. Patricia Batista Barra Medeiros Barbosa, Paula Viviane Sousa de Queiroz, Selma Maria B Jeronnimo, Maria de Fatima Freire de Melo Ximmenes. (2008). Experimental infection parameters in Galea spixii (Rodentia: Caviidae) with Leismania infantum chagasi.Mem Inst Oswaldo Cruz, Rio de Janeiro. 103(6): 545-548.

12. Gamal Abdul Hamid, Ghada A. Gobah. (2009). Clinical and hematology manifestations of visceral leishmaniasis in Yemen children. Turk J Hematol. 26: 25-8

13- WebMD. (2009). Leishmaniasis Causes, Symptoms, Treatment, facts and types. Medicine. Net.com (8)

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس – قسم الأسرة والمجتمع

Factors contributing to the adherence to anti- TB treatment among tuberculosis patients in Abo-setta chest hospital 2015 Tripoli-Libya

By: Dr. Anwar Sadek El-Hodiry

Abstract

Background

Tuberculosis (TB) is a major global health problem. Each year, there are around nine million new cases of TB, and close to two million deaths. All countries are affected, but 85% of cases occur in Africa (30%) and Asia (55%), while India and China alone represent 35%.Poor adherence to treatment of chronic diseases including TB is a worldwide problem of striking magnitude. However, patients with TB are expected to have adherence levels greater than 90% in order to facilitate cure.

Aims of the study:

To know the frequency of patients with TB who are not adherence to anti-tuberculosis treatment, and to study factors related to non-adherence.

Material and methods:

This study was a descriptive study, conducted at TB Abo -setta chest hospital in Tripoli. The study included all file records of cases confirmed diagnosis TB infection , who had sputum-smear positive TB patients with chest X-ray finding and admitted to Abo-seta hospital during period from 1/1/2015 to 30/2/2016 .Data collected and analyzed SPSS version (22) .

Results

The study included 128 file records and the results showed that 28.9% of cases were non- adherence to treatment TB infection,and 71.1% of cases were adherence to treatment .The most frequent age affected was between 20-49 years old (78.1%), and most gender affected were males 78.1% versus females 21.9% .The study showed that relapsing TB infection were about23.4% of total medical records and there was

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

significant relations between relapsing TB infection and adherence to treatment (P=0.001).

The study showed that around 17.2% of total medical records had HIV, 16.4% of cases were substances drug abuser, and 64.1% of cases were smokers. This study found that about 83.6% cases had received treatment with self- take treatment. Whereas only 16.4% cases had DOTs treatment received.

Conclusions:

The frequency for non-adherence was 28.9% of cases, the most frequent age group affected by TB infection were 20-49 years old and most gender affected were males .

The results showed significant relations between relapsing TB infection and adherence to treatment TB infection (P=0.001).

Non-adherence to treatment TB infection influenced by factors as AIDS and HIV , drug abuse , relapsing TB infection , direct observation , migration .Neglect ,long term treatment regime , lack of social and psychological support, and smoking .

Recommendations:

More consideration should be given to treatment adherence under the current TB control program.

Direct observation, regular home visits by health workers, and follow up appear to reduce the risk of non-adherence.

More patient-centered interventions and greater attention to structural barriers are needed to improve treatment adherence.

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Accuracy of ultrasonography in diagnosing
Placenta accrete

Dr: Nasreen Osman[1], Dr. Ebtesam Ghodiwan[1], Dr Taher Emahbes[2]
1- Obstetrics and gynaecology department, Aljala Maternity Hospital, Faculty of Medicine, Tripoli University Tripoli, Libya
2- Community and family medicine department, Faculty of Medicine, Tripoli University Tripoli, Libya

ABSTRACT --

OBJECTIVE: The purpose of this study was to evaluate the accuracy of ultrasonography in the diagnosis of placenta accrete

METHODOLOGY: This study is descriptive, case series type; conducted in Aljala maternity hospital during the period from July 2011 to July 2012. Fifty-nine patients were selected for this study. The selection criteria includes all patients who were diagnosed as placenta preavia by ultrasound, regardless if it is single or multiple pregnancy and regardless of any medical problem. Placenta accreta was defined by clinical criteria at the time of delivery and by pathological findings.

RESULTS: Out of 59 women with suspected placenta accrete; only 9 (15.3%) cases were diagnosed as cases of placenta accrete by ultrasound. About 17 (28.8%) patients had a diagnosis of placenta accrete clinically at delivery and /or by pathologic examination. The sensitivity of ultrasonography was 52.9%, the specificity was 100%, the positive predictive value was 100% and the negative predictive value was 84%.

CONCLUSION: In conclusion, ultrasonography has fairly good sensitivity and high specificity for prenatal diagnosis of placenta accreta. It is therefore important that other modalities for diagnosing placenta accrete should be used in combination with ultrasonography.

KEY WORDS: Ultrasonography, Pla87centa accrete, Sensitivity, Specificity.

Introduction:

Placenta accreta is a significant cause of maternal morbidity and mortality and is presently the most common reason for emergency postpartum hysterectomy. Placenta accrete is defined as a placenta which is abnormally adherent to the uterus and sometimes invasive to it, due to total or partial lack of the decidua basalis layer. The nitabuch membrane, a Fibrinoid layer that separates the decidua basalis from myometrium is imperfectly developed [1] Placenta accreta is classified on the basis of the depth of myometrial invasion. In placenta accreta vera, villi are attached to the myometrium but do not invade the muscle. In placenta increta, villi partially invade the myometrium. The most severe type is placenta percreta, in which villi penetrate through the entire myometrial thickness or beyond the serosa. [2] The pathogenesis of placenta accreta is not clear; however, there have been several theories proposed. Abnormal vascularization resulting from the scarring process after surgery with secondary localized hypoxia leading to both defective decidualization and excessive trophoblastic invasion appears to be the most prominent, or at least the most supported, theory to date, explaining the pathogenesis of placenta accretas at this stage. [3] The incidence of placenta accrete ranged from 1 in 533 to 1 in 2510 deliveries in the United states during the period between 1980 and 1990 [3-5]. By comparison, placenta was a rare occurrence in 1950, occurring in 1 in 30.000 deliveries [4,5]. The marked increase in the incidence has been attributed to the increased prevalence of caesarean delivery in recent years. Current estimates indicate a 25% to 50% incidence of placenta accreta in patients with placenta previa and prior cesarean delivery. [6] Ultrasonography and magnetic resonance imaging (MRI) have

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس – قسم الأسرة والمجتمع

been used for the diagnosis of placenta accreta, but the accuracy of these two imaging techniques remains uncertain and is dependent on the skills of the sonographer or radiologist. [2] The sonographic characteristics of adherent placenta include: intraplacental lacunae, loss of the normal retroplacental clear space and thinning or disruption of the hyperechogenic uterine serosa-bladder wall interface (Figure 1). [2]

Fig 1: **The sonographic characteristics of adherent placenta**

Aim of study:
The purpose of this study was to evaluate the accuracy of ultrasonography in the diagnosis of placenta accrete

Materials and methods:
This study is descriptive, case series type; conducted in Aljala maternity hospital during the period from July 2011 to July 2012. Fifty-nine patients were selected for this study. The selection criteria includes all patients who were diagnosed as placenta preavia by ultrasound, regardless if it is single or multiple pregnancy and regardless of any medical problem e.g. diabetes mellitus and hypertension etc. An informed consent was obtained from all the patients before the beginning of the study. A performed case sheet was constructed for the study and it consists of two parts. The first part was filled once the patients diagnosed as a case of placenta preavia and the second part was filled after the delivery by caesarean section. Placenta accreta was defined by clinical criteria at the time of delivery and by pathological findings. The placenta was considered normal if it was easily removed during cesarean delivery without any bleeding complications. The placenta was considered as accreta when the delivery was impossible and as percreta when it was clear that the placenta had reached the uterine serosa or the adjacent organs.

Statistical analysis was performed using statistical software (SPSS). The sensitivity (Se), specificity (Sp), positive predictive value (PPV), and negative predictive value (NPV) were calculated for the ultrasonography. A p value of ≤ 0.05 was considered statistically significant.

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Result:

Fifty-nine women underwent ultrasound to explore suspected placenta accrete. The diagnosis of ultrasound was compared with the diagnosis after the delivery by caesarean section as shown in Table 1. Out of 59 women with suspected placenta accrete; only 9 (15.3%) cases were diagnosed as cases of placenta accrete by ultrasound. About 17 (28.8%) patients had a diagnosis of placenta accrete clinically at delivery and /or by pathologic examination. The mean age of the patients who diagnosed as placenta accrete (intraoperative) was 35.6±5.7 compared to 35±5.7 in patients who do not have placenta accrete. The clinical and demographic characteristics of the patients were shown in Table 2.

Table1: comparison between ultrasound and the after delivery diagnosis of placenta accrete

Diagnosis of placenta	Placenta accrete	Not accrete	Total
By ultrasonography	(9) 15.3%	(50) 84.7%	(59) 100%
After delivery	(17) 28.8%	(42) 71.2%	(59) 100%

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table 2: Demographic characteristics of the patients

Socio- demographic characteristics	Placenta accrete	Not placenta accrete (praevia)	P value
Age			
20-26	11.8%	4.8%	0.857
27-32	17.6%	23.8%	
33-38	41.2%	47.6%	
39-44	29.4%	19%	
>44	0%	4.8%	
Mean ± SD	35.6±5.7	35±5.7	
Gravidity			
Primi	0%	9.5%	0.336
2-4	47.1%	40.5%	
5-7	23.5%	33.3%	
>7	29.4%	16.7%	
Parity			
Nulliparous	5.9%	9.5%	0.321
1-2	23.5%	33.3%	
Multiparous	58.8%	42.9%	
Grand multiparous	11.8%	14.3%	
Abortion			
No abortion	41.2%	50%	0.327
1 abortion	23.5%	31%	
>1 abortion	35.35	19%	
H/O C/S			
Yes	93.7%	52.6%	0.007
No	6.3%	47.4%	
H/O E & C			
Yes	29.4%	29.4%	----
No	70.6%	70.6%	
H/O passive smoking			
Yes	66.7%	52.2%	0.697
No	33.3%	47.8%	

Table 3 shows the grading of placenta in patients with placenta accretes compared to patients who do not have placenta accrete. Table 4 shows the sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of sonography for its ability to predict placenta

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشرى طرابلس – قسم طب الأسرة والمجتمع

accrete.   The sensitivity of ultrasonography was 52.9%, the specificity was 100%, the positive predictive value was 100% and the negative predictive value was 84%.

Table 3: Grading of placenta

Grading of placenta	Placenta accrete	Not placenta accrete (praevia)
Grade 1	0%	7.1%
Grade 2	11.8%	33.3%
Grade 3	29.4%	40.5%
Grade 4	58.8%	19%
Total	100%	100%

Table 4: Sensitivity, Specificity, Positive predictive value (PPV), and Negative predictive value (NPV) of sonography

Ultrasonography	%
Sensitivity	52.9%
Specificity	100%
Positive predictive value	100%
Negative predictive value	84%

Discussion:
Due to the increasing rate of cesarean deliveries, prenatal diagnosis of placenta accreta is paramount, as most women are asymptomatic. Prenatal diagnosis allows time for a multidisciplinary team to make delivery plans, which will help decrease surgical complications, blood loss, and prolonged intensive care unit admissions. Attention should be paid to the sonographic examinations of those patients with a history of cesarean delivery and subsequent diagnosis of placenta previa. [7] Sonography is more available than MRI, less expensive, and noninvasive; therefore, it should be the diagnostic modality of choice for placenta accreta. Furthermore, the test of choice should be that with the highest sensitivity so as not to miss this serious condition. [7] The aim of this study was to evaluate the accuracy of ultrasonography in the diagnosis of placenta accrete. The result of the current study showed that most of the women with placenta accrete were more than 33 years with mean age of 35.6±5.7. A study was conducted in Taiwan revealed that women who were 35 years and older are at increased risk of having placenta accrete. [8] Other studies found an eleven-fold increase in the incidence of placenta praevia/accrete among mothers older than 35 years when compared to those younger than 20 years. [9,10] The study result showed that the sensitivity of ultrasound in detecting placenta accretes was 52.9%, which was low compared to other studies. [2,3] With the exception of the Lam study, most of the studies reported sensitivity of 77–93%. [11-14] Regarding the specificity of ultrasonography in the current study, the result showed that the specificity was 100%. Other studies reported specificity of 71-97%. Only Lam study reported 100% specificity rate. [11-14] The

difference in the sensitivity and specificity of sonography between studies could be due to the fact that transvaginal sonography was used in their study but was not routinely used in the current study study. It has been suggested that transvaginal sonography may improve accuracy for antenatal diagnosis of placenta accreta by improving the near-field resolution of the interface

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

between the placenta and the lower uterine segment, especially in cases of placenta previa or a posterior placenta. [15] It has also been suggested that the accuracy of sonography could also be affected by the frequency of the abdominal transducer used (a higher frequency will improve spatial resolution for superficial structures) or by the degree of bladder filling, especially when transvaginal sonography is not used. [16]The PPV and NPV in the present study were 100% and 84% respectively. Studies showed that PPV ranged between 65 and 88%, while the NPV was between 92 and 98%. [11-14] In this clinical setting, where increased preparation for delivery is the most likely consequence of a positive test result, these test characteristics are useful. Most clinicians would agree that being over-prepared for some cases is acceptable, as long as they can be reasonably certain that if they have a negative ultrasound result, they will not be faced with an undiagnosed accreta at the time of delivery. Therefore, although not perfect, ultrasound appears to be a powerful and fairly inexpensive testing modality in the diagnosis of placenta accreta. [17]

Conclusion:

In conclusion, ultrasonography has fairly good sensitivity and high specificity for prenatal diagnosis of placenta accreta. It is therefore important that other modalities for diagnosing placenta accrete should be used in combination with ultrasonography.

References:

1- Berghella V. Obstetric evidence based guidelines. London: Informa Healthcare; 2007.

2- Riteau A, Tassin M, Chambon G, Le Vaillant C, de Laveaucoupet J, Quéré M et al. Accuracy of Ultrasonography and Magnetic Resonance Imaging in the Diagnosis of Placenta Accreta. PLoS ONE. 2014;9(4):e94866.

3- Miller DA, Chollet JA, Goodwin TM. Clinical risk factors for placenta previa-placenta accreta. Am J Obstet Gynecol. 1997;177:210–214.

4- Miller DA , Chollet JA , Goodwin TM . Clinical risk factors for placenta previa - placenta accreta . AMJ Obstet Gynecol 1997; 177:210.

5- Read JA, Cotton DB , Miller FC . placenta accreta : changing clinical aspects and outcome . Obstet Gynecol 1980, 56:31.

6- Dwyer BK, Belogolovkin V, Tran L, et al. Prenatal Diagnosis of Placenta Accreta: Sonography or Magnetic Resonance Imaging? Journal of ultrasound in medicine : official journal of the American Institute of Ultrasound in Medicine. 2008; 27(9): 1275-1281

7- Berkley E. Abuhamad A. Prenatal Diagnosis of Placenta Accreta: Is Sonography All We Need?. Journal of Ultrasound in Medicine. 2013;32(8):1345-1350.

8- Hung TH ,SHau WY , Hsieh CC , Chiu TH ,Hsu JJ, Hsich TT , Risk factors for placenta accreta .1999 Apr ; 93 (4):545 - 550 .

9- Clark SL, Koonings PP, Phelan JP: Placenta previa/accreta and prior cesarean section. Obstet Gynecol 1985. 66: 89,

10- Iyasu S, Saftlas AK, Rowley DL et al: The epidemiology of placenta previa in the United States, 1979-1987. Am J Obstet Gynecol 1993. 168: 1424.

11- Chou MM, Ho ESC, Lee YH. Prenatal diagnosis of placenta previa accreta by transabdominal color Doppler ultrasound. *Ultrasound Obstet Gynecol* 2000; **15**: 28 – 35.

12. Warshak CR, Eskander R, Hull AD, Scioscia AL, Mattrey RF, Benirschke K, Resnik R. Accuracy of ultrasonography and magnetic resonance imaging in the diagnosis of placenta accreta. *Obstet Gynecol* 2006; 108: 573–581.

مؤتمر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسـرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

13- Dwyer BK, Belogolovkin V, Tran L, Rao A, Carroll I, Barth R, Chitkara U. Prenatal diagnosis of placenta accreta: sonography or magnetic resonance imaging? *J Ultrasound Med* 2008; **27**: 1275 – 1281.

14. Lam G, Kuller J, McMahon M. Use of magnetic resonance imaging and ultrasound in the antenatal diagnosis of placenta accreta. *J Soc Gynecol Investig* 2002; **9**: 37–40.

15- Lerner JP, Deane S, Timor-Tritsch IE. Characterization of placenta accreta using transvaginal sonography and color Doppler imaging. Ultrasound Obstet Gynecol. 1995;5:198–201.

16. Schmidt G, editor. Thieme Clinical Companions: Ultrasound. 3rd German. New York, NY: Georg Thieme Verlag; 2007. Basic physical and technical principles; pp. 1–2.

17- Esakoff TF,Sparks TN, Kaimal AJ, Kim LH, Feldstein VA, Goldstein RB, etal.Diagnosis and morbidity of placenta accreta. Ultrasound Obstet Gynecol.2011;37:324-327.

Prevalence of Asymptomatic Bacteria in Pregnant Women in Tripoli, Libya

Kheiria A. Elfigih,

Microbiology department, Tripoli University, Faculty of Medicine

ABSTRACT

Background: Despite medical attention to the diagnosis and treatment of symptomatic bacteriuria or urinary tract infection (UTI), asymptomatic bacteriuria continues to be an unknown serious health problem mainly among pregnant women in Libya mostly due to neglected routine urine testing and culture during regular antenatal care.

Objectives: No studies have been conducted nor valuable data collected in Libya concerning asymptomatic bacteriuria. Therefore, the present study aims to determine the prevalence rate of asymptomatic bacteriuria and to evaluate the size and extent of this medical problem among Libyan pregnant women.

Materials and Methods: The study was conducted in the period between January 2013 and the end of May 2013 (five months) at Al- Jala Maternity Hospital in Tripoli, Libya. A total of 200 healthy pregnant women attending the hospital for regular prenatal care were studied. Fifteen millilitre urine samples were collecte2d from the participants. These samples were centrifuged and microscopically studied for blood, pus and epithelia cells then they were cultured on CLED and blood agar plates.   Antimicrobial sensitivity tests were then conducted using Kirby Bauer disc diffusion technique.

Results: The prevalence of asymptomatic bacteriuria was 10.5% in the study population**.** The prevalence rate of asymptomatic bacteriuria in relation to the age in years, pregnancy trimester and parity was studied. It was found that the highest prevalence was within the lowest age group <20, those who were in their second trimester and women with multiple pregnancy.

Conclusion: This study confirms the presence of asymptomatic bacteriuria in the Libyan The result of pregnant women who participated in this study with a prevalence of 10.5%. antimicrobial sensitivity tests revealed that ciprofloxacin, ceftriaxone, nitrofurantoin, gentamicin and augmentin are the most effective antibiotics against the urine isolate in this study. Due to the dangerous effect of undiagnosed asymptomatic bacteriuria on mother and fetus findings from this study emphasise the importance of routine culture screening for all pregnant women during prenatal care.

Key words: asymptomatic bacteriuria; urine culture; prevalence rate.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

INTRODUCTION

Special attention to pregnant women is an important aspect of health care. One of the most serious problems in pregnancy is urinary tract infection (UTI) (1, 2, 3) which refers to both microbial colonization of the urine and tissue invasion of any structure of the urinary tract. Bacteria is most commonly responsible for UTI although yeast and viruses might be involved. Asymptomatic bacteriuria, in which urine culture reveals a significant growth of pathogens that is greater than 10^5 bacteria/ ml but without the patient showing any signs and symptoms of UTI can be found in both pregnant and none pregnant women. Pregnancy enhances the progression from asymptomatic to symptomatic bacteriuria which could lead to pyelonephritis hypertension, preeclampsia, septicaemia (4) and other adverse obstetric outcomes such as premature labour, low birth weight and higher fetal mortality rates (3, 5). In several previous studies, the prevalence rate of asymptomatic bacteriuria in pregnant women was reported to be 23.9% in Nigeria in 1993 (6), 86.6% in Benin city in 2001 (7), 7% in pregnant women in Ethiopia in 2001 (8) and 8.1% in Turkey (9).

MATERIALS AND METHODS

Subjects and Methods: The study was conducted at Al- Jala Matenity Hospital in Tripoli, Libya between January and May 2013. The study population consisted of healthy pregnant women at different gestational age receiving prenatal care at the hospital whereas pregnant women with a history of urinary tract infection (UTI), pregnancy induced diabetes mellitus, hypertension, women receiving antibiotic administration within the previous seven days and those who had active vaginal bleeding were excluded from this study. Demographic and clinical data of the pregnant women participating in this study was collected with the aid of questionnaire and included participant age in years, gestational age (pregnancy trimester) and parity. Samples of 15 ml clean-catch midstream first morning urine were collected from the participants in sterile bottles placed in ice box to be later transferred to the microbiology laboratory at the hospital for testing within two hours. Half of each urine sample was transferred to sterile centrifuge tube and then centrifuged at 300 rpm for fifteen minutes. The supernatant was discarded and the deposit was microscopically examined for pus cells, blood cells and epithelia cells. Pus cells > 5 were considered significant for infection. Using calibrated loop, 0.002 ml of the urine samples was cultured on CLED agar plates and blood agar plates. The plates were incubated at 37^0 overnight. Colony count yielding bacterial growth of 10^5/ml of pure isolate were considered significantly positive. Using standard methods for identification in microbiology, pure isolates were identified to species level to verify the predominant organisms as a cause of asymptomatic bacteriuria. Antimicrobial sensitivity tests were performed using Kirby Bauer disc diffusion technique to determine the isolate sensitivity to different antibiotics including ciprofloxacin, ceftriaxone, nitrofurantoin,

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

gentamicin, augmentin, ampicillin, ceftriaxone, nalidixic and streptomycin.

RESULTS

Out of 200 healthy pregnant women examined for asymptomatic bacteriuria in this study 21 were positive for asymptomatic significant bacteriuria giving a prevalence of 10.5%. Table (1) shows prevalence rates in relation to the clinical and demographic characteristics of the studied population. The highest rate of age specific prevalence was 12.5% in the age group 20 to 30 years and within the group > 30 years. In relation to pregnancy trimester, pregnant women in the second trimester showed high prevalence rate of 16% of asymptomatic bacteriuria. As for parity, pregnant women > 3 showed high prevalence rate of 20% of asymptomatic bacteriuria. The most dominant isolates of bacteria found in this study were *Escherichia coli* 8 (38%), *Proteus mlrabilis* 5 (23.8%), *Klebsiella spp.* 1 (4.8%) and *Staphylococus aureus* 4 (19%).

Characteristic	Positive Urine Culture (%)	Total Number
Age, y		
<20	5 (12.5)	40
20 to 30	12 (9.6)	125
>30	4 (11.4)	35
Pregnancy trimester		
First	7 (10.8)	65
Second	12 (16)	75
Third	2 (3.3)	60
Parity		
1	3 (4.6)	65
2	9 (10.6)	85
3	7 (17.5)	40
>3	2 (20)	10
Total	21 (10.5)	200

Table 1: Prevalence of Asymptomatic Bacteriuria in Pregnant Women in Tripoli, Libya

Page389

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس – قسم الأسرة والمجتمع

DISCUSSION

Asymptomatic bacteriuria accounts for major health problems mainly among pregnant women. Apparent reduction in immunity of pregnant women seems to encourage the growth of both commensal and non-commensal microorganisms while the physiological increase in plasma volume during pregnancy reduces urine concentration up to 70% which enhances the change of asymptomatic to symptomatic. Unfortunately, in several developing countries, including Libya, routine urine culture test is not carried regularly for antenatal patients. Different studies, however, had been conducted concerning asymptomatic bacteriuria as a common infection during pregnancy which highlights the significance of this infection and the importance of regular urine culture test at different gestational age. Despite variation in prevalence rates, the findings of the present study are similar to findings from the work of Mclsaac et al (2005), Klein & Gibbs (2004), Grio et al (1994) and Teppa & Roberts (2005) in that asymptomatic bacteriuria is both common and significant among pregnant women. The findings of this study point out the danger and extent of asymptomatic bacteriuria among the studied population. The prevalence rate of asymptomatic bacteriuria in the studied population was 10.5% with isolation of 21 different types of gram positive and gram negative bacteria. Although further study is recommended, the fact that prevalence rate was highest in < 20 in this study can be attributed to the notion that younger mothers do not seem to take antenatal care seriously. As for the fact that pregnant women during their second trimester and those with parity showed highest rates of virulence can be associated with extra hormonal and physiological change and reduced immunity respectively.

CONCLUSION

Asymptomatic bacteriuria is common among antenatal patients as the study population revealed. The prevalence of asymptomatic bacteriuria among pregnant women in this study was 10.5%. The predominant organisms were _E.coli_ and _P. mirabilis_. Most isolates were sensitive to ciprofloxacin, ceftriaxone, nitrofurantoin, gentamicin and augmentin. Findings of this study suggest that routine urine culture tests should be carried out on all antenatal patients in order to identify any unsuspected infection and to reduce maternal and obstetric complications associated with such infection.

REFERENCES

1. Mittal P, Wing DA. Urinary tract infections in pregnancy. Clin Perinatol. 2005;32:749-64.

2. Saidi A, Delaporte V, Lechevaller E. [Urological problems encountered during pregnancy] Prog Urol. 2005;15:1-5. French.

3. Delzell JE, Lefevre ML. Urinary tract infections duringh pregnancy . Am Fam Physician. 2000;61:713-21.

4. Raz R. Asymtomatic bacteriuria. Clinical significance and management . Int J Antimicrob Agents. 2003;22:45-7.

5. Abyad A. Screening for asymptomatic bacteriuria in pregnancy: urinalysis vs urine culture.J Fam Pract.1991;33:471-4.

6. Mclsaac W, Carroll JC, Biringer A, et al. Screening for asymptomatic bacteriuria in pregnancy . J Obstet Gynaecol Can. 2005;27:20-4.

7. Klein LL, Gibbs RS. Use of microbial cultures and antibotics in the prevention of infection-associated preterm birth. Am J Obstet Gynecol. 2004; 190:1493-502.

8. Grio R, Porpiglia M, Vetro E, et al. asymptomatic bacteriuria in pregnancy: a diagnostic and therapeutic approach. Panminerva Med. 1994;36:195-7.

9. Teppa RJ, Roberts JM. The uriscreen test to detect significant asymptomatic bacteriuria during pregnancy. J Soc Gynecol Investing. 2005;12:50-3.

The PREVALENCE OF MULTI DRUG RESISTANT ORGANISMS IN MEDICAL INTENSIVE CARE UNIT IN TRIPOLI MEDICAL CENTER – LIBYA.

*Dr: Zakaria Ali Ben –issa   @ Dr: Abubaker Elmaryul

*SHO-MBBCH ,TA in histology in Tripoli medical college.   @Consultant physician ,MBBCH ,MRCPI,MRCPGLas,   MMSc,GPT,FTTA.

Abstract :

Background : MDR microorganisms, that are resistant to one or more classes of antimicrobial agents .

Aim of study: to investigate the prevalence of the multidrug organisms among pt admitted in medical ICU for 2014 year and to identify the effective antibiotics used.

Patient and method :cross sectional study including all patients admitted in M ICU from 1st jan.2014 to 31th dec 2014 , 501 samples of blood and sputum where isolated and sent to microbiological lab in TMC.

Results: the prevalence of MDR in M.ICU was (9%) the mean age was 55 year with a minimal age was 22year and maximal age was 90 year and the range was 68 year, the males 30 case and females 15 case the pathological organisms was 20 case (44.4%)acinetobacter baumanii, 19case (42.2%)klebsiella ESBL , 6 cases (13.3%)pseudomonas aeruginosa , from the MDR cases actually there was 8 of acinenobacter resistant to all antibiotics (EDR) even for carbapenems and amikacin and ninety present of MDR cases expired .

Conclusion and recommendation :we conclude from our study that the prevalence was nine present whitch was nearly the same in developing country , the primary goal is to controlling spread aggressively, and preventing the establishment of endemic strains.

Key words : MDR , Acinetobacter baumannii, klebsiella ESBL, pseudomonas aeruginosa.

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Introduction :

MDROs are defined as microorganisms, predominantly bacteria, that are resistant to one or more classes of antimicrobial agents[1] . Although the names of certain MDROs describe resistance to only one agent (e.g., MRSA, VRE), these pathogens are frequently resistant to most available antimicrobial agents . These highly resistant organisms deserve special attention in healthcare facilities[2]. In addition to MRSA and VRE, certain GNB, including those producing extended spectrum beta-lactamases (ESBLs) and others that are resistant to multiple classes of antimicrobial agents, are of particular concern.

In addition to Escherichia coli and Klebsiella pneumoniae, these include strains of Acinetobacter baumannii resistant to all antimicrobial agents, or all except imipenem[3,4], and organisms that are intrinsically resistant to the broadest-spectrum antimicrobial agents. it is important to control multidrug-resistant S. pneumoniae (MDRSP) that are resistant to penicillin and other broad-spectrum agents such as macrolides and fluroquinolones[5,6]. Strains of S. aureus that have intermediate susceptibility or are resistant to vancomycin (i.e., vancomycin-intermediate S. aureus [VISA], vancomycin-resistant S. aureus [VRSA])[7,8] have affected specific populations, such as hemodialysis patients.

Multidrug-resistant organisms (MDROs), including methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE) and certain gram-negative bacilli (GNB) have important infection control implications that either have not been addressed or received only limited consideration in previous isolation guidelines. Increasing experience with these organisms is improving understanding of the routes of transmission and effective preventive measures. Although transmission of MDROs is most frequently documented in acute care facilities, all healthcare settings are affected by the emergence and transmission of antimicrobial-resistant microbes. The severity and extent of disease caused by these pathogens varies by the population affected and by the institution in which they are found. Institutions, in turn, vary widely in physical and functional characteristics, ranging from long-term care facilities (LTCF) to specialty units (e.g., intensive care units [ICU]) in tertiary care facilities.[9]

Aim of the Study: to investigate the prevalence of the multidrug organisms among patient admitted in medical ICU for 2014 year and also to identify the effective antibiotics used .

Patients AND METHODE: cross sectional study including all patients admitted in M ICU from 1st jan.2014 to 31th dec 2014 a total of 797 case , for about 501 samples of blood and sputum for the patients who has a suspension of infection, it was (277 blood and 224 sputum) the request taken to send the samples to microbiology lab in TMC ,and the result came back and registered in the file of the patient ,the data was taken from files of the patient that was admitted in MICU the variables was the gender, age, antibiotic use, the result was including the name of organisms ,sensitivity and resistant to antibiotics the data was managed and analyzed by EXCEL descriptive study was used.

ETHICAL POINT: we took the permission to from the head of medical ICU department in TMC and the head of microbiology lab.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Results :

A total 797 cases was admitted in medical ICU in 2014 in TMC,501 samples was taken 45 case was isolated as a MDR cases the prevalence was (9%) the mean age was 55 year with a minimal age was 22year and maximal age was 90 year and the range was 68 year, the males 30 case and females 15 case the pathological organisms was 20 case (44.4%)acinetobacter baumanii, 19case (42.2%)klebsiella ESBL , 6 cases (13.3%)pseudomonas aeruginosa see figures [1,2,3] , also from the MDR cases actually there was a 8 from the 20 of acinenobacter resistant to all (EDR) even for carbapenems and amikacin and the outcome of the patient was death for the 90% of cases.
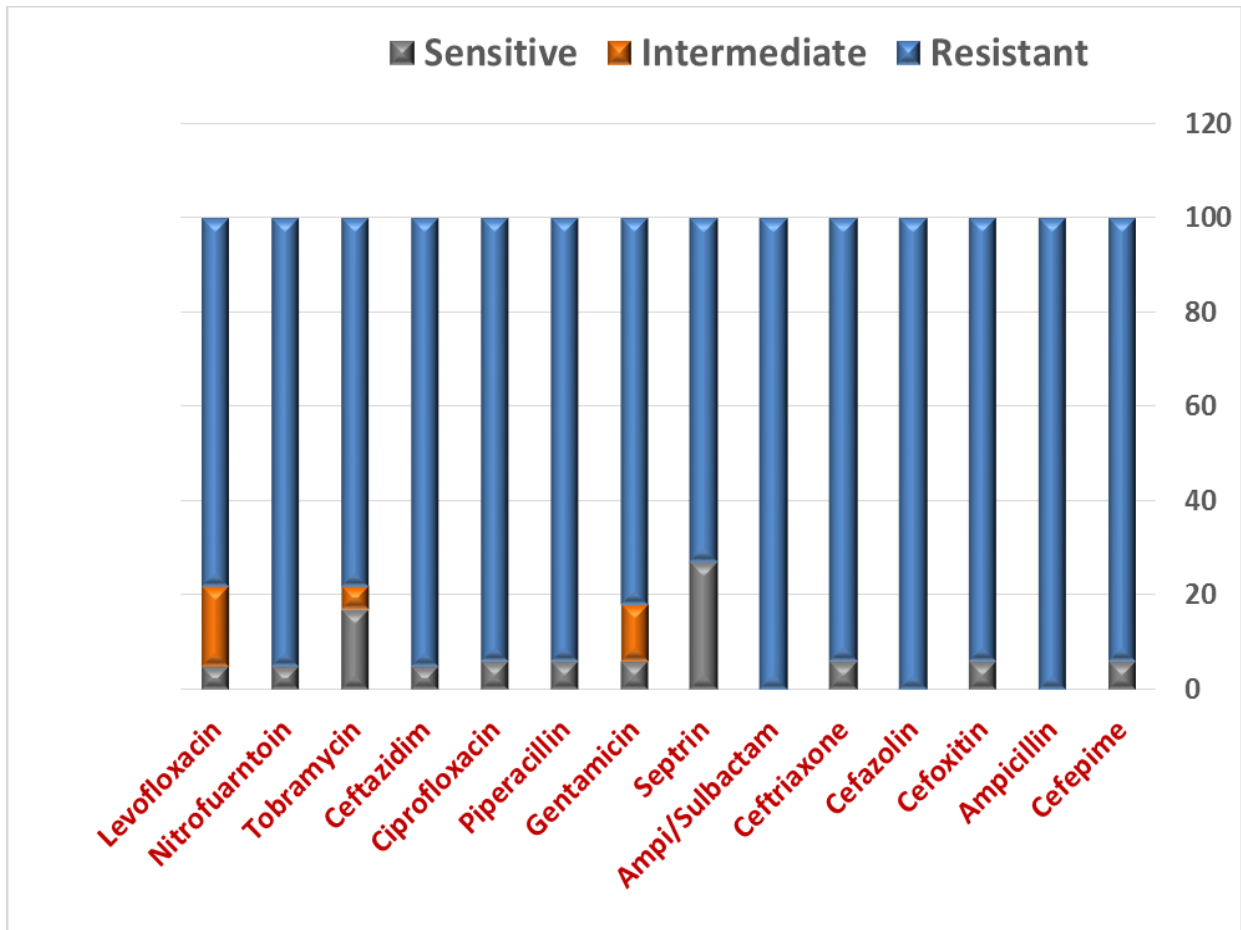
Figure [1] shows the distribution of Acinetobacter baumannii organism to   antibiotic sensitivity and resistant to the patient admitted in M.ICU IN 2014 .

Regarding acinetobacter baumanii the sensitivity was (25% to septrin, 15% to topramycin, 5% to cipro , fortum , levofloxacin and tazocin) .

Page 394
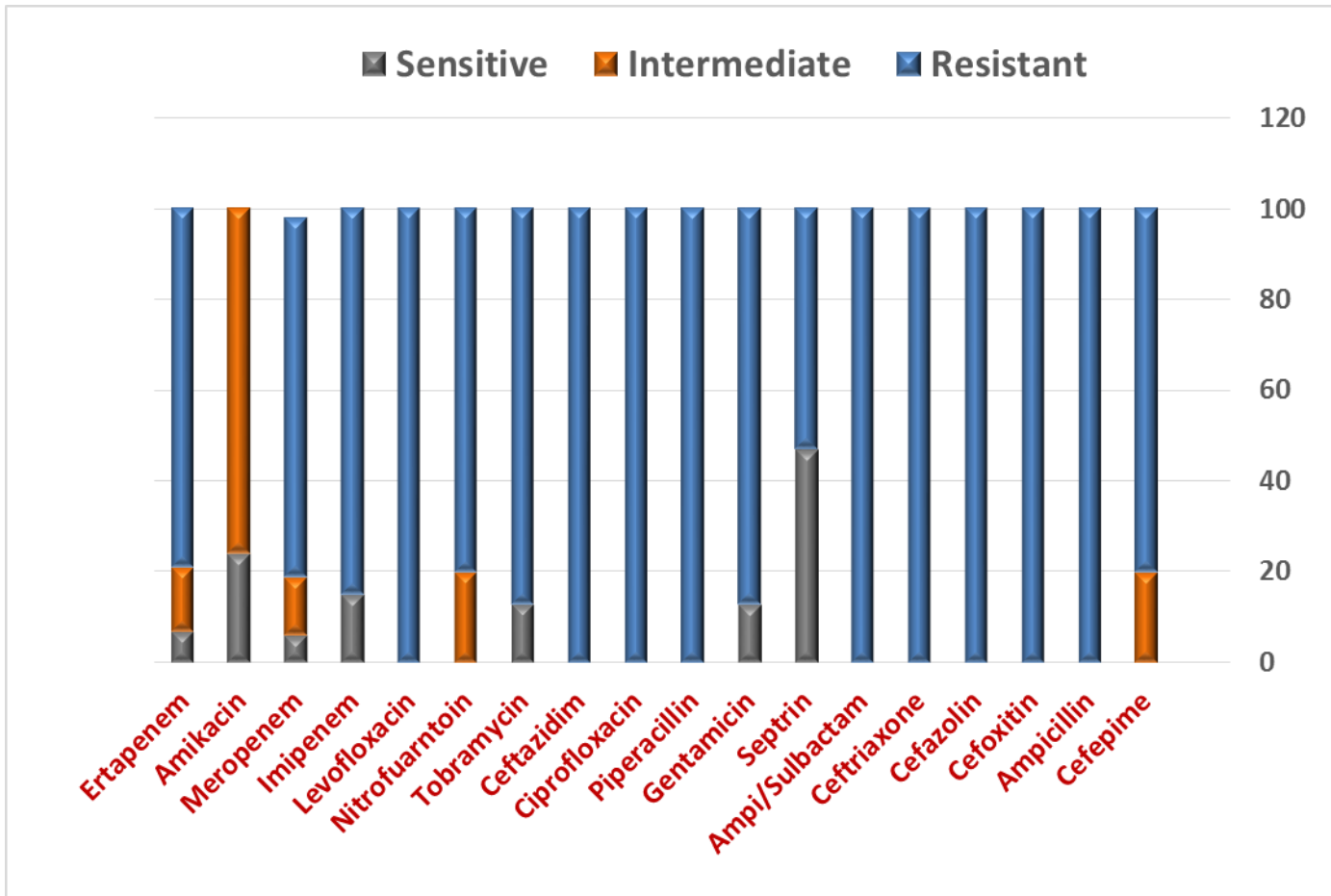
Figure [2] shows the distribution of Klebseilla pneumonia ESBL organism to antibiotic sensitivity and resistant to the patient admitted in M.ICU IN 2014 .

Regarding to klebsiella the sensitivity was (42% for septrin ,21% for amikacin ,5% meropenem ,0% for rocephin , tazocin, cipro, fortum and levofloxacin) .
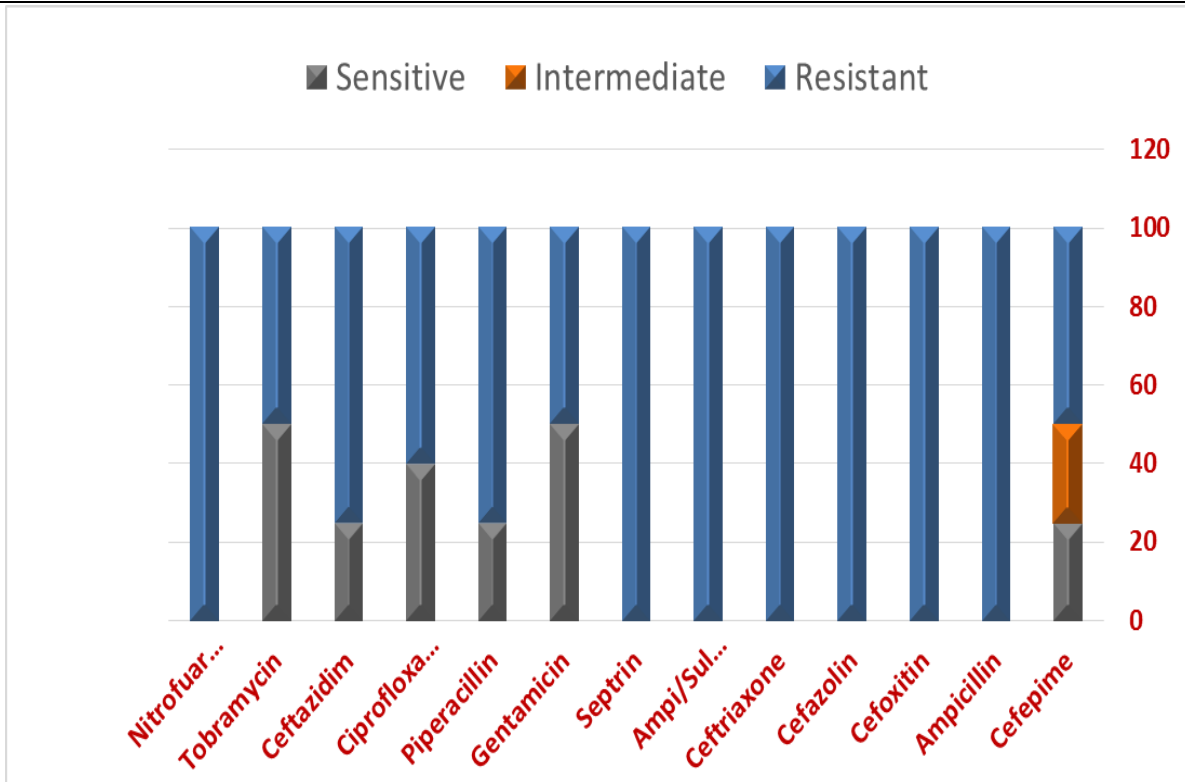
Figure [3] shows the distribution of Pseudomonas aeruginosa organism to antibiotic sensitivity and resistant to the patient admitted in M.ICU IN 2014 .

Regarding Pseudomonas the sensitivity was (42% for amikacin ,28% for levofloxacin and ciprofloxacin , 0% cefepim and septrin).

Discussion:

MDR concerning a special attention in health care facility in our M .ICU we isolate a 45 case as MDR from 501 samples of blood and sputum from a patients admitted in MICU in 2014 the gender was 30 males and 15 females, with a mean age 55year and the organisms acinetobacter baumanii, Klebseilla pneumonia ESBL and Pseudomonas aeruginosa), the prevalence was 9%, in comparison of other study of (Jean Uwingabiye)[10] where the prevalence was 6.94% , in (Shahzeera Begum)[11] study the prevalence of MDRs was reported 100% , and in (Amatya R)[12] study the prevalence of Acinetobacter complex among total isolates was 12.5% and among gram negative bacilli was 15.3%, also in (Jean Uwingabiye)[10] 65, 2% (191 cases) were males (sex ratio = 1.9) and the median age was 56 years , of which, Acinetobacter clinical isolates were obtained from respiratory samples (44.67%) followed by blood cultures (14.51%). But in (Amatya R)[12] The rate of isolation of Acinetobacter from male and female patients was almost equal (50.6% vs 49.4%). The highest numbers of Acinetobacter were isolated from samples from patients between 21 -30 years of

Page396

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

age (22.7%) and regarding the acinetobacter baumanii, in (Jean Uwingabiye)[10] The resistance to ciprofloxacin, ceftazidime, piperacillin / tazobactam, imipenem, amikacin, tobramycin, netilmicin, rifampicin and colistin was respectively 87%, 86%, 79%, 76%; 52%, 43%, 33% 32% and 1.7%[Jean Uwingabiye, et al][10] ,in (Shahzeera Begum)[11] study Acinetobacter baumannii exhibited the highest resistance (91, 100%) against cephalosporins, carbapenems, flouroquinolones and β-lactam drugs, Among aminoglycosides, tobramycin showed better activity than amikacin. Tetracycline also showed highest resistance (60, 65.93%) while tigecycline and minocycline showed zero resistance (91, 0.00%)[Shahzeera Begun, et al][11]. and in (Amatya R)[12] the sensitivity to ciprofloxacin 31%,tazocin 48%, ceftriaxone 30%,imipenem 52%.[Amatya R, et al][12].data of the antibiotic susceptibilities of Acinetobacter from different geographical regions revealed that the resistance of Acinetobacter spp. to imipenem was in the range of no resistance to 40% [Perez F, et al][13]. In a report from a Teaching Hospital in Spain , the prevalence of imipenem-resistant Acinetobacter spp. had increased from no resistance in 1991 to 50% in 2001.[Cisneros JM, et al][14] Among Acinetobacter spp. derived from 30 European centers from the worldwide collection of SENTRY from 2001 to 2004, the proportion of strains resistant to imipenem, meropenem, ampicillin/sulbactam, and polymyxin B was: 26.3, 29.6, 51.6, and 2.7%, respectively.[Gales AC, et al][15]. from Vellore, India (2005), reported a prevalence of 14% carbapenem-resistant Acinetobacter spp., isolated from tracheal aspirates (n = 56). [Gladstone P, et al][16] .For Klebseilla pneumonia ESBL in (Najla Mathlouthi)[17] study shows, the resistance prevalence was high for aminoglycosides (> 60%), fluoroquinolones (> 80%), and extended-spectrum cephalosporins (> 94%), and was low for imipenem (11.4%). Among this collection, 58 strains (66.6%) were ESBL producers and 10 K. pneumoniae strains (11.4%) .[Najla Mathlouthi , et al][17] the other study(Shailja Srivastava)[18,19] for Extended Spectrum - lactamases (ESBL) producing Klebsiella pneumonia of 77 pt it shows a sensitivity of 51% to ceftriaxone ,imipenem 97% , amikacin 34% ,ciprofloxacin 52% , nitrofuarntoin 61% .[Shailja Srivastava1, etal][18,19] for Pseudomonas aeruginosa in comparison to this study A prospective study(Indu Biswal)[20] was undertaken with 525 samples which were taken from 60 patient P. aeruginosa strains were found to be resistant to aminoglycosides, 41-70% were resistant to beta-lactams - piperacillin, ceftazidime, and aztreonam, 34.5% were resistant to piperacillin-tazobactam, 12.06% were resistant to ciprofloxacin and 13-19% were resistant to carbapenems. All strains were sensitive to colistin. P. aeruginosa was resistant to three of the four 'in-use' drugs i.e. piperacillin+tazobactam, imipenem, ceftazidime, and gentamicin, which was taken as MDR.[Indu Biswal, et al][20].

Conclusion Recommendations :

We conclude from our study that the prevalence was nine percent the mean age was fifty five most of them are males most of the organisms was Acinetobacte baumannii .

Its important to :

Recognizing its presence in a hospital or long-term care facility at an early stage.
Controlling spread aggressively, and preventing the establishment of endemic strains.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

To follow a policy for antibiotic use and the availability of broad spectrum antibiotic in public pharmacies.

References :

IOM (1998), eds. Harrison, P. F. & Lederberg, J. (National Academy Press, Washington, DC), pp. 8-74.

Shlaes, D. M., Gerding, D. N., John, J. F., Jr., Craig, W. A., Bornstein, D. L., Duncan, R. A., Eckman, M. R., Farrer, W. E., Greene, W. H., Lorian, V., et al. (1997) Infect Control Hosp Epidemiol 18, 275-291

6. Mahgoub, S., Ahmed, J., & Glatt, A. E. (2002) Infect Control Hosp Epidemiol 23, 477-479.

Gales, A. C., Jones, R. N., Forward, K. R., Linares, J., Sader, H. S., & Verhoef, J. (2001) Clin Infect Dis 32 Suppl 2, S104-113.

Fry, A. M., Udeagu, C. C., Soriano-Gabarro, M., Fridkin, S., Musinski, D., LaClaire, L., Elliott, J., Cook, D. J., Kornblum, J., Layton, M., et al. (2005) Infect Control Hosp Epidemiol 26, 239-247.

Carter, R. J., Sorenson, G., Heffernan, R., Kiehlbauch, J. A., Kornblum, J. S., Leggiadro, R. J., Nixon, L. J., Wertheim, W. A., Whitney, C. G., & Layton, M. (2005) Infect Control Hosp Epidemiol 26, 248-255.

Whitener, C. J., Park, S. Y., Browne, F. A., Parent, L. J., Julian, K., Bozdogan, B., Appelbaum, P. C., Chaitram, J., Weigel, L. M., Jernigan, J., et al. (2004) Clin Infect Dis 38, 1049-1055.

Srinivasan, A., Dick, J. D., & Perl, T. M. (2002) Clin Microbiol Rev 15, 430-438.

Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006,Jane D. Siegel, MD; Emily Rhinehart, RN MPH CIC; Marguerite Jackson, PhD; Linda Chiarello, RN MS; the Healthcare Infection Control Practices Advisory Committee

Acinetobacter infections prevalence and frequency of the antibiotics resistance: comparative study of intensive care units versus other hospital units, Jean Uwingabiye,& Mohammed Frikh, Abdelhay Lemnouer, Fatna Bssaibis, Bouchra Belefquih, Adil Maleb, Souhail Dahraoui, Lahcen Belyamani, Abdelouahed Bait, Charki Haimeur, Lhoussain Louzi, Azeddine Ibrahimi, and Mostafa Elouennass, Faculte of medecine and Pharmacie, Universite Mohammed V, Rabat, Maroc 2014

Prevalence of multi drug resistant Acinetobacter baumannii in the clinical samples from Tertiary Care Hospital in Islamabad, Pakistan
    Shahzeera Begum, Fariha Hasan, Shagufta Hussain, and Aamer Ali,2011

Prevalence of tigecycline resistant multidrug resistant Acinetobacter calcoaceticus-Acinetobacter baumannii complex from a tertiary care hospital in Nepal Amatya R1 , Acharya D 2 1Department of Microbiology, Nepal Medical College and Teaching Hospital, Jorpati, Kathmandu, Nepal; 2 Central department of Microbiology, Tribhuvan University, Kathmandu, Nepal.

Perez F, Hujer AM, Hujer KM, Decker BK, Rather PN, Bonomo RA. Global challenge of multidrug-resistant Acinetobacter baumannii. Antimicrob Agents Chemother. 2007;51:3471–84.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Cisneros JM, Rodríguez-Baño J. Nosocomial bacteremia due to Acinetobacter baumannii: epidemiology, clinical features and treatment. Clin Microbiol Infect. 2002;11:687–93.

Gales AC, Jones RN, Sader HS. Global assessment of the antimicrobial activity of polymyxin B against 54 731 clinical isolates of Gram-negative bacilli: report from the SENTRY antimicrobial surveillance programme (2001-2004) Clin Microbiol Infect. 2006;12:315–21.

Gladstone P, Rajendran P, Brahmadathan KN. Incidence of carbapenem resistant nonfermenting gram negative bacilli from patients with respiratory infections in the intensive care units. Indian J Med Microbiol. 2005;23:189–91.

Carbapenemases and extended-spectrum β-lactamases producing Enterobacteriaceae isolated from Tunisian and Libyan hospitals
Najla Mathlouthi, Charbel Al-Bayssari, Allaaeddin El Salabi, Sofiane Bakour, Salha Ben Gwierif, Abdulaziz A Zorgani, Yahia Jridi, Karim Ben Slama, Jean-Marc Rolain1, Chedly Chouchani.2016

Nosocomial Infection due to Multidrug Resistant (MDR) Escherichia coli and Klebsiella pneumoniae in Intensive Care Unit ,B.L.Chaudhary1*, Shailja Srivastava1, Brij Nandan Singh2 and Snehanshu Shukla3 ,Department of Microbiology, Mayo Institute of Medical Sciences, Barabanki, Lucknow, India ,Department of Microbiology, Hind Institute of Medical Sciences, Barabanki, Lucknow, India 3Department of Microbiology, G.S.V.M. Medical College, Kanpur, India.

Nosocomial Infection due to Multidrug Resistant (MDR) Escherichia coli and Klebsiella pneumoniae in Intensive Care Unit ,B.L.Chaudhary1*, Shailja Srivastava1, Brij Nandan Singh2 and Snehanshu Shukla3 ,Department of Microbiology, Mayo Institute of Medical Sciences, Barabanki, Lucknow, India ,Department of Microbiology, Hind Institute of Medical Sciences, Barabanki, Lucknow, India 3Department of Microbiology, G.S.V.M. Medical College, Kanpur, India.

Incidence of Multidrug Resistant Pseudomonas Aeruginosa Isolated from Burn Patients and Environment of Teaching Institution in Vardhman Mahavir Medical College and Safdarjang hospital , Indu Biswal, Balvinder Singh Arora,corresponding author ,Dimple Kasana, and Neetushree2014.

Prevalence of abnormal glucose regulation in Libyan patients presenting for elective coronary angiography

Dr. Hawa Juma El-Shrief[1], Dr. Khaled Alwaleed[2]

(1) Tripoli Medical Center, Libya   (2) National Heart Centre, Tajora, Libya. E. mail: - hawa_elsharif@yahoo.com

ABSTRACT

Background:

Patients with coronary artery disease (CAD) frequently have multiple risk factors. Diabetes and impaired glucose tolerance (IGT) has been associated with cardiovascular events and cardiovascular disease mortality.

Aim of the study

To determine the prevalence of abnormal glucose regulation among Libyan patients, presenting for elective coronary angiography.

Methods and materials:-

All patients referred for diagnostic coronary angiogram at the Catheterization Laboratory of National Heart Centre, Tajora, Tripoli over a period of one year from April 2007, and March 2008, were included after consent. Patients with history of diabetes were excluded. Diagnostic coronary angiogram was performed for all included patients as well as a standard oral glucose tolerance test (OGTT) with 75 gm glucose.

Results:-

99 patients were included in our study, with mean age of 54.6±11.2 years.   49 (49.5%) of the enrolled patients showed either impaired or diabetic fasting or 2-hour OGTT results. 23 (23.2%) patients were diabetic based on FBG or 2-hour OGGT result, and 20 (20.2%). Of the 15 (15.2%) patients with impaired fasting (IFG), 7 (46.7%) patient showed diabetic glucose tolerance (DGT), and 2 (13.3%) patients have IGT.

Among patients with abnormal glucose metabolism, coronary angiogram showed significant coronary artery disease in 36 (73.5%), compared to 28 (56%) of patients with normal fasting and 2-hour OGTT results.

Conclusion:-

Abnormal glucose regulation was high among Libyan patients presented for elective angiography. OGTT should be part of the evaluation in this high risk population.

Key words: Abnormal glucose regulation; coronary artery disease; oral glucose tolerance test.

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Introduction

Diabetes mellitus (DM) has been identified as an independent risk factor for atherosclerotic cardiovascular disease.[1-3]

In Framingham Study, the incidence of cardiovascular disease is two- to threefold higher in diabetic patients compared with non-diabetic subjects.[4]

In a study of 14,703 patients with MI, previously and newly diagnosed diabetes was associated with increased mortality at one year, by 43 % and 50 % respectively.[5]

The increased cardiovascular disease (CVD) risk extends to glucose regulation abnormalities antecedent to diabetes diagnosis.[6,7]

In patients with stable angina the prevalence of glucose disturbances range from 43 to even 78%.[8]

Abnormal glucose metabolism is frequently observed in patients with acute myocardial infarction (MI).

The Glucose Tolerance in Patients with Acute MI (GAMI) Study, showed that a substantial percentage of patients with acute MI have undiagnosed abnormal glucose regulation (AGR).[9]

The prevalence of diabetes mellitus among Libyan patients hospitalized with acute myocardial infarction was 48.2%.[10]

Diabetic patients who have had myocardial infarction have a higher mortality rate both in the early phase and in long-term follow-up.[11]

Mortality after myocardial infarction (MI) is 2- to 4-times higher among diabetic patients than in the non-diabetic.[12,13]

However, a large proportion of adults meeting the diagnostic criteria for diabetes do, remain undiagnosed.

The impaired glucose tolerance (IGT) category has been more associated with cardiovascular morbidity and mortality than fasting plasma glucose.[14,15]

It has been suggested that an oral glucose tolerance test (OGTT) should be part of the evaluation of overall cardiac risk in patients with CAD.

Several studies from different populations reported an increased prevalence of glucose intolerance among patients referred for coronary arteriography and with no previous history of diabetes.

The aim of this study is to determine the prevalence of abnormal glucose regulation among Libyan patients, presenting for elective coronary angiography.

Methods

All patients referred for diagnostic coronary angiogram at the Catheterization Laboratory of National Heart Centre, Tajora, Tripoli over a period of one year from April 2007, and March 2008, were included after consent. Patients with history of diabetes were excluded.

Demographic data collected included age, gender, previous history of ischemic heart disease and cardiovascular risk factors including family of history of diabetes mellitus, history of smoking, systolic blood pressure (SBP)/diastolic blood pressure (DBP) $\geq$ 140/90 mmHg or history of hypertension.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Body mass index was calculated as the body weight (kg) divided by the square of the height (m2) as well as waist circumference and waist: hip ratio (W: H ratio).

Urea, creatinine and Fasting lipid profile (total cholesterol, low-density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL), and triglyceride levels were measured.

Diagnostic coronary angiogram was performed for all included patients as well as a standard oral glucose tolerance test (OGTT) with 75 gm glucose.

Patients were divided into four categories depending on the results of the OGTT according to WHO guidelines:

NFG <110mg/dl, IFG >110 but <126, DFG>126.

NGT<140 mg/dl, IGT >140 but <200, DGT>200.

Normal; NFG <110mg/dl, & NGT<140 mg/dl

IFG: FBG $\geq$110 but <126 & NGT<140 mg/dl

IGT: 2-hour PG $\geq$140 but <200

Diabetes mellitus: FPG $\geq$126 and/or a two-hour $\geq$200.

Coronary angiography results were classified as negative or positive ($\geq$1vessel) CAD.

Data were analysed using SPSS version 19.0, independent Student's t-test or Mann–Whitney test was used to assess the significance of differences between categories, P-value < 0.05 was considered significant

Results

During the study period 101 patients with no history of diabetes mellitus underwent OGTT. All patients recruited were presenting for elective day case diagnostic coronary angiogram. Two patients have been excluded from final analysis (Non-Libyan); the study subjects included 99 Libyan patients. The mean ($\pm$SD) age was 54.6$\pm$11.2 years (range 28 −75), and 67.7 % were male

The mean body mass index (BMI) $\pm$ SD was 28.8$\pm$5.3 kg/m2 (range 20.0– 46.4).

26.3% had normal BMI; 37.4% were overweight, 33.3% were obese and 3% were morbidly obese, 44.4% were smokers.

50.5 % were hypertensive. All patients had history of ischemic heart disease (Stable angina in 37.4%, unstable angina in 23.2% and myocardial infarction in 39.4%).

44.4% had family history of diabetes mellitus and 21.2 % had family history of ischemic heart disease. (Table 1)

Significant coronary artery disease (CAD) was identified in 64.6% of patients based on results of coronary angiography; one-vessel disease in 28 (28.3%), two-vessel disease in 15 (15.2%),

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

and three-vessel disease in 21 (21.2%). In 35 (35.4%) no significant stenosis in the coronary arteries.

From the total cohort of patients, 15 (15.2%) patients had impaired fasting glucose (IFG), which was defined as FPG between 110 and 126 mg/dl, 15 (15.2%) were diabetics fasting glucose (FPG $\geq$ 126) and 69 (69.7%) had normal fasting glucose results (FBG<110).

Out of 69 patients with NFG 18 patients (26.1%) had IGT and one patient (1.4%) had DGT

Based on the results of the OGTT and according to the WHO criteria, 41(41.4%) demonstrated disturbances of glucose metabolism, 24 (24.2%) had IGT and 17 (17.2 %) had type 2 diabetes.

Relationship between CAD and abnormal glucose metabolism.

48.4 % of those with positive coronary angiography had an abnormal two-hour glucose compared to 28.5 % in those with normal coronary angiography results (p=.036). (Figure-1)

More patients with CAD and impaired glucose regulation were identified based on the glucose challenge; where 20.3 % had overt DM diagnosed after a glucose challenge compared with 15.6 % with DM based on an FPG. (Figure-1)

The association between abnormal glucose metabolism and the presence of significant CAD was stronger for the two-hour post glucose challenge than the FPG. (Table-2)

On comparing the overlap of the FPG and the two-hour glucose, almost half (46.3 %) of the patients with an abnormal two-hour glucose had normal fasting plasma glucose. (Table-3)

Twenty two individuals (22.2%) met both criteria, with an abnormal FPG and abnormal two-hour glucose. (Table-3)

Discussion

Our study showed higher rates of undiagnosed diabetes mellitus and impaired glucose regulation in Libyan patents presenting for coronary angiography than those seen in general Libyan population.

49 (49.5%) of the total study population showed abnormal glucose regulation. The percentage increased to 56.3% in those with positive coronary angiogram. Even those with no significant coronary artery disease on catheterization 37.1% showed abnormal glucose regulation. These proportions are higher than those reported in a Libyan population based stepwise survey which assessed the prevalence of cardiovascular risk factors among Libyans aged 25- 64. 16

The prevalence of type 2 diabetes and impaired glucose regulation in Stepwise Survey was 23.7%.[16]

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Data from various studies showed that the prevalence of abnormal glucose regulations (AGR) is considerably more common in patients with confirmed CAD than in the general population.[17, 18]

Patients with significant stenosis had higher fasting blood glucose (FPG), post load glucose, than individuals without or with non-significant stenosis.[19]

In the present study 48.4 % of subjects with Significant CAD had an abnormal two-hour glucose compared to 28.5 % in those with no CAD (p=.036).

These are comparable to rates of undiagnosed DM and IGT in patients with CAD to those seen in the Euro Heart Survey on diabetes and the heart, where 32% had IGT and 14% had DM on OGTT.[20]

Cardiovascular risk starts to increase long before overt diabetes mellitus occurs.[21]

The association between abnormal glucose metabolism and the presence of significant CAD was stronger for the two-hour post glucose challenge than the FPG.[14]

In patients with CAD 20.3 % had overt DM diagnosed after glucose challenge compared with 15.6 % with DM based on an FPG.

For both those with positive and negative coronary angiogram, almost half (46.3 %) of the patients with an abnormal two-hour glucose had normal fasting plasma glucose;

The Euro Heart Survey two-thirds of patients with AGR on OGTT had normal FPG tests. [22]

In another study, 59% of patients with newly diagnosed AGR had normal fasting blood glucose and so would have remained undiagnosed without the performance of OGTTs.[23]

The use of a fasting blood glucose test alone may miss a significant number of patients with unrecognised glucose intolerance.

The 2-h post-glucose load in OGTT is a stronger predictor of the risk of future CVD events than FPG.[24, 25]

The cardiovascular events increased in a linear fashion without a threshold for 2-h postprandial plasma glucose.[26]

Early detection of abnormal glucose regulation in patients with CAD identifies a population at increased risk of cardiovascular events.

Addressing the postprandial plasma glucose excursions leads to significant cardiovascular risk reduction.[27]

Long-term follow-up of patients with MI, showed that the presence of abnormal glucose regulation including IGT or diabetes, diagnosed by OGTT, increase risk of cardiovascular events by around four times.[28]

The European Association for the study of Diabetes (EASD) recommends the use of an OGTT to investigate abnormal glucose regulation in patients without known diabetes but with established cardiovascular.[29]

Diabetes mellitus is very important risk factors for CAD among Libyan patients.

The prevalence of diabetes mellitus among Libyan patients hospitalized with acute myocardial infarction was 48.2%.[10]

Diabetic deaths account for 26.2% of all medical deaths in medical wards of Tripoli Medical Centre and cardiovascular disease account for 31.8% of all in hospital deaths among Libyan patients.[30]

Early detection and treatment of abnormal glucose regulations should favourably affect the prognosis for patients with CAD.

Conclusions

This study has demonstrated that a significant number of patients presenting for angiography have previously unidentified impaired glucose metabolism.

Of the patients with significant CAD, 48.4% had evidence of abnormal glucose metabolism based on an OGTT (28.1% had IGT and 20.3% with DM).

OGTT should be performed routinely in patients with significant CAD coronary artery disease.

Early diagnosis and treatment of abnormal glucose regulation in patients with significant CAD coronary artery disease reduces the cardiovascular morbidity and mortality in this high risk group.

References

Haffner SJ, Cassells H: Hyperglycemia as a cardiovascular risk factor (Review). Am J Med 2003; 115 (Suppl. 8A):6S–11S.

Hurst RT, Lee RW: Increased incidence of coronary atherosclerosis in type 2 diabetes mellitus: mechanisms and management. Ann Intern Med 2003; 139:824–834.

Mykkanen L, Laakso M, Pyorala K. Asymptomatic hyperglycemia and atherosclerotic vascular disease in the elderly. Diabetes Care 1992; 15: 1020-1030.

Kannel WB, McGee DL: Diabetes and cardiovascular risk factors in the Framingham Study. JAMA 1978; 38:46 –51.

Aguilar D, Solomon S, Kober L et al. Newly diagnosed and previously known diabetes mellitus and 1-year outcomes of acute myocardial infarction: the VALsartan In Acute myocardial iNfarcTion (VALIANT) trial. Circulation 2004; 110(12):1572-8.

Balkau B, Shipley M, Jarrett RJ, Pyorala K, Pyorala M, Forhan A, Eschwege E: High blood glucose concentrations is a risk factor for mortality in middle-aged nondiabetic men: 20-year follow-up in the Whitehall Study, the Paris Prospective Study and Helsinki Policemen Study. Diabetes Care 1998; 21:360 –373.

Ducimetiere P, Eschwege E, Papoz L, Richard JL, Claude JR, Rosselin G: Relationship of plasma insulin levels to the incidence of myocardial infarction and coronary heart disease mortality in a middle-aged population. Diabetologia1980; 19:205–210.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Włodarczyk, Strojek K. Glucose intolerance, insulin resistance and metabolic syndrome in patients with stable angina pectoris. Obesity predicts coronary atherosclerosis and dysglycemia. POLSKIE ARCHIWUM MEDYCYNY WEWNĘTRZNEJ 2008; 118 (12):719-725.

Norhammar A, Tenerz A, Nilsson G, Hamsten A, Efendic S, Ryden L, Malmberg K. Glucose metabolism in patients with acute myocardial infarction and no previous diagnosis of diabetes mellitus: a prospective study. Lancet 2002; 359:2140–2144.

Abduelkarem AR, El-Shareif HJ, Sharif SI. Evaluation of risk factors in acute myocardial infarction patients admitted to the coronary care unit, Tripoli Medical Centre, Libya. Eastern Mediterr Health J 2012; 18: 332–6.

Miettinen H, Lehto S, Salomaa V, Mahonen M, Niemela M, Haffner SM, Pyorala K, Toumilehto J: Impact of diabetes on mortality after the first myocardial infarction. Diabetes Care 1998;21:69 –75,

Malmberg K, Norhammar A, Wedel H, et al. Glycometabolic state at admission: important risk marker of mortality in conventionally treated patients with diabetes mellitus and acute myocardial infarction. Long-term results of DIGAMI Study. Circulation 1999; 99: 2626-2632.

Mukamal K, Nesto R, Cohen M, et al. Impact of diabetes on long-term survival after acute myocardial infarction. Diabetes Care 2001; 24: 1422-1427.

Tominaga M, Eguchi H, Manaka H, Igarashi K, Kato T, Sekikawa A: Impaired glucose tolerance is a risk factor for cardiovascular disease, but not impaired fasting glucose: the Funagata Diabetes Study. Diabetes Care 1999;22:920 –924.

Liao D, Shofer JB, Boyko EJ, et al. Abnormal Glucose Tolerance and Increased Risk for Cardiovascular Disease in Japanese- Americans with Normal Fasting Glucose. Diabetes Care 2001; 24(1):39-44.

World Health Organization (2012) STEPwise surveillance of noncommunicable disease risk factors in the Eastern Mediterranean region. Available at: http://bit.ly/126n6Z1 (accessed 7.6.2013).

Wascher TC, Sourij H, Roth M, Dittrich P. Prevalence of pathological glucose metabolism in patients undergoing elective coronary angiography. Atherosclerosis 2004; 176:419–421.

Hu DY, Pan CY, Yu JM; China Heart Survey Group. The relationship between coronary artery disease and abnormal glucose regulation in China: the China Heart Survey. Eur Heart J 2006; 27(21):2573-9.

Xu Y, Bi Y, Li M, Wang T, Sun K, Xu M, et al. Significant coronary stenosis in asymptomatic Chinese with different glycemic status. Diabetes Care 2013; 36(6):1687-94.

Bartnik M, et al., The Euro Heart Survey on diabetes and the heart. The Prevalence of abnormal glucose regulation in patients with coronary artery disease across Europe. Eur Heart J 2004; 25:1880–90.

Hu F, Stampfer M, Haffner S, et al. Elevated risk of cardiovascular disease prior to clinical diagnosis of type 2 diabetes. Diabetes Care 2002; 25: 1129-1134.

Bartnik M, Ryden L, Ferrari R, Malmberg K, Pyorala K, Simoons M, Standl E, Soler-Soler J, Ohrvik J. The prevalence of abnormal glucose regulation in patients with coronary artery disease across Europe. The Euro Heart Survey on diabetes and the heart. Eur Heart J 2004; 25:1880–1890.

Wascher TC, Sourij H, Roth M, Dittrich P. Prevalence of pathological glucose metabolism in patients undergoing elective coronary angiography. Atherosclerosis 2004; 176:419–421.

Meigs J, Nathan D, D'Agostino R et al. Fasting and postchallenge glycemia and cardiovascular disease risk. The Framingham Offspring Study. Diabetes Care 2002; 25: 1845-1850.

Qiao Q, Pyorala K, Pyorala M, et al. Two-hour glucose is a better risk predictor for incident coronary heart disease and cardiovascular mortality than fasting glucose. Eur Heart J 2002; 23: 1267-1275.

Levitan EB, Song Y, Ford ES, Liu S.: Is nondiabetic hyperglycemia a risk factor for cardiovascular disease? A meta-analysis of prospective studies. Arch Intern Med 2004; 164: 2147– 2155.

Hanefeld M, Chiasson JL, Koehler C, Henkel E, Schaper F, Temelkova-Kurktschiev T. Acarbose slows progression of intima-media thickness of the carotid arteries in subjects with impaired glucose tolerance. Stroke 2004; 35:1073–1078.

Bartnik M, Malmberg K, Norhammar A, Tenerz A, Ohrvik J, Ryden L. Newly detected abnormal glucose tolerance: an important predictor of long-term outcome after myocardial infarction. Eur Heart J 2004; 25(22):1990-7.

Rydén L, Standl E, Bartnik M, Van den Berghe G, Betteridge J, de Boer MJ, et al. Guidelines on diabetes, pre‑diabetes, and cardiovascular diseases: Executive summary. The Task Force on Diabetes and Cardiovascular Diseases of the European Society of Cardiology (ESC) and of the European Association for the Study of Diabetes (EASD). Eur Heart J 2007; 28:88‑136.

Abduelkarem AR, El-Shareif HJ, Sharif SI. Prognostic indices for hospital mortality among Libyan diabetic patients.Practical Diabetes International 2010; 27(9):392-395a. doi: 10.1002/pdi.1528.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري بطرابلس - قسم الأسرة والمجتمع

Table 1- Patient demographics demonstrating the age, gender, and risk factor profiles Comparisons are made between those with CAD and those with no CAD on catheterization

	All (n=99)	Normal coronary angiography (n=35)	Abnormal coronary angiography (n=64)	P-value
Age, Mean ± SD	54.6±11.2	52.5±12.3	55.8±10.6	0.27
Male sex, n (%)	67(67.7)	12(34.3)	55(85.9)	0.00
BMI, Mean ± SD	28.8±5.3	29.5±5.9	28.4±4.9	0.56
Waist: Hip Ratio	.9±.1	.9±.1	1.0±.1	0.03
Total cholesterol , Mean ± SD	147.2±40.9	156.1±42.9	142.3±39.2	0.13
LDL-C, Mean ± SD	87.9±27.9	91.3±29.2	86.0±27.1	0.45
HDL-C, Mean ± SD	36.6±10.8	38.5±9.4	35.5±11.4	0.14
TG, Mean ± SD	127.4±58.5	116.3±64.6	133.5±54.5	0.04
Current Smoker, n (%)	44(44.4)	4 (11.4)	40 (62.5)	0.00
Family history of DM	44(44.4)	13 (37.1)	31 (48.4)	0.28
HPN, n (%)	50 (50.5)	22 (62.9)	28 (43.8)	0.08

مؤتمر البحوث الطبية الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Relationship between CAD & abnormal glucose metabolism. (Figure-1)

Normal coronary angiography

14.3	11.4
11.4	14.3
74.3	74.3
FBS	OGTT

Abnormal coronary angiography

15.6	20.3
17.2	28.1
67.2	51.6
FBS	OGTT

■ Diabetic
■ Impaired
■ Normal
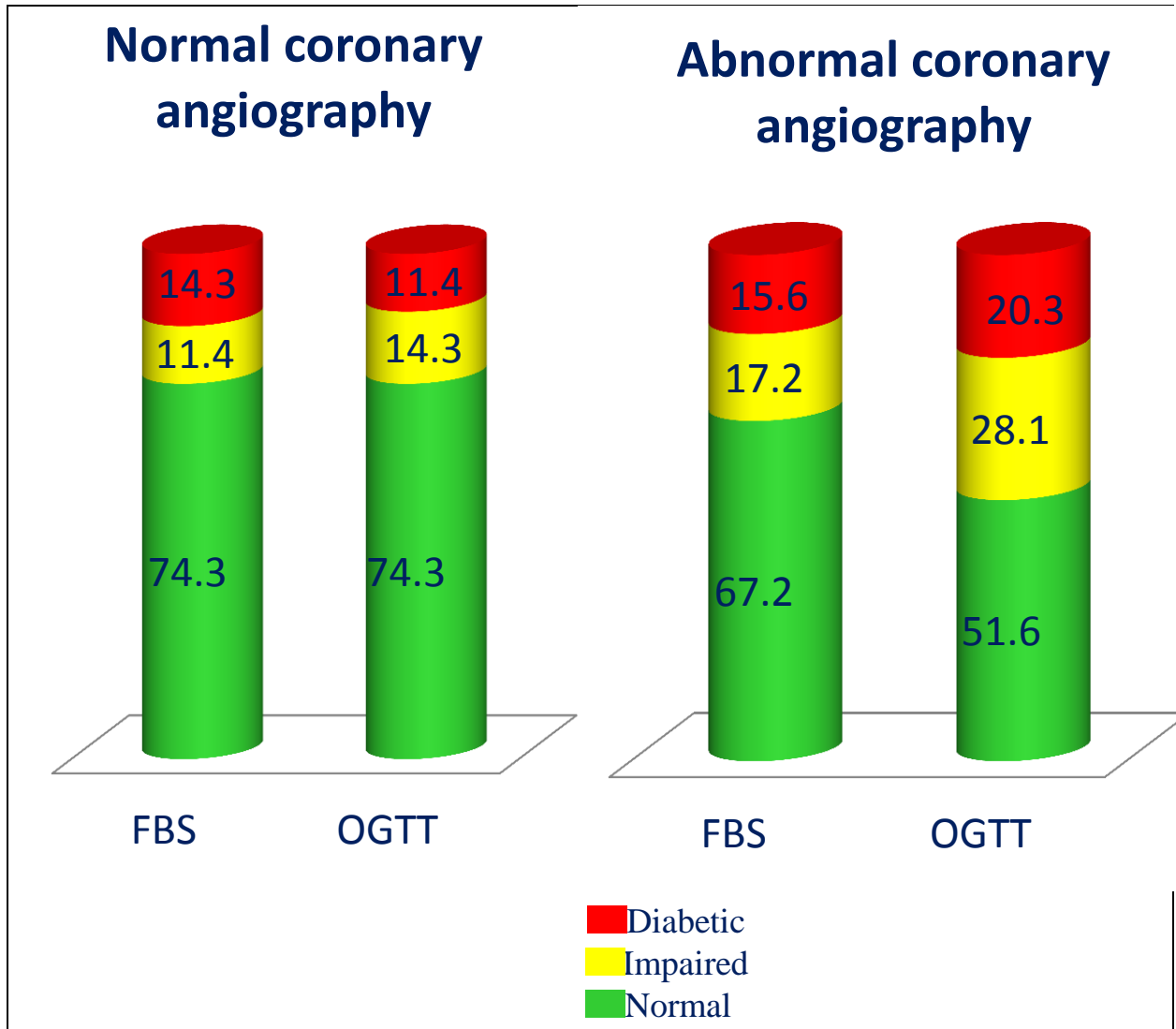
	Normal coronary angiography	Abnormal coronary angiography	P-value
Abnormal fasting glucose, n (%)	9 (25.7)	21 (32.8)	.465
Abnormal 2-hr PG, n (%)	10 (28.5)	31 (48.4)	.028
Abnormal FBG and 2-hr glucose, n (%)	13 (37.1)	36 (56.3)	.038

(Table-2)

Glucose tolerance category	Fasting glucose category			
	NFG	IFG	DFG	Total
NGT	50	6	2	58
IGT	18	2	4	24
DGT	1	7	9	17
Total	69	15	15	99

Table 3—Distribution of 99 study subjects by fasting glucose and glucose tolerance categories

جامعة طرابلس
كلية الطب

Influence of Ultrasound on Nuclear Magnetic Resonance

Nouri Elmiladi[1], Khalid B. Abuain[1], Christian J. Höhl[2], and Karl Maier[2]

[1] *Faculty of Medicine, University of Tripoli, Libya*

[2]*Helmholtz-Institut für Strahlen- und Kernphysik, Rheinische Friedrich-Wilhelms-Universitat, Bonn, Germany*

A b s t r a c t :

We introduce a resonant coupling mechanism between an ultrasonic wave and a nuclear spin system in liquid samples. The interaction is mediated by modified magnetic nanoparticles similar to contrast agents used in magnetic resonance imaging. We present first experimental observations of a decreased spin-lattice relaxation time of the liquid in the presence of resonant ultrasound and discuss theoretical aspects of underlying mechanisms.

K e y   W o r d s : nuclear magnetic resonance (NMR), Ultrasound (US), magnetic nanoparticles (MNPs), Larmor frequency v_L.

I n t r o d u c t i o n :

Ultrasound (US) techniques are widely used in investigations of material properties [1] and in medical diagnosis [2]. Their broad applicability results from their specific sensitivity to mechanical properties of samples and from their high resolution in the sub millimeter range. When combined with nuclear magnetic resonance (NMR) techniques [3], US can even provide more detailed insights into structural properties of samples which influence the magnetic or electric field distribution on an atomic scale. Through periodical deflection of nuclei within local electric or magnetic field gradients, ultrasonic waves can exchange energy with the nuclear spin system if the nuclear magnetic resonance condition is fulfilled [4] (nuclear magnetic acoustic resonance, NMAR). NMAR can be observed with US-based (nuclear acoustic resonance) as well as with NMR-based (acoustic saturation NMR) measurement techniques [5, 6] and can be interpreted as a resonance between the energy of acoustic phonons and transitions between spin states, whose probability governs the relaxation times. NMAR has been extensively studied, e.g., in metals, ionic crystals and in magnetic materials [5, 6], but it soon became evident that this technique is restricted to investigations of solids [7–9]. In liquids the rapid molecular dynamics lead to very short rotational and translational correlation times, which usually [10, 11] prevents the deterministic

جامعة طرابلس
كلية الطب

motion of nuclei in field gradients during an US period. If it were possible though to observe resonant coupling of ultrasonic waves to the nuclear spin system in liquids, independently of their viscosity, this probably would open new directions for noninvasive investigations of soft matter.

The impact of the molecular dynamics could be avoided if electric or magnetic dipoles in liquids were acting as radio frequency transmitters under the influence of US, emitting electromagnetic waves at NMR frequencies. Polar liquids provide dipoles by themselves and there is also a variety of custom-built magnetic and electric dipoles which can be added to liquids. We mention ferroelectric particles, paramagnetic ions (such as Gd^{3+}) and, in particular, magnetic nanoparticles (MNPs) which usually consist of ferro- or ferri-magnetic material embedded in a nanometer sized polymer matrix [12]. Their shape, magnetic moment, chemical reactivity, and biological activity can be designed nearly arbitrarily for specific applications [13, 14]. More important, the thermal dynamics of MNPs is slow compared to the dynamics of small molecules of the solvent and allows some periodic motion with US frequency.

Experimental Observations:

In this Letter, we present first experimental observations of a resonant coupling mechanism between an ultrasonic wave and a proton spin system which is mediated by modified MNPs acting as US-driven radio frequency antennas. In the presence of resonant US a pronounced reduction of the solvent's spin-lattice relaxation time T_1 can only be observed if MNPs are conjugated to mesoscopic objects such as organic macromolecules. Unmodified MNPs do not contribute to the US-driven relaxation enhancement.

Our approach is based on the following considerations. In a standard proton NMR experiment an external constant magnetic field B_0 polarizes the spin system to some extent, and an equilibrium magnetization M_0 is reached. If we deflect the magnetization with an adequate radio frequency (RF) pulse, M_0 recovers exponentially with the spin-lattice relaxation time T_1. The recovery process is dominated by stimulated transitions of the nuclear magnetic moments between their Zeeman energy states, hence T_1 is a direct measure for the spectral density at the protons' Larmor frequency v_L. Let us now consider MNPs to be homogeneously distributed in a water sample as a colloidal solution. Apart from some thermal fluctuations their magnetic moments align along B_0. Since a fraction of these fluctuations contribute to the spectral density at v_L, T_1 of the solution can be adjusted nearly arbitrarily by changing the concentration of MNPs.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Now, if an aqueous solution of MNPs is subjected to a longitudinal ultrasonic wave having a wavelength several magnitudes greater than the nanoparticle diameter, MNPs will perform a periodic translational motion due to the acceleration in the ultrasonic wave. The rapid molecular dynamics in liquids, however, prevents this translational motion to affect T_1 of the solvent, even if the US frequency v_{US} matches v_L [7, 9]. Nevertheless, if MNPs are conjugated to macromolecules we expect an additional motion which does affect T_1 of the solvent. Because the macromolecule accelerates differently in the ultrasonic wave than the MNP, it causes a torque acting on the MNP's surface. With the resulting tilting and bending of the MNP, amplitude and direction of its magnetic moment will change periodically, too (cf. left part of Fig. 1). Accordingly, these modified MNPs will act as US-driven RF antennas, emitting radio waves with US frequency. The nuclear magnetic moments of the solvent can be considered as receivers for the *magnetic particle radio station*, tunable by their Larmor frequency in the external magnetic field B_0. Nuclei whose v_L match v_{US} in the near field of modified MNPs will be stimulated to emit energy and the spin-lattice relaxation time T_1 will decrease. In the far field, however, the individual signals of modified MNPs interfere destructively.
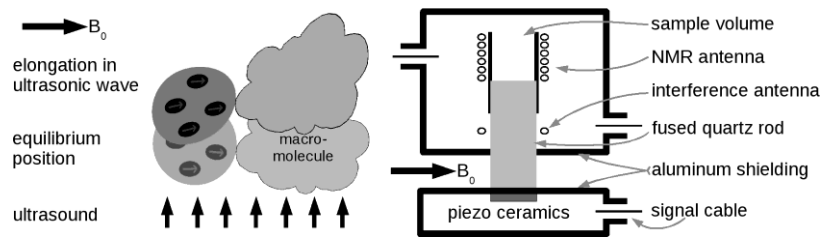
FIG. 1: Left: Schematic of the motion of a magnetic nanoparticle conjugated to a macromolecule in an ultrasonic wave. Right: Experimental setup. The liquid sample was placed in the volume ($\varnothing \times h = 6$ mm $\times$ 3 mm) on top of the fused quartz rod. Ultrasonic waves were generated by the piezo ceramics and transferred to the sample through the quartz rod. To avoid unintended coherent modification of the spin system during ultrasound (US) application any electromagnetic crosstalk from the US electronics to the NMR coil was carefully eliminated by an interference signal adjustable in amplitude and phase.

Results and Discussions:

In order to verify this concept experimentally, we here chose commercially available streptavidine functionalized MNPs (density $\rho^{MNP} = 1.4$ g/ml) which can easily be connected to biotinilated molecules [15]. Our MNPs consisted of several 8 nm magnetite grains with super paramagnetic behavior, distributed in a 50 nm polystyrene matrix with approximately spherical geometry. The biotinilated chicken immunoglobulin G (IgG) antibodies had an end-to-end distance in water of approximately half of the MNPs' diameter and served as macromolecules in our experiments (mass $m^{IgG} = 144$ kDa, density $\rho^{IgG} = 1.0$ g/ml).

For our measurements we prepared a biotin saturated buffer (0.02 M KH_2PO_4 and 0.15 M NaCl) as a solvent for (a) an IgG antibody solution (S^{IgG}), (b) a solution (S^{IgG}) of colloidal solved MNPs, and (c) a solution (S^{AS}) of colloidal solved asymmetrically shaped MNP-antibody compounds (ASMAC). The ASMACs have a center of mass which differs from their center of geometry by a few percent.

To achieve this asymmetry we first sedimented MNPs on a SiO_2 surface at an acceleration of 10^4 m/s^2 for 3 h in a centrifuge. Note that the SiO_2 surface sterically prevents the reaction between antibodies and MNPs. Before stopping the centrifuge we fixed the sedimented MNPs onto the SiO_2 surface by use of a magnetic field gradient for the next preparation steps. We carefully removed the supernatant and added the biotinilated antibodies to the sediment, and after 8 h reaction time we carefully removed the supernatant again. Finally, we washed the sediment twice with biotin buffer before resolving the ASMACs in the biotin buffer by switching off the magnetic field gradient. The volume content of the colloidal solutions S^{MNP} and S^{AS} was in the order of 10^{-5} %. The concentration of unbound antibodies in S^{IgG} exceeded the amount of bound antibodies in S^{AS} by a factor of 10^4.

We chose a combined US-NMR setup as outlined in the right part of Fig. 1 to investigate the US-induced change of each sample's T_1 at room temperature. During an inversion recovery sequence, which is particularly sensitive to T_1, we applied US to the samples and measured the free induction decay (FID) following the 90° read-out pulse (cf. Fig. 2). The distribution of Larmor frequencies of the FID reflects the magnetic field distribution in a sample, provided the relaxation mechanisms are equally effective for all v_L. In order to achieve maximum sensitivity we set the peak Larmor frequency to match the US frequency at 18.32 MHz.
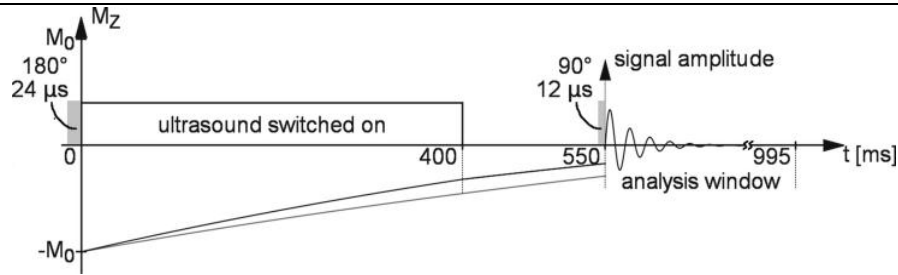
مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

FIG. 2: Inversion recovery sequence and spin-lattice relaxation. After the $90^{°}$ inversion pulse ending at $t = 0$ the magnetization M_z along the external magnetic field B_0 recovers exponentially toward equilibrium magnetization M_0 (gray line). The $90^{°}$ read-out pulse rotates the magnetization into the plane perpendicular to B_0 where the nuclear magnetic moments precess with Larmor frequency and a free induction decay (FID) can be observed. Application of ultrasound (intensity $P \approx 10^{-3}$ W$/$cm^2) induces an additional relaxation mechanism for nuclear magnetic moments with Larmor frequencies matching ultrasound frequency, which leads to an accelerated recovery of the magnetization (black line).

We pre-amplified signals from the NMR antenna and multiplied them with a mixing frequency 1.3 kHz above US frequency before filtering in the frequency band $0.5 < v < 5.0$ kHz and digitizing at 10 kHz using a 16 bit analog-to-digital converter. We recorded FID signals within a time window of 445 ms that immediately followed the $90^{°}$ read-out pulse (cf. Fig. 2). For interpretation we fourier-transformed the FIDs and analyzed their mechanisms. Following Ref. [16], the total spin-lattice relaxation rate $R_1 = 1/T_1$ can be regarded as a sum of rates of different relaxation mechanisms, e.g., relaxation rates due to proton-solvent interactions (R^S) and proton-spectral amplitudes.

As expected from findings presented in Ref. [8], we could not observe pronounced changes of spectral FID amplitudes in the analyzed frequency range $v_{US} \pm 500$ Hz for samples S^{IgG} and S^{MNP} under the influence of US. This indicates that interactions between US and unmodified MNPs, between US and antibodies, and between US and the solvent hardly affect spectral FID amplitudes in our experiments. We thus conclude that US-induced effects, such as cavitation, temperature changes, or coherent motion of particles, possibly influencing the spin-lattice relaxation time, can be neglected here.

For S^{AS}, however, the spectral FID amplitudes decreased if v_{US} matched v_L (cf. Fig. 3). Since we only observed a pronounced change in the FID's line shape when this resonance condition, which is essential for the spin-lattice relaxation process, was fulfilled, we

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس – قسم الأسرة والمجتمع

conclude that the US-induced motion of ASMACs indeed generated RF waves at v_{US}, which in turn, stimulated transitions of the proton nuclear magnetic moments between their Zeeman energy states. Note, that shimming of the magnet was better than 1 ppm, so the line-width was dominated by field inhomogenieties induced by the presence of ASMACs.
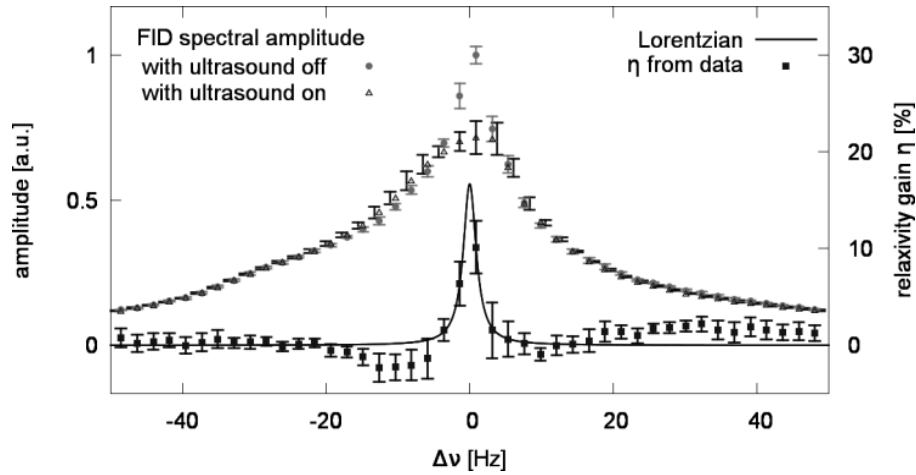
FIG. 3: Left ordinate (upper curves): mean spectral amplitudes of the free induction decays (cf. Fig. 2) of a solution of modified magnetic nanoparticles (ASMACs). Right ordinate (lower curves): calculated gain in relaxivity and fitted Lorentzian. Abscissa: frequency difference Δv of spectral amplitudes to the center frequency of ultrasound. Fit at $\Delta v = 0$ to positive values of η in the range $\Delta v = [-10, 10]$ Hz. Amplitude (17 ± 2) %, full width half maximum (2.2 ± 0.3) Hz. Error bars denote standard deviations from 10 measurements. Error bars for data points depicted as triangle are shifted along the abscissa for better readability.

In order to interpret our experimentally observed loss in spectral FID amplitudes in terms of a resonance, we separate US-induced relaxation from other relaxation mechanisms. Following Ref. [16], the total spin-lattice relaxation rate $R_1 = 1/T_1$ can be regarded as a sum of rates of different relaxation mechanisms, e.g., relaxation rates due to proton-solvent interactions (R^S) and proton ASMAC interactions (R_1^{AS}).

If we assume that US adds a supplementary contribution R_1^{US} to the total relaxation rate R_1, we can write

$$R_1 = R_1^S + R_1^{AS} + R_1^{US} \qquad (1)$$

and combine it with the solution of the Bloch equation for the magnetization M_z along the external magnetic field B in our experiment:

$$M_z(t_{90}) = |M_0|(1 - 2\exp[-(R_1^S + R_1^{AS})\, t_{90}]), \text{ and}$$

$$M_z^{US}(t_{90}) = |M_0|(1 - 2\exp[-(R_1^S + R_1^{AS})\, t_{90} - R_1^{US} t_{US}]) \qquad (2)$$

Here t_{90} denotes the recovery time of the spin ensemble from magnetization inversion to analysis, and t_{US} denotes the recovery time during which US is applied (cf. Fig. 2). We can now interpret the ultrasound induced relaxation rate $\mathbf{R}^{US}$ as an increase of the relaxation rate $\mathbf{R}^{AS}$ and define the gain in relaxivity η of ASMACs as the ratio between $\mathbf{R}^{US}$ and $\mathbf{R}^{AS}$. With the experimentally obtained FIDs, the gain in relaxivity can thus be calculated by

$$\eta = \frac{R_1^{US}}{R_1^{AS}} = \frac{t_{90}}{t_{US}} \frac{\ln(1 - m^{US}) - \ln(1 - m)}{R_1^S t_{90} + \ln([1 - m]/2)}$$

with $m = M_z(t_{90})/|M_0| = I(t_{90})/I_0$ and $m^{US} = M_z^{US}(t_{90})/|M_0| = I^{US}(t_{90})/I_0$.

$\mathbf{I}$ denotes the spectral FID amplitude and $I_0 = I(t = 0)$. The relaxation rate R_1^S of the biotin buffer solution was estimated in a separate measurement to be $R_1^S = 0.43\ \mathrm{s}^{-1}$.

In Fig. 3 we present our findings obtained from calculating η from our data with Eq. 3. Particularly when ν_{US} matched ν_L we observed the gain in relaxivity to clearly exceed 15 %, and the fitted Lorentzian (variance of residuals $\chi^2 = 0.02$) had a full width at half maximum of approximately the bandwidth of the US pulse ($1/t_{US} = 2.5$ Hz). This strongly supports the interpretation of our findings as a nuclear magnetic acoustic resonance phenomenon. We mention that other observations, such as an apparent magnetization gain close to the resonance or losses in the outer frequency region, are not covered by the theoretical model presented here.

Conclusion:

Finally, we argue that US-induced tilting of our ASMACs can be considered a possible source for the observed gain in relaxivity, and we note that for bending similar arguments may apply. In order to provide evidence for the effectiveness of tilting we here follow Ref. [7] and consider it sufficient to show that the time scale of thermal fluctuations of the magnetization is similar or greater than the period τ_{US} of the US-induced oscillatory motion of ASMACs. Thermal fluctuations can be quantified through the temporal dependence of the magnetization vector on some arbitrarily chosen initial condition, which decays exponentially with correlation time τ_C [16]. If $\tau_{US} \gg \tau_C$ the magnetization returns to thermal equilibrium already during the US period and does not follow the US-induced motion. Otherwise, the influence of thermal

fluctuations can be neglected and the magnetization tilts periodically in the ultrasonic wave. The correlation time τ_C can be derived experimentally by measuring the relaxivity of ASMACs in relation to the solvent's Larmor frequency. Relaxivity attains a maximum value if ν_L matches τ^{-1} [16], and in Refs. [17, 18] it was already shown that it can be associated with frequencies in the MHz range. We thus conclude that the US-induced periodic tilting of the magnetization is not canceled out by thermal fluctuations in our experiments, which strongly supports our notion of tilting to be a possible source of US-induced radio frequency waves.

To summarize, we have introduced a resonant coupling mechanism between an ultrasonic wave and nuclear spin systems in liquid samples which is mediated by mechanical properties of modified magnetic nanoparticles (MNPs). We have shown experimentally that a pronounced gain of relaxivity in liquids can be achieved with our method. We have provided evidence that particularly the tilting behavior of modified MNPs can be regarded as a possible source for US-induced radio frequency waves. Further investigations on the role of specific aspects of MNPs and their modification as well as on the exact line shape of the resonance are currently underway. It remains to be established how material properties of the liquid (such as viscosity and compressibility) as well as the hydrodynamic properties and elasticity of magnetic nanoparticles and macromolecules influence the observed gain in relaxivity. In the future, we expect widespread applications of ultrasound-induced relaxivity enhancement for characterizing non-homogeneous samples in physics, chemistry, biology or in the material sciences. We also expect this method to open new directions in the neurosciences and in medical diagnosis, since open tomography systems and systems with permanent magnets typically operate at field strengths that match the requirements for ultrasound applications at NMR frequency.

References:

[1]   J. Krautkrämer, *Ultrasonic testing of materials* (Springer, India, 2003).

[2]   P. N. T. Wells, Phys. Med. Biol. 51, R83 (2006).

[3] I. I. Rabi, J. R. Zacharias, S. Millman, and P. Kusch, Phys. Rev. 53, 318 (1938).

[4]   A. Kastler, Experimentia 8, 1 (1952).

[5]   R. K. Sundfors, D. I. Bolef, and P. A. Fedders, Hyperfine Interact. 14, 271 (1983).

[6]   D. I. Bolef and R. K. Sundfors, *Nuclear Acoustic Resonance* (Academic Press, Boston, 1993).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

[7]   A. R. Kessel, Fiz. Metal. Metalloved. 13, 801 (1962). [8] L. O. Bowen, Br. J. Appl. Phys. 15, 1451 (1964).

[9]   Q. L. Vuong, Y. Gossuin, and P. Gillis, Phys. Rev. B 77, 212404 (2008).

[10]   L. O. Bowen, Proc. Phys. Soc. 87, 717 (1966).

[11]   J. Homer and S. U. Patel, J. Chem. Soc. Farady Trans. 86, 215 (1990).

[12]   S. Laurent, D. Forge, M. Port, A. Roch, C. Robic, L. V. Elst, and R. N. Muller, Chem. Rev. 108, 2064 (2008).

[13]   G. Zabow, S. Dodd, J. Moreland, and A. Koretsky, Nature 453, 1058 (2008).

[14]   H. B. Na, I. C. Song, and T. Hyeon, Adv. Mater. 21, 2133 (2009).

[15]   E. Heim, F. Ludwig, and M. Schilling, J. Magn. Magn. Mater. 321, 1628 (2009).

[16]   A. Abragam, *Principles of Nuclear Magnetism* (Oxford University Press, New York, 1961).

[17]   M. Rohrer, H. Bauer, J. Mintorovitch, M. Requardt, and H. J. Weinmann, Invest. Radiol. 40, 715 (2005).

[18]   A. Taborda and A. Carvalho, Eur. Phys. J. Appl. Phys. 43, 145 (2008).

Perception of intern doctor about their internship training program in Tripoli university in 2014

Aisha Ben-Rween[1] , Tarek Alazabee [2], Abubaker Elmaryul[3],Mohamed Elgara ,Ayman Ezatrini[4]

Department of Community & Family Medicine, *College of Medicine,* Tripoli University [1].
National Center of Diseases Control, Tripoli [2].
 Consultant physician, MBBCH,MRCPI, MRCPGLas, MMSc, GPT,FTTA[3].
MD[4]

Corresponding Author:

Dr Aisha Ben-Rween *Assistant Professor and Family Medicine specialist , community & Family Medicine Department, College of Medicine, , Tripoli University , E-mail:a.rween@yahoo.com*

_____

Abstract

Background: Internship is an important period in a doctor's training, as it is the transition period between being a medical student to obtaining full registration as a doctor.

Aim of Study: This study aimed to determine the perception of libyan interns doctor about their internship training program

Methods: This was a descriptive study ,Anonymous self-administered, questionnaire in Arabic languish regarding intern' perceptions and opinion with their training programme were distributed to All participating interns who attending the intern affairs office in faculty of medicine Tripoli university, Between June 2014 and July 2014

Results: A total of 228 interns were participated , 48.5% were male and 51.3% were female. With mean age of 26.3 year, the ranking grade 25.4% was excellent and very good ,74.6% were good or pass ,65.8% of intern they introduced them in each training course during internship year,59.6% approved{A writer for a year } to describe the internship year which was more obvious among interns whose graduation grade was a good or pass grade. (P = .008).,93% of intern answered no training plan at each department ,above 90% of intern in good relationship with their patient ,their senior registrar, and specialist and they react good toward the instruction given to them ,but there are obvious difference in relationship and in reaction toward the instruction given from nursing staff among interns whose graduation grade was a good or pass grade. (P = .04). 58.6% of intern Have been abused or mistreated during their internship,43.9% of intern felt discrimination between doctors during their training program,53.9% of intern answered that there is bad handling and archive to the patients files at each department during our internship,78.1% of intern agreed about that our training program have been affected because the department were in was short in resources,57.5% of intern they not feel they are responsible to take care of the patient, 37.3% of intern doctors they are legally protected if anything went wrong, above 85.9% of intern doctor agreed about providing interns with a lectures and 81% with a log book to assess their training program-,

www.uot.edu.ly

2017/ 1/30م

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم طب الأسرة والمجتمع

Conclusion and recommendation : Medical interns under study may have some of improper perceptions about their training, as in the sense of being just a writer for year, as well as , some of them also with a sense of discrimination or mistreat, and also most of the interns participants didn't not have a feeling of the existence of a training plan in all departments in which they were trained. The reviewing of the policy for internship training might be needed, especially in scope of job description of medical interns , and also in definite components of training plan where interns doing their job in hospital. More evaluation studies regarding quality of educational training for medical interns should be encouraged.

Keywords: Medical Intern, perception, Internship.

_____

1.Introduction

In Libya Internship refers to the 1-year compulsory supervised hospital training required to obtain Bachelor of Medicine and Bachelor of Surgery degrees . It is an important period in a doctor's training, as it is the transition period between being a medical student to obtaining full registration as a doctor (1,2). The internship is a kind of experiential learning during which recent graduates take the opportunity to apply acquired knowledge and skills from their medical school training to real-world situations, and it provides an opportunity for medical graduates to integrate and consolidate their thinking and actions.(3,5) Also, it bridges the gap between the medical school and being board eligible for medical specialty training (6). The overall goal of medical education is to produce knowledgeable, competent, and professional physicians who are equipped to care for the nations' sick community, provide advancements in medical science education and research, and most importantly, promote public health care (7). The major tasks assigned to medical interns are to provide patient care, register new admissions, and prepare medical records (8). Newly graduated physicians who undertake an internship appreciate that the internship is the most stressful period in the life of a medical doctor (9). Worldwide, the structure of internship varies, but all include a year of practical training, known by various names, as a prerequisite for obtaining a licence to practice. In many places outside Asia ,internship is considered postgraduate training .For example, in the United States in the last year of medical school, students apply for postgraduate residencies in their chosen field of specialization and internship is done in two forms either as the first year of residency or as a separate transitional year. In the United Kingdom, after medical school students compete for a place in a two year foundation

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس – قسم الأسرة والمجتمع

programme .The first year, called foundation year 1, is similar to internship. After successful completion, trainee doctors move into foundation year 2 without having to compete again (10). Their working hours, conditions and pay are regulated through a package of measures called the new deal for junior doctors (11).This study aimed to find out the perception of Libyan intern doctors toward their training program, and also to explore the role of the ranking grades in making their perception.

2. Subjects and Methods

This was a descriptive study,   Anonymous, a self-administered, questionnaire in Arabic languish regarding intern' perceptions and opinion with their training programme, verbal consent obtained from the intern affairs office in faculty of medicine Tripoli university and from the Newly graduated physicians registered intern doctor whose attending to the office for getting their certificate   Between June 2014 and July 2014, questionnaires were distributed to   All participating interns whose informed of the objectives of the present study. A non random, convenient sampling technique was employed ,   Each intern filled out the questionnaire only once. we explaining the purpose of the study and requesting the intern to participate and give precise responses.

The statistical package for the social sciences (SPSS version 16) was used for statistical analysis. the descriptive statistics (The percent, frequency, Mean, standard deviation and range) and inferential statistical tests (Chi square test, Fisher exact test) was used in Significance level of 5%.

3. Results and Discussion

A total of 228 intern doctors were participated   in the present study, among the respondents,111 (48.7%) were male and 117 (51.3%) were female. The age range was (23-29) years and the mean age of study population was (26.3 ± 1.0) years. Regarding the ranking grade of interns participants ; fifty eight (25.4%) was achieved excellent or very good grade and 170 (74.6%) were in good or pass grade.

Medical internship is a phase in which medical students have to experience medicine by its reality, and practice medicine with minimal supervision, and all of interns should have this opportunity to improve their ability to

communicate with patients (12). The major tasks assigned to medical interns are to provide patient care, register new admissions, and prepare medical records (13). The Table 1 showed the answers of respondents toward questionnaire items ; the study demonstrated that most of them agree about the intern as a writer for a year to describe their internship training program , The majority of the participants (59.6%) found that their training not what intern are looking for expectation which it just as administration part of their training, and this could be agreed in some way with Fletcher KE,etal who found that medical interns during duty-hours spend the most of their time in clinical computer works such as documentation, chart, and review, while receiving training is lower than what is expected (14).This situation was more obvious among interns whose graduation grade was a good or pass grade. (P = .008).

Table1. A: Distribution of the respondents by their answers regarding ranking grade

Question			Ranking Grade		Total	P Value
			Excellent or Very Good	Good or Pass		
Have they introduced you in each training course during internship year?	Yes	Count	35	115	150	
		%	60.3	67.6	65.8	
	No	Count	23	55	78	
		%	39.7	32.4	34.2	P = .31
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
Do you approve the saying {A writer for a year } to describe the internship year?	Yes	Count	26	110	136	
		%	44.8	64.7	59.6	
	No	Count	32	60	92	
		%	55.2	35.3	40.4	P = .008
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
Was there a training plan at each department you were training in ?	Yes	Count	4	12	16	
		%	6.9	7.1	7.0	
	No	Count	54	158	212	
		%	93.1	92.9	93.0	P = .97
	Total	Count	58	170	228	
		%	100.0%	100.0	100.0	
		%	100.0%	99.4	99.6	

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

One hundred and fifty (65.8%) of participants answered yes about if they Have introduced them in each training course during internship year, 93% of them answered no training plan at each department were we training in , most of intern in good relationship with their patient , with senior and with their specialist (99.6%,96.5%,93.4%) **Jaschinski J** study The relationship between intern and senior doctor was important when it came to learning procedures.

Table1. B: Distribution of the respondents by their answers regarding ranking grade

Question			Excellent or Very Good	Good or Pass	Total	P Value
How do you assess your relationship with your patient?	Good	Count	58	169	227	Fisher' s exact test
		%	100.0%	99.4	99.6	
	Bad	Count	0	1	1	
		%	0.0	0.6%	0.4	
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	$P = 1.0$
how do you assess your relationship with your senior registrar?	Good	Count	58	162	220	Fisher' s exact test
		%	100.0	95.3	96.5	
	Bad	Count	0	8	8	
		%	0.0	4.7	3.5	
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	$P = .21$
How do you assess your relationship with your specialist?	Good	Count	52	161	213	Fisher' s exact test
		%	89.7	94.7	93.4	
	Bad	Count	6	9	15	
		%	10.3	5.3	6.6	
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	$P = .22$
How do you assess your relationship with the nursing staff?	Good	Count	57	149	206	
		%	98.3	87.6	90.4	$P = .02$
	Bad	Count	1	21	22	
		%	1.7	12.4	9.6	
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

The intern had to show a level of enthusiasm to spur the colleague on. The empathy required for teaching was also recognized. The junior doctor seemed to be in a vulnerable situation, where she or he was dependent on the goodwill of senior doctors to teach the skills vital to independent practice. The relationship that one had with the registrar or consultant was also named as a factor that determined whether one would be allowed to do certain procedures or not. Positive support from experienced clinicians was seen as vital in developing confidence. But it was also mentioned that some consultants showed favoritism toward certain students, and it was a matter of luck as to which group one landed up in(15)but their answer significant difference (p=0.02) the intern who excellence or very good they in good relation with nurse(98.3%) but 12.4% with grad good or pass in bad relationship with nursing staff Chan et al demonstrated that there is lack in clinical skills such as communicating with other coworkers, among medical interns [16].

 both ranking grad are answered good react toward the instruction given from our specialist, from our senior registrar(99%) but there are obvious difference in reaction toward the instruction given from nursing staff among interns whose graduation grade was a good or pass grade. (P = .04)similar to **Mohammad Ali and Yasin** study Nursing staff also treat medical interns inappropriately 73.8%.,and 43.3% think that the hospital staffs treat them inappropriately (17).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Table1. C: Distribution of the respondents by their answers regarding ranking grade

Question			Ranking Grade		Total	P Value
			Excellent or Very Good	Good or Pass		
How do you react toward the instruction given to you from your specialist?	Good	Count	57	167	224	Fisher' s exact test
		%	98.3	98.2	98.2	
	Bad	Count	1	3	4	
		%	1.7	1.8	1.8	$P \approx 1.0$
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
How do you react toward the instruction given to you from your senior registrar?	Good	Count	58	168	226	Fisher' s exact test
		%	100.0	98.8	99.1	
	Bad	Count	0	2	2	
		%	0.0	1.2	.9	$P \approx 1.0$
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
How do you react toward the instruction given to you from the nursing staff?	Good	Count	58	158	216	Fisher' s exact test
		%	100.0	92.9	94.7	
	Bad	Count	0	12	12	
		%	0.0	7.1	5.3	$P = .04$
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
Have you been abused or mistreated during your internship?	Yes		34	109	143	34
			58.6	64.1	62.7	58.6
	No		24	61	85	24	$P = .46$
			41.4	35.9	37.3	41.4
	Total		58	170	228	58
			100.0	100.0	100.0	100.0
How felt any discrimination between doctors during training program?	Yes	Count	26	74	100	
		%	44.8	43.5	43.9	
	No	Count	32	96	128	
		%	55.2	56.5	56.1	$P = .88$
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
Was there a good handling and archive to the patients files at each department during your internship?	Yes	Count	25	80	105	
		%	43.1%	47.1	46.1	
	No	Count	33	90	123	
		%	56.9%	52.9	53.9	$P = .60$
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Fifty eighth percent of intern doctor answered yes we Have been abused or mistreated during our internship and 44% felt discrimination between intern doctors during training program Mistreatment and abuse is ethical challenge during medical internship. In one pilot study, Al-shafaee et al demonstrated that the majority of interns had been mistreated and abused, in which verbal and

Table1. D: Distribution of the respondents by their answers regarding ranking grade

Question			Ranking Grade		Total	P Value
			Excellent or Very Good	Good or Pass		
Was your training program have been affected because the department you were in was short in resources?	Yes	Count	40	138	178	
		%	69.0	81.2	78.1	
	No	Count	14	25	39	
		%	24.1	14.7	17.1	P = .15
	I Don't Know	Count	4	7	11	
		%	6.9	4.1	4.8	
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
Did you feel you were the whose responsible to take care of the patient?	Yes	Count	25	51	76	
		%	43.1	30.0	33.3	P = .18
	No	Count	28	103	131	
		%	48.3	60.6	57.5	
	I Don't Know	Count	5	16	21	
		%	8.6	9.4	9.2	
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
From medico-legal point of view are you legally protected if anything went wrong?	Yes	Count	24	61	85	
		%	41.4	35.9	37.3	P = .71
	No	Count	16	55	71	
		%	27.6	32.4	31.1	
	I Don't Know	Count	18	54	72	
		%	31.0	31.8	31.6	
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
Do you approve about providing interns with a log book to assess their training program?	Yes	Count	47	138	185	
		%	81.0	81.2	81.1	
	No	Count	11	32	43	P = .98
		%	19.0	18.8	18.9	
	Total	Count	58	170	228	
		%	100.0	100.0	100.0	
Do you approve about making lectures to make interns familiar with the training program ?	Yes	Count	52	143	195	
		%	89.7	84.6	85.9	P = .57
	No	Count	5	19	24	
		%	8.6	11.2	10.6	
	I Don't Know	Count	1	7	8	
		%	1.7	4.1	3.5	
	Total	Count	58	169	227	
		%	100.0	100.0	100.0	

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري بطرابلس - قسم الأسرة والمجتمع

academic abuse were the most experienced, mistreatment was from all medical staff for both gender, specialists and consultants had the vast majority of this mistreatment to medical interns while residents and nurses had about one-third of it [18]. 54% of intern answers there no good handling and archive to the patients files at each department during our internship rotation, 78% of intern answered yes our training program have been affected because the department were in was short in resources ,57.5% of intern they not feel they are responsible to take care of the patient, 37.3% of intern doctors they are legally protected if anything went wrong, 81.1 of intern doctor agreed about providing interns with a log book to assess their training program-as) **Mohammad Ali , Yasin** 63.8% of interns agreed that log-books should be existed(17) and **Jaschinski** study The use of logbooks that ensured that a student performed a list of essential procedures by the completion of medical studies was seen as a useful process(15). More recently, researchers have suggested using lists or logbooks of basic skills, drawn up from consensus amongst clinical staff, that the students are required to master by the completion of their studies.(19) . and 86% approved about making lectures to make interns familiar with the training program.

Conclusion and recommendation: Medical interns under study may have some of improper perceptions about their training, as in the sense of being just a writer for year, as well as , some of them also with a sense of discrimination or mistreat, and also most of the interns participants didn't not have a feeling of the existence of a training plan in all departments in which they were trained. The reviewing of the policy for internship training might be needed, especially in scope of job description of medical interns , and also in definite components of training plan where interns doing their job in hospital. More evaluation studies regarding quality of educational training for medical interns should be encouraged.

REFERENCES

1. Brown J, Graham D, Chapman T. Factors influencing teaching and learning
in the preregistration year. Hosp Med 2003; 64:740-2.
2. Evans DE, Wood DF, Roberts CM. The effect of an extended hospital induction on perceived confidence and assessed clinical skills of newly qualified pre-registration house officers. Med Educ 2004; 38:998-1001
3. Levine RB, Haidet P, Kern DE, et al. Personal growth during internship: a qualitative analysis of interns' responses to key questions. *J Gen Intern Med.* 2006;21(6):564–569.
4. Lam T, Ching L. An exploratory study of an internship program: The case
of Hong Kong students. *Int J Hosp Manag.* 2007;26(2):336–351.
5. Ackerman A, Graham M, Schmidt H, Stern DT, Miller SZ. Critical events in the lives of interns. *J Gen Intern Med.* 2009;24(1):27–32.
6. Levey RE. Sources of stress for residents and recommendations for programs to assist them. *Acad Med.* 2001;76(2):142–150.
7. Wilson I, Cowin LS, Johnson M, Young H. Professional identity in medical students: pedagogical challenges to medical education. *Teach Learn Med.* 2013;25(4):369–373.
8. Sun GR, Saloojee H, van-Rensburg MJ, Manning D. Stress during internship at three Johannesburg hospitals. *S Afr Med J.* 2008;98(1): 33–35.
9. Linn LS, Yager J, Cope DW, Leake B. Factors associated with life satisfaction among practicing internists. *Med Care.* 1986;24(9): 830–837.
10. Abdulghani HM. Stress and depression among medical students: A cross
sectional study at a medical college in Saudi Arabia. *Pak J Med Sci*. 2008;24(1):12–17.
11. Modernising Medical Careers. Curriculum for the foundation years in postgraduate education and training. London: MMC, 2005. www.mmc.nhs.uk/download/Curriculum-forthe-foundation-years-in-postgraduateeducation-and-training.pdf (accessed 10 Sep 2011).

12- Gaarder K, Eide NA, Falck G. [Clinical skills among interns]. Tidsskrift for den Norske laegeforening : tidsskrift for praktisk medicin, ny raekke 2000; 120:1512-7.

13- Sun GR, Saloojee H, van-Rensburg MJ, Manning D. Stress during internship at three Johannesburg hospitals. *S Afr Med J.* 2008;98(1):33–35.

14-Fletcher KE, Visotcky AM, Slagle JM et al. The composition of intern work while on call. Journal of general internal medicine 2012; 27: 1432-7.

15- **Jaschinski J,** MBChB, MFamMed, MA **De Villiers MR,** MBChB. Factors influencing the development of practical skills of interns working in regional hospitals of the Western Cape province of South Africa Division of Family Medicine & Primary Care, Faculty of Health Sciences, Stellenbosch University **available at www.safpj.co.za SA Fam Pract 2008;50(1):70**

16- Chan SC. Views of Malaysian interns and their supervisors on the adequacy of undergraduate clinical skills training. Singapore Medical Journal 2012; 53: 196-202.

17- **Mohammad Ali Heidarnia, Mohammad Yasin-An Evaluation on Medical Interns Satisfaction in Internship Course in Shahid Beheshti University of Medical Sciences by SERVQAUL Model**. *Health Education and Health Promotion (HEHP) (2013) Vol. 1 (3, 4): (33-43)*

18- Al-Shafaee M, Al-Kaabi Y, Al-Farsi Y etal. Pilot study on the prevalence of abuse and mistreatment during clinical internship: a cross-sectional study among first year residents in Oman. BMJ open 2013; 3.

19- Williams C, Cantillon P, Cochrane M. The clinical and educational experiences of preregistration house officers in general practice. Med Educ 2001;35:774-81.

Study of Some Metabolic Changes in Children that result from scorpion Enovenomation

By

Khaled M. Gdarah[1] , Bashir A. Belkhir[1], , M. S. A. Annajar[2], and Abdurazag I. Zwawi[1]

(1) **Department of Forensic Medicine & Toxicology, Faculty of Medicine, University of Tripoli.**
(2) **Dept. of biochemistry, Faculty of Medicine, University of Tripoli, State of Libya.**

ABSTRACT

Scorpion enovenomation results in metabolic changes of cardiovascular, neurological and gastrointestinal manifestations. The aim of this work is to evaluate some of these metabolic changes like sodium, potassium, sodium bicarbonate and glucose levels in serum, as well as blood pH, blood pressure, and ECG. Relevant clinical manifestations were also examined. The study included 200 cases of scorpion sting patients admitted to four hospitals in Tripoli City, within the period 2008 to 2013. Patient's ages ranged from 3 to 15 years of both sexes. Fifty normal children with matched age and sex served as control group were examined for the same parameters. The study revealed that serum glucose increased significantly and blood pH increased insignificantly in the patient group. But serum bicarbonate decreased insignificantly and sodium and potassium decreased significantly. It is recommended to enlarge the study quantitavely and qualitatively to avoid the complications of the toxicity. And the envenomated person should be admitted immediately to the hospital.

KEY WORD scorpion enovenomation, sting, serum sodium, serum potassium, pH, glucose, blood pressure.

INTRODUCTION

The Geographical distribution of dangerous scorpions includes North African countries that includes: Egypt, Libya, Tunisia, Algiers and Morocco.
Masoud (1993) gave a sufficient detailes and distribution of nine scorpion species in Libya.
Emteris *et al*., (2006) reported that the mortality rate of scorpion sting in Libya was 6 deaths per year among adults and this number has increased to 60 deaths per year among children.
Deaths due to scorpion stings are common in developing and under developing countries. Scorpion sting victims in India, for example, have been given less recognition as patients who need medical care and attention by the responsible Health Authorities at local, state, and central government. While in Mexico, the mortality rate was high as one thousand per year, In contrary, it was four deaths within 11 years in United State (Boyer, 2001). As a result, fatalities due to scorpion stings are underestimated. Additionally, all standard medical

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

textbooks carry very little information about the path physiological mechanism/s responsible for death due to venomous scorpion stings (Murthy& Radha 2002) .

Scorpion venom delays the closing of neuronal sodium channels, resulting in "autonomic storm" owing to sudden outpouring of endogenous catecholamine's into the circulation. Systemic symptoms may develop within minutes, but may be delayed as much as 24 hours. Features of autonomic nervous system excitation are transient cholinergic and prolonged adrenergic stimulation. Initial parasympathetic excitation is characterized by vomiting once or twice, profuse sweating (skin diarrhea for 3–17 hours), ice cold extremities, hyper salivation and thick mucus secretion due to stimulation of bronchial mucus glands, lacrimation, pin-point pupils, diarrhea, abdominal distension, priapism, bradycardia and hypotension. Prolonged massive release of catecholamines, as in pheochromocytoma, later produces restlessness, piloerection, marked tachycardia, mydriasis, hyperglycemia, hypertension, toxic myocarditis, cardiac failure and pulmonary edema. All forms of electrocardiogram (ECG) abnormalities are noted and include sinus tachycardia, ventricular premature beats, couplets, transient nonsustained ventricular tachycardia, rarely fatal arrhythmias and ST-T changes closely resemble congenital QT interval syndrome. The outpouring of catecholamines is probably a major factor in the pathogenesis of ST-T changes. The possibility of direct effect of toxin on the myocardium cannot be excluded. Watt *et al*., (1978) tabulated some common complications of scorpion sting as: sweating, salivation, vomiting, abdominal cramps, pallor confusion and muscle twitching and weakness, the major manifestations include hypertensive crisis and life-threatening pulmonary edema, which may be fatal if not treated timely. Endogenous hypercatecholemia could also explain hyperglycemia and glycosuria in some cases. Hemiplegia and other neurological lesions have been attributed to fibrin deposition resulting from disseminated intravascular coagulation.

MATERIAL & METHODS

Two hundred patients of both sexes (53 % males and 47 % females) with an age ranging from 3 – 15 years (mean 8.7 ± 4.21 years) admitted to four different hospitals in Tripoli City in the period between 2008 to 2013 were chosen for the study. Fifty healthy children age (mean age 7.79 ± 4.9 years) and sex (52 % males and 48 % females) are used control.

All patients were diagnosed surely as scorpion sting (by their relatives and/ or local manifestations). For all these stung children and control we exclude history of allergy, previous sting, pulmonary or cardiac disease or recent infection. All patients and control were generally and systemically examined.

Blood samples were withdrawn using scalp vein set (Shanchuan) and blood was collected in sterile test tubes.

Blood glucose was measured **(Quick touch apparatus)**

Serum sodium, potassium, bicarbonates and blood pH were measured **using (Rapid Lab 855, Bayer) blood gas analyzer**.

The data was tabulated and analyzed using software package for Social Science (SPSS) version 11.0 for personal computer (PC).

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

RESULTS

The results of this study revealed that serum sodium was significantly reduced in the patient group than in control group ($p< 0.05$) where it was about 131.5 in patient while it was 135 in control group, table (1).

Regarding serum potassium, it was significantly lower in the patient group (3.3 ± 0.44 mEq/L) than the control group (3.7 ± 0.4 mEq/L) ($p< 0.05$) table 1.

Our study also revealed that serum bicarbonate was insignificantly less (18.4 ± 10.4 MEq/L) in the patient group than that in control group (20.5 ± 1.2 MEq/L) ($p > 0.05$) table (1).

Regarding pH, it was no significant change in both groups where it was 7.37 in patients and 7.33 in control group. The results revealed that blood glucose level increased with highly significant difference in the patients (140 ± 58.2 mg/dl) compared by control subjects (112.78 ± 22.2 mg/dl) ($p < 0.01$) table (1).

The delay of patient's arrival to hospital (the time lapse between the sting and measurement of the parameters) played a significant role in changes of some parameters like blood pH, systolic and diastolic blood pressure (table 2).

Regarding to the clinical data, the blood pressure was elevated in 33 % of cases (67 cases) (for the age) while it was lower than the normal of the age in 25 % of cases (50 cases) while the remaining cases were normotensive. Vomiting was mild to moderate 3 – 4 times) in 56 cases (28 %) of cases and severe (repeated) in 13 % (26 cases). Sweating was mild to moderate in 60 cases (30 % of cases) and severe in 12 cases (6 % of cases) (table 3).

Table (1): Analysis of Variance (ANOVA) test for comparison of the s test parameter in the patients and control groups

Value Parameter	Mean		±SD		F	P
	C	P	C	P		
S. Sodium	135	131.5	3.5	4.9	5.43	0.019
S. Potassium	3.7	3.3	0.4	0.44	6.267	0.015
S. Bicarbonates	20.5	18.4	1.2	10.4	1.179	0.282
PH	7.33	7.37	0.17	0.051	0.326	0.570
Glucose	112.58	140	22.60	58.2	7.619	0.008

P < 0.05   the difference is statistically significant
P > 0.05   the difference is statistically insignificant
SD   Standard deviation
C   Control
P   Patients

Table (2): Two-tailed Pearson Correlation between the parameters of patients group Correlations.

		Delay	nat	Kt	Pico3	pH	Glu
Delay	Pearson Correlation	1	0.017	0.045	0.138	0.371	0.029
	Sig. (2-Tailed)		0.919	0.793	0.424	+ve 0.028*	0.863
Nat	Pearson Correlation	0.017	1	0.029	0.120	0.001	0.137
	Sig. (2-Tailed)	0.919		0.820	0.357	0.995	0.288
Kt	Pearson Correlation	0.045	0.029	1	0.057	0.169	0.132
	Sig. (2-Tailed)	0.793	0.820		0.665	0.196	0.307
Pico3	Pearson Correlation	0.138	0.120	0.057	1	0.077	0.099
	Sig. (2-Tailed)	0.424	0.357	0.665		0.556	0.448
pH	Pearson Correlation	0.371	0.001	0.169	0.077	1	0.953
	Sig. (2-Tailed)	0.028	0.995	0.196	0.556		0.011
Glu	Pearson Correlation	0.029	0.137	0.132	0.099	0.049	1
	Sig. (2-Tailed)	0.863	0.288	0.307	0.448	0.710	
Sbp	Pearson Correlation	0.126	0.119	0.023	0.206	0.175	0.953
	Sig. (2-Tailed)	0.240	0.504	0.896	0.241	0.331	-ve 0.011
Dbp	Pearson Correlation	0.189	0.009	0.266	0.114	0.375	0.237
	Sig. (2-Tailed)	0.076	0.958	0.128	0.520	-ve 0.031	.0177

N.B.　dbp　　diastolic blood pressure
　　　　Sbp　　systolic blood pressure
　P < 0.05　　is significant
　P > 0.05　　is insignificant

Table (3): Incidence of clinical manifestations of scorpion sting:

Signs	Grade	N. of cases	Percent (%)
Vomiting	Absent	118	59
	Mild & moderate	56	28
	Severe	26	13
	Total	200	100
Sweating	Absent	132	66
	Mild to moderate	56	28
	Severe	12	6
	Total	200	200

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

DISCUSSION

A high incidence of scorpion stings leading to a very high mortality in children and adults is reported in many developing countries (Murthy & Radha, 2002). All venomous scorpion species are reported to cause death in humans all over the world belong to the Buthidae family. Signs and symptoms following stings by dangerous scorpions from different parts of the world are remarkably similar Scorpion envenoming results in initial transient hypertension followed by hypotension in experimental animals and scorpion sting victim (Murthy & Radha , 2002).

The signs and symptoms depend on various factors: Including species of scorpion, amount of venom Injected, place of sting, age, weight and susceptibility of each patient and the period passed between the time of the sting and medical aid (Osnaya et al., 2000). Study of Osnaya et al.,2000. showed 36.1% of the cases suffered from 2 to 3 times of vomiting while in our study it was present in 28% ranged from 3 to 4 times

Scorpion sting causes a wide range of effects ranging from local pain and parathesia at the site of the sting to cardio toxicity, pulmonary edema, encephalopathy and severe metabolic derangement (Amitia, 1998). Scorpion venom constitutes low molecular weight polypeptides. The long chain polypeptides causes stabilization of the voltage dependent sodium channels in the open position, leading to continuous, prolonged and repetitive firing from the somatic, sympathetic and parasympathetic neurons. This repetitive firing results in autonomic and neuromuscular over excitation symptoms and prevent normal nerve impulse transmission. Meanwhile, the short polypeptide neurotoxin blocks the potassium channel (David, 2005). The clinical symptoms of central and peripheral neurotoxicity, Cardio toxicity and metabolic alterations present in envenomed patients are assumed to be directly related to the concentration of toxins existing in the venom injected by the Scorpion.

As a result of its action on neuron, scorpion venom causes massive release of neurotransmitter such as epinephrine, nor epinephrine, acetyl choline, glutamate and asparatate which are responsible for most of the systemic signs and symptoms of scorpion envenomation

(Murthy and Hase, 1994). The sympathetically induced secretion of rennin due to the action of venom ultimately results in the activation of angiotensin II which cause the release of aldosterone from the adrenal gland (Gueron et al., 1992).

Scorpion venom stimulate the secretion of glucagon and cortisol suppressing insulin secretion (Ismail and Osman, 1973) and reduces the level of the circulating thyroxine (T4) and tri-iodotyrosine (T3) (Murty and Zare, 1998).

The significant decrease in serum sodium level is explained by (Fukagawa and Papadokis, 2005), It was due to excessive vomiting and sweating Sodium loss was compensated by high renal conservation of sodium (Thompson, 1983) and release of aldosterone due to scorpion venom (Gueron *et al*., 1992). These opposing mechanisms resulted in significant decrease in serum sodium from 135 mEq/L for control to 131.5 mEq/L

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

for the patients. This result is in agreement with that of Yasser et al.,2008) and Ismail et al., (1994) who reported hyponatremia in nearly all of the scorpion stings reviewed in their study.

The significant decrease of serum potassium level was due to several factors, large quantities of potassium can be lost in vomiting (Baron, 1973), together with potassium loss under the effect of the released aldosterone (Fukagawa and Papadokis, 2005) and adernocortical hormones (Baron, 1973). In our study there was significant hypokalemia where serum potassium in patients was 3.3meq|l while it was 3.7meq|l in control group. This result is in contrast to that of (Hagag et al., 1983) who reported an increase in the serum potassium in case of scorpion sting and attributed this increase to prolonged hyperglycemia and acidosis.

In this study the serum bicarbonate level and blood pH showed no significant difference between control group and patient group and this agreed with the study of Yasser et al., (2008), who reported the same result. This result explained by Yasser et al.,(2008) due to a number of opposing mechanisms, Flenleg, (1983), mentioned that the loss of hydrogen ion due to repeated vomiting will be accompanied by a rise of plasma bicarbonate level. Also Ganong, (1977) and Baron, (1973 mentioned that rise in blood pH will stimulate respiratory compensation. The compensatory mechanism together with the associated potassium depletion and excess release of aldosterone will contribute in increasing the blood pH and decreasing bicarbonate level.

Tash *et al*.,(1982) said that scorpion venom itself may cause metabolic alkalosis and respiratory acidosis probably due to hypoxia. These mechanisms which operate in opposing manner might have resulted in the insignificant changes in serum bicarbonate level and blood pH.

Regarding the serum glucose level, it was significantly elevated in patients than control. This result agreed with the results that mentioned by Yasser *et al*.,(2008) This hyperglycemia resulting from scorpion envenomation was noticed earlier by many investigators where liver glycogenolysis stimulated by excessive release of catecholamines seemed to be the major factor contributing to the rise in blood glucose. In addition scorpion venom itself was found to cause suppression of insulin secretion (Murthy and Zare, 1998). The excessive release of glucocotricoid and glucagons increases the hepatic output of glucose in addition to their anti-insulin activity on the peripheral tissues. Excessive catecholamines decrease insulin release which may be an additional factor in causing hyperglycemia (Fitzgerald, 2005). Also our result agreed with study of (Murthy, 2002), who reported that there were significant increases in blood glucose levels from a basal value of 120 mg/100 ml to 402 mg/100 ml within 90 minutes following venom injection

This increase in glucose may interpreted as that an increase in blood glucose level stimulates the endocrine pancreas to secrete insulin. The resulting combination of hyperinsulinemia plus hyperglycemia must effectively promote glucose uptake by splanchanic (liver and gut) and peripheral muscle and suppress hepatic glucose production.

There was a positive correlation between blood pH and delay, and negative correlation between delay and systolic and diastolic blood pressure. The positive correlation with delay shows that the more is delay the more is normalization of the blood pH. This may be due to

the fact that long delay permits the operation of more compensatory mechanisms which requires longer time to operate as renal compensation and other buffering systems and the hormonal factors (Quense, et al. 1985).

The negative correlation between delay and blood pressure indicates that the longer the delay the worse is the blood pressure. This effect may be due to failure of the initial compensatory mechanisms, loss of extracellular fluid by the excessive perspiration and vomiting and accumulation of large amounts of potent vasodilator substances most probably prostaglandins particularly in children (Ismail et al., 1990, Sofer et al., 1991).

In conclusion, the metabolic effects of scorpion sting are serious complications and some of them may be aggravated by the delay in interference. Further studies are required to determine the implications of these metabolic disturbances on the clinical course and severity of the condition and their prognostic value in predicting the outcome of the cases.

There is a big gap between the research findings in areas of molecular biology, pharmacokinetics and toxicology of scorpion sting and treatment protocols, so more research should be encouraged in Libya to get rid of this gap and getting more good results of treatment for this metabolic changes.

REFERENCES

1- Amitia, Y,. Clinical manifestations and management of scorpion envenomation. Public Health Rev., 1998,26.257-263.

2- Baron, D.N., A short textbook of Chemical Pathology. Hedder and Stoughton (London), third edition, 1973, 12-28.

3- Boyer L. Death from centroroides scorpion sting. J. Toxicol, 2001, 39:561-562.

4- David Cheng, Scorpion Sting, e-Medicine, June 2005.

5- Emteris R. Mmammar S, Zourgui L History Biology Enovenomation and Treatment Issues. The Libyan Journal of Medical research vol.1 second year,2006.

6- Fitzgerald, P.A., Endocrinology, I Tierney, L.M., Macphee, S. J. and Papadakis, M.A (edin). Current Medical Diagnosis and Treatment, Lang Medical Book, New York, 44th edit., 2005, 1164.

7- Flenleg, D.C., Acid-Base balance In Tinker, J. and Rapin, M. (edit), Care of Critically Ill Patients, Spring-verlag, Berlin 1st Edit., 1983, 95.

8- Fukagawa, M. and Papadokis, M.A. , Fluid and electrolyte disorders. I Tierney, L.M., Macphee S. J. and Papadakis, M.A (edit). Current Medical Diagnosis and Treatment, Lang Medical Book, New York, 44th edit., 2005, 837-865.

9- Ganong, M.F. Review of Medical Physiology, Lang Medical Publication, San Francisco 8th edition, 1977, 285-290.

10- Gueron, M., Ilia, S., Shahak, F and Sofer, S., Renin and aldosterone levels and hypertension following envenomation in human by the yellow scorpion Leiuru quinquetriatus, Toxicon, 1992, 30, 765-767.

11- Hagag, M. Tu, A. And Asmar, F., Isolationof minax toxins from venom of scorpion Buthus minax and their metabolic effects. Arch. Biochem. Biophy., 1983, 220-459.

جامعة طرابلس
كلية الطب

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

12- Ismail, M. and Osman, O.H., Effect of the venom from scorpion Leiuru quinquetriatus (H & E) on histamine formation and inactivation of rat. Toxicon, 1973, 11-225.

13- Ismail, M., Abd Elsalam, M.A. and Morad, A.M. Do changes in body temperature following envonmation by scorpion Leiuru quinquetriatus influence the course of toxicity. Toxicon 1990,28,1265-1284.

14- Ismail, M., Shibl, A.M., Morad, A.M. and Abdullah, M.I. Pharmacokinetics of I^{125} labelled antivenin to the venom from the scorpion Androctonus amoreuxi. Tocicon, 1983, 21, 47-56.

15- Ismail, M., Abd Elsalam, M.A. and Al-Ahaidib, M. S. Androctonus crassicuada (Olivier) a dangerous and unduly neglected scorpion: Pharmacological and Clinical Studies . toxicon, 1994, 32, 1599-1618.

16- Massoud S., Taxonomical and Toxicological Studies of Lybian Scorpions, Master Thesis, Lybia, 1993.

17- Murthy, K.R. and Hase, N.K. Scorpion envenomation and the role of insulin. Toxicon, 1994, 32, 1041-1044.

18- Murthy, K.R. and Zare, M.A. Effect of Indian red scorpion venom on thyroxine and tri-iodotyrosine in experimental acute myocarditis and its reversal by species specific antivenom. Idia J. Exp. Biol., 1998, 26, 16-21.

19- Murthy, K. Radha Krishna, J. Venom.Anim.Toxins vol.8 no.1 Botucatu 2002.

20- Osnaya N, Romero, T. Clinical symptoms observed in children envenomated by scorpion. Toxicology, 2000

21- Quense, L.P.; Cochrane, P.S. & Fildman, N.R. Fluid and electrolyte disturbances after trauma. The role of adrenocortical and pituitary hormones. British Medical Bulletin, 1985, 41(3): 212-217.

22- Sofer, S., Shalev, H., Weizman, Z., Shahak, F. and Gueron, A. Acute pancreatitis in children following envenomation by the yellow scorpion Leiuru quinquetriatus. Toxicon, 1991, 29, 125-128.

23- Tash, F., Ghoneim, K.S, *Effect* of a *scorpion* venom on blood gases and acid-base balance in the rat. Toxicon. 1982;20(4):802-5.

24- Thomson, F.D. Fluid and Electrolytes Balance In Tinker, J. and Rapin, M. (edit). Care of the critically ill patient. Springer-verlag, Berlin, 1st edit. 1983, 75-85

25- Watt, D. Simard J, Rabin D, Physiological characterization of toxins isolated Toxins Animal, Plant and microbial, 647-660, 1978.New York Pergmon.

26- Yasser, O., Azza S. Mohammed A., Mohy A. Metabolic effects of scorpion sting in children:Bensweef Medical Journal vol.1 no.1,Jan.:2008.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس – قسم الأسرة والمجتمع

دراسة بعض التغيرات في عملية التمثيل الغذائي(الأيض) في الأطفال الناتجة عن سم العقرب

البشير أحمد بالخير- خالد محمد نور الدين قدارة- محمود ش. ع. النجار- عبد الرزاق الزواوي
قسم الطب الشرعي والسموم وقسم الكيمياء الحيوية كلية الطب البشري جامعة طرابلس

اضطرابات الأيض الناتجة عن سم العقرب تعتبر من أهم المشكلات التي تواجه الطبيب عند تشخيصـه ومعالجتـه لحالات اللدغ خاصة في الأطفال حيث إن هذا التسمم يؤدي الي تغييرات كيميائيـة وفسيولوجية يظهر تأثيرهـا واضحا في الجهاز الهضمي والعصبي والدوري. ويهدف هذا البحث إلى تقييم هذه الاضطرابات وعلاقتها بـالأعراض والعلامـات الإكلينيكية الأخرى.

أجريت هذه الدراسـة علي 200 مريض يعـانون مـن لـدغ العقرب في أربعـة مستشفيات حكوميـة داخـل مدينـة طرابلس, تراوحت أعمارهم من ثلاث سنوات إلى خمسة عشر سنة من كلا الجنسين ، كما تم اختيار عدد خمسون حالـة من الأطفال الاصحاء كمجموعة ضابطة من نفس الأعمار والأجناس المستخدمة بالبحث وذلك للمقارنة. وقد تم فحص المرضي من الناحية الإكلينيكية مثل ضغط الدم وعدد مرات القيء وكذلك قياس بعض التغيرات الأيضية مثل قياس نسبة الصوديوم والبوتاسيوم وبيكربونات الصوديوم وكذلك قياس نسبة الجلوكوز في الدم ، ودرجة حموضـة الـدم ، وقد اظهرت النتـائج أن مستوى اجلوكوز الدم زاد زيادة ذات دلالة إحصائية اما حامضية الدم فقد زادت بدلالـة غير احصـائية ، وانخفض مسـتوى البوتاسيوم والصوديوم انخفاضا ذا دلالة إحصائية واضحة, وانخفض مستوى البيكربونات بدلالة غير احصائية.

عليه توصي هذه الدراسة بعمل المزيد من البحث مـع اختيـار عدد اكبر من العينـات ومحاولـة تشخيص التغيرات الايضية والاكلينيكية مبكرا لكي يتم التعامل معها بالعلاج اللازم لتفادي المضاعفات التي قد تنتج عن هذه الاضطرابات

CONSERVATIVE MANAGEMENT OF ODONTOID PEG FRACTURES, LONG TERM FOLLOW UP

Nabil A. Alageli [1], Aheed Osman[2], D. J. Short[2], W.S. El Masri[2].
By

1. Consultant Orthopaedic Surgeon Tripoli Medical Centre, Medical Faculty, Tripoli University. PO Box 80596 Zawia Street Office Tripoli – Libya

2. The Midlands Centre for Spinal Injuries, Oswestry, Shropshire, United Kingdom

ABSTRACT

We reviewed 48 consecutive patients with type II (32) and type III (16), odontoid peg fractures. The clinical & radiological outcomes were assessed over an average period of follow up of 6.8 years. Union rate was determined and we discussed several factors that may affect it. Patients were treated conservatively with initial bed rest with or without cervical skeletal traction followed by bracing for an average of 9 weeks.

Results: Bony union was established in 25 of 32 (78%) type II fractures. Of 7 cases with no bony union 4 were stable probably with fibrous union. 3 remained unstable. In 13 of 16 (83%) type III fractures bony union was established. 2 of the 3 with no bony union were considered stable.

Osseous non-union was higher in patients with displacement of >5mm, but there is no correlation between union and age, gender or angulation of the fracture in both types.

Conclusion: non-surgical management of odontoid fractures remain a viable option in the management of these fractures

KEY WORDS: SPINAL INJURY; SPINAL CORD INJURY; ODONTOID PEG; AXIS; NON-UNION;

Page440

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثانى
كلية الطب البشرى طرابلس ـ قسم الأسرة والمجتمع

INTRODUCTION

Management of odontoid process of axis fractures remain a controversial subject, and arriving at an optimal strategy of treatment is still under discussion.

According to Anderson & D'alonzo[1] these fractures were classified into three types, I, II & III, based on the position of the fracture. Type III fractures were known to be successfully treated non surgically probably due to the large cancellous bone area; Type II fractures were associated with high rate of non-union ranging between 11% to 63% [1,2,3,4], surgical treatment of these fractures was studied extensively with varying results and complications, union rates of 96% were claimed via the surgical route, however controversy still exists as to the optimum treatment of these fractures. Treatment with halo-thoracic bracing resulted in 82% union rate [5]. Disruption of blood supply of the odontoid peg after injury was implicated as a possible cause of the high union rate but Govender et al [6] showed that the blood supply to the odontoid was not disrupted.

In this study, we discussed union rates of type II & III fractures after conservative management which includes a period of bed rest with or without skull traction followed by neck immobilisation in orthosis. We are also addressing several factors that may contribute to bony non-union of these fractures including initial displacement and angulation, age & gender of patients and type of orthosis.

The relatively long period of follow up allowed us to assess the long term outcome for the united as well as non-united fractures, in terms of neck pain especially at site of injury and any restriction of the range of movement. We also assessed neurological change, if any, during and after treatment and follow up. any restriction of the range of movement.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

PATIENTS & METHODS

We treated conservatively 57 patients with odontoid process fracture, six patients lost to follow up were excluded.

The fractures were classified according to the schema of Anderson & d'Alonzo[1], they were further described according to the amount and direction of displacement and angulation of the fracture. Because of the rarity and different clinical picture of type I fractures, 3 patients with this type were excluded.

48 patients were included, there were 24 males and 24 females with an average age of 49.6 years (STD± 23.4); there were 32 type II and 16 type III odontoid peg fractures. All were examined clinically for other spinal or traumatic injuries; detailed neurological examination was carried out daily during inpatient admission period and at each outpatient follow up attendance. Neurological injury was classified according to Frankel classification of spinal cord injury[7]; 8 patients had neurological injury, one patient had complete paraplegia due to associated 4th thoracic vertebral injury, others had incomplete injuries (Frankel C & D); 16 patients (33%) had associated spinal injury at different levels and 17 (34%) had other body injuries including head injuries.

Outpatient follow up was arranged at 6 weeks, 3 months, 6 months, annually for the first 2 years and bi annually further on; the average period of follow up was 8 years ranging between 1 to 15 years.

Patients were also assessed at follow up for: range of movement of cervical spine, and neck pain using the centre own scoring system (**Error! Reference source not found.**).

The stability and status of healing of the fractures were determined radiographic-ally, specific criteria for union is evidence of trabeculation across the fracture site and absence of movement on lateral radiographs made in active flexion and extension. Tomography and /or CT were used when necessary to establish or confirm osseous union of the fracture.

Even if osseous union could not be evidenced, however, a fracture was considered stable if there is no evidence of displacement on active flexion and extension lateral radiographs. All images were reviewed by senior members of the team and a senior radiologist.

Treatment:

The diagnosis was made using appropriate radiographic studies, including standard antero-posterior, lateral and open mouth views. Computerised tomography (CT) and

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

polytomography where used to confirm the diagnosis, MRI was undertaken in cases of neurological deficit or doubtful fractures.

All patients were treated non-operatively, this included, initial period of bed rest with an attempt at reduction either postural or skull traction, followed by immobilisation in an orthosis (Minerva jacket, halo jacket or Philadelphia hard collar) for an average period of 6 weeks (range: 1.5 to 16 weeks).

Data from notes and outpatient interviews was compiled into a special form for further analysis using excel spreadsheet and SPSS statistical package. Pearson Chi square test, t-test and ANOVA tests were used to compare variables as appropriate.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

RESULTS

Population

The main causes of injury were road traffic accidents (RTA) (n=22), falls (n=21), sport injuries (two rugby, one paragliding and one horse riding) and one patient after an assault.

Falls are the commonest cause of injury in people above 50 years of age (average age at injury was 65.4 years) while RTA was commonest among those below that age (average age at injury was 39 years), the difference was statistically significant, (p< 0.001) (Table 1).

Out of 48 patients, 10 patients (20.8%) showed no evidence of bony union on standard x-rays, 6 of them, however, were stable on active dynamic lateral views.

33% of patients of 40 years and older showed no evidence of bony union compared to 13% of those below that age, furthermore, the average age of patients with united fractures was 48±23 years while those with non-union was 56±25 years, however, these differences were statistically insignificant (p=0.09 & p=0.35 respectively). This age difference is particularly evident in type II fractures. (Figure 2 & Figure 3)

Type of fractures and Orthosis

7 (21.9%) of 32 type II fractures did not show evidence of bony union, 3 of them were unstable requiring surgery, and 3 (18.8%) of 16 type III fractures did not unite; only one of them was unstable (Table 2).

All patients were treated initially in bed for a varying period of time, with or without skull traction in an attempt at reduction, this was followed by immobilisation in either Minerva jacket (n=28), halo vest (n=3), hard collar (n=12) and the rest were either in Sterno-Occipito-Mandibular Immobilisation (SOMI) brace (n=1) or enforced soft collar (n=4). It is noted that incidence of osseous non-union does not differ significantly between different methods of neck immobilisation following the initial period of bed rest (p=0.794).

We looked at the possible complication of bed rest and there were no reported complications in any of the patients during that period of immobilisation.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Displacement & angulation

Displacement and angulation of fractures were assessed at the original standard x-ray films. 22 fractures were displaced either anteriorly (11) or posteriorly (11) by 2mm or more. 6 of these (27.4%) went to osseous non-union, while 4 of 26 undisplaced fractures (15.4%) were radiologically non-united, p=0.04 (Table).

It is also notable that 6 (60%) of the non-united fractures were displaced and that out of 4 unstable non-union fractures, 3 showed evidence of significant displacement.

8 of the fractures were angulated by 10 degrees or more, one (12.5%) fracture went to stable non-union. (Table)

Neurology, Pain & Range of movement at follow up

At time of admission to hospital 8 patients had neurological deficit, one patient is completely paraplegic due to associated T4 fracture. 7 patients had minor neurological deficit, at last follow up all but 2 recovered fully; No neurological deterioration occurred during treatment or follow up period.

At follow up 4 patients with unstable non-union, were considered for surgery. One underwent posterior stabilisation, 2 refused and one was unfit for surgery, out of these three, one eventually became stable at 18 months, the other two were unstable but asymptomatic and remain under regular follow up.

Using the centre pain assessment scoring system, 32 patients (67%) reported no pain, 16 patients were scoring mild to moderate (1 to 4) level of pain (Figure 4).

7 (70%) of patients with radiologic non-union reported no neck pain and 3 (30%) stated that their ache or pain is moderate requiring occasional analgesia (Score 2 & 3).

 Examination of the range of cervical spine movement was carried out in all patients at

follow up regularly, 68% of patients showed no restriction of neck movement.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

DISCUSSION

Controversy still exist as to the optimum management of odontoid process fracture particularly type II fractures. Osseous union is considered by many as a successful outcome. In this series, osseous union was achieved in 80% of fractures treated conservatively. We have also demonstrated that clinical & radiological stability can be achieved in the absence of osseous union most probably by fibrous tissue. In other words, fibrous union can be as strong as bony union. Ninety two per cent of all patients achieved stability by osseous or fibrous union. Only four patients (8%) showed evidence of instability. Three of these were not surgically stabilised but were followed up for several years. None of them showed evidence of clinical or neurological deterioration. These results compare favourably with those of Clark and White [4] who reported that stability was achieved with a halo device in almost 70% of dens fractures. We have demonstrated in this series that in the absence of osseous union, dynamic lateral views of C spine are necessary for assessment of healing.

Govender et al [6] reported a 46% non-union rate of type II fractures treated with external bracing. Stoney et al [5] reported 82% union rate after treatment in a halo-thoracic vest. Koivikko et al [8] reported that union rate of 46% was achieved in 69 patients treated in a halo-thoracic vest. Lennarson et al [9] found that age above fifty years to be a highly significant risk for failure of Halo immobilisation. Govender et al [6] shown that age above 40 years, fracture displacement and late treatment contribute towards non-union of odontoid type II fractures. Koivikko et al [8] demonstrated that fracture gap of >1mm, posterior displacement of >5mm, delayed start of treatment and posterior redisplacement did correlate with non-union. Greene et al [10] found that displacement of 6mm or above had a non-union rate of 86% when treated with external immobilisation, they recommended primary surgical stabilisation.

We have observed in this series that there is a higher rate of non-union in patients 40 years or older but this was not statistically significant.

We have shown that fracture displacement is associated with higher risk of non-union in odontoid type II fractures and that type of external immobilisation used for treatment as well as fracture angulation do not correlate with non-union.

Our results demonstrated a possible other measures of outcome of treatment of odontoid fractures namely clinical assessment of range of cervical spine movement and pain assessment at site of injury, in addition to dynamic lateral views of cervical spine (vide supra). We have demonstrated in this study that even with unstable non-union (3 patients) pain was mild or moderate at follow up.

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Also we have shown that neck range of movement was not restricted in 70% of patients with no bony union.

Further long term studies may be required to evaluate these clinical measures.
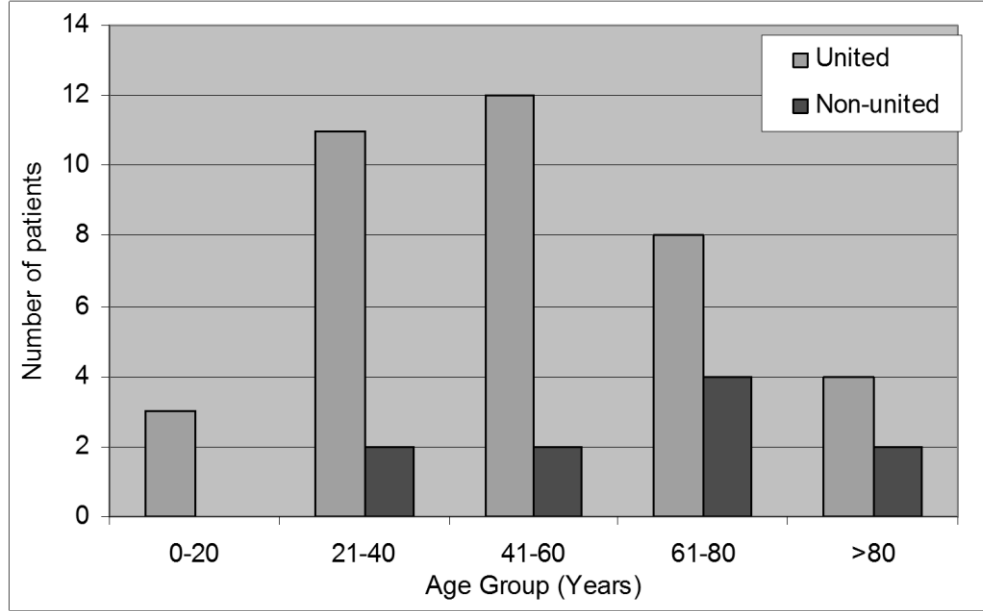
Figure 2: Number of non-union cases in each age group
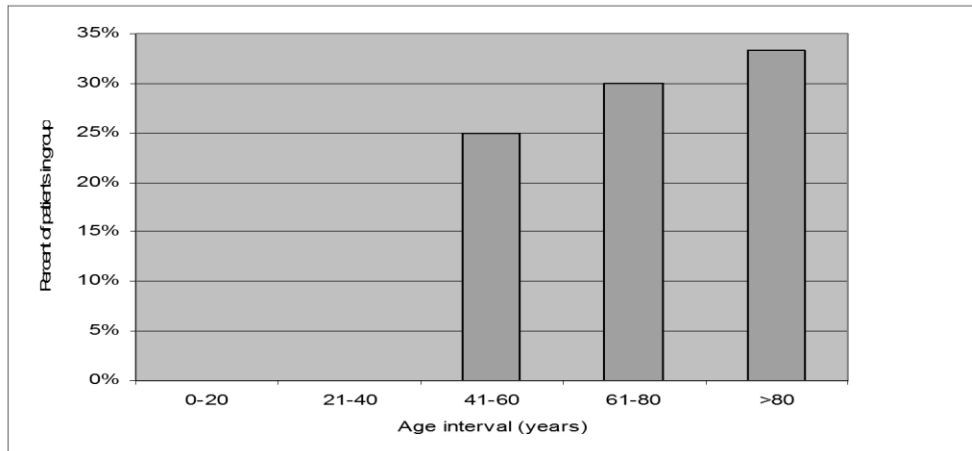
Figure 3: Type II fractures, percent of non-union cases in each age group

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع
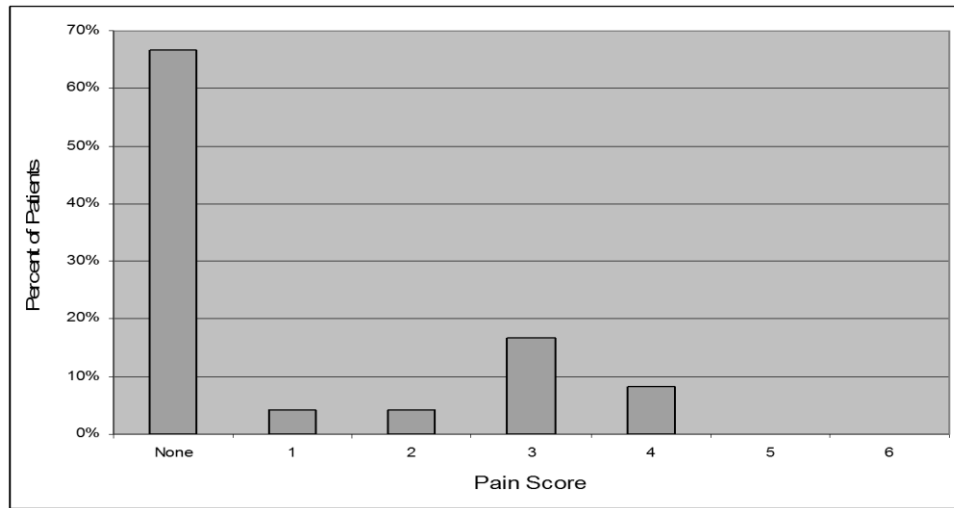
Figure 4: Pain score at follow up
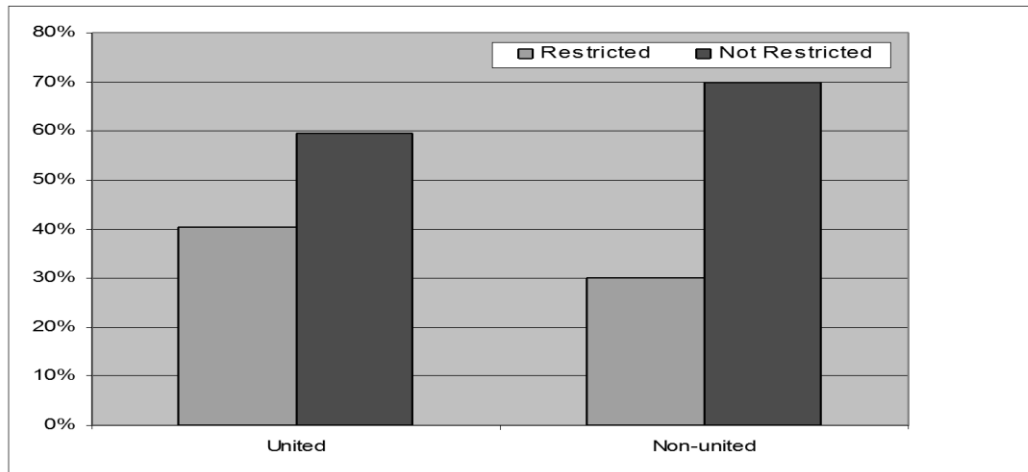
Figure 5: Restriction of range of movement of the neck

جامعة طرابلس
كلية الطب

TABLES

Cause of Injury	Number of patients	Mean age at injury (years)
Assault	1	32.8
Fall	21	65.4
Road Traffic Accident	22	38.9
Sport Injury	4	29.6
Total	48	49.6

Table 1: Causes of, and mean age at, injury

	Osseous Union	Osseous Non-union		Total (%)
		Stable	Unstable	
Type II	25 (78%)	4 (12.5%)	3 (9.4%)	7 (21.9)
Type III	13 (81%)	2 (12.5%)	1 (6.3%)	3 (18.8)

Table 2: Incidence of non-union per fracture type

جامعة طرابلس
كلية الطب

Orthosis	Type	Osseous union	Osseous non-union	Total
Hard Collar	Type II	7	2 (22%)	9
	Type III	2	1 (20%)	3
Halo Vest	Type III	2	1 (33%)	3
Minerva Jacket	Type II	15	4 (21%)	19
	Type III	8	1 (11%)	9
Enforced Soft Collar	Type II	2	1 (33%)	3
	Type III	1	0	1
SOMI Brace	Type II	1	0	1

Table 3: Method of mobilisation, and incidence of non-union per type of odontoid fracture

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس - قسم الأسرة والمجتمع

Union	Displacement				Angulation		
	Anterior Displacement	Posterior Displacement	No Displacement	Total	Angulated	None	Total
	Number (%)	Number (%)	Number (%)		Number (%)	Number (%)	
Type II Non-united	2 (50)	3 (27.3)	2 (11.8)	7	0 (0)	7 (25)	7
United	2 (50)	8 (72.7)	15 (88.2)	25	4 (100)	21 (75)	25
Total	4 (100)	11 (100)	17 (100)	32	4 (100)	28 (100)	32
Type III Non-united	1 (14.3)	0	2 (22.2)	3	1 (25)	2 (17)	3
United	6 (85.7)	0	7 (77.8)	13	3 (75)	10 (83)	13
Total	7 (100)	0	9 (100)	16	4 (100)	12 (100)	16

Table 4: displacement, angulation of fractures and incidence of non-union per type of fracture

BIBLIOGRAPHY

1. Anderson LD, D'Alonzo RT. Fractures of the odontoid process of axis. J Bone Joint Surg (A) 1974; 56-A: 1663-74

2. Lind B, Nordwall A, Sihlbom H; Odontoid fractures treated with halo vest. Spine 1987. 12: 173-177

3. Pepin JW, Bourne RB, Hawkins RJ. Odontoid fracture, with special reference to elderly patients. Clin Orthop 1985; 193: 178-83

4. Clark CR, White AA. Fractures of the dens: a multicentre study. J Bone Joint Surg (Am)1985; 67-A: 1340-8

5. Stoney J, O'Brien J, Wilde P. Treatment of type-two odontoid fractures in halothoracic vests. J Bone Joint Surg (Br) 1998; 30-B: 452-5

6. Govender S, Maharaj JF, Haffajee MR. Fractures of the odontoid process: an angiographic and clinical study. J Bone Joint Surg (Br)2000; 82-B: 1143-47

7. Frankel HL, Hancock DO, Hyslop G, et al: The value of postural reduction in initial management of closed injuries of the spine with paraplegia and tetraplegia. Paraplegia 1969–1970; 7: 179–92

8. Koivikko MP, Kiuru MJ, Koskinen SK, Myllynen P, Santavarita S, Kivisaari L. Factors associated with non-union in conservatively treated type II fractures of the odontoid process. J Bone Joint Surg (Br)2004; 86-B: 1146-51

9. Lennarson PJ, Mostafavi H, Traynelis VC, Walters BC. Management of type II dens fractures, a case control study. Spine 2000; 25(10): 1234-37

10. Greene KA, Dickman CA, Marciano FF, et al: Management of acute axis fractures: review of 340 consecutive cases. Spine 1997; 22(16):1843-52

11. Fuji F, Kobayashi K, Hirabayashi K; Treatment in fractures of the odontoid process. Spine 1988. 13:604-609

12. Bohlman HH. Acute fractures and dislocations of the cervical spine: an analysis of three hundred hospitalised patients and review of the literature. J Bone Joint Surg (A) 1979; 61A: 1119-42

13. Schatzker L, Rorabeck CH, Waddell JP. Fractures of the dens (Odontoid process): an analysis of thirty seven cases. J Bone Joint Surg (Br) 1971: 53-B: 392

جامعة طرابلس
كلية الطب

List of Publications

مؤتمـر البحـوث الطبيـة الثانى
كلية الطب البشري
قسم طب الأسرة والمجتمع

Medical Research Conference
مؤتمر البحوث الطبية الثاني
كلية الطب البشري طرابلس ـ قسم الأسرة والمجتمع

Mailud.El-Amari, Salah Mursi, M.A. Ghanim,. M.Fituri, WahengbamPS(Waheed)	
27. Work related Hazards among X-rays Workers Benghazi Hospitals Omar Sudani Jiehan Elbusaifi M EL-Feituri Kasm Elaani Miulod Elamari, Salah Mursi	**331**
28. An Integrated Approach To Health Promotion Mailud.El-Amari,M.Faituri, faculty of public health, Benghazi university.	**336**
29. Echinacea purpurea promotes maturation of dendritic cells in vitro1 Muftah El-Feituri , Diethelm Wallwiener1, Brigitte Gückel, , Simone Kayser, , Mailud El-Amari,and Hinnak Northoff.	**348**
30. Effect of sodium Valoproate in childhood epilepsy Tripoli children hospital Seham Eshrif, Sabria Alturki	**356**
31. Effect of cutaneous Leishmaniasis (CL) on some blood parameters in human Afan A. M; Alawama A. S; Abusaida H. M; and Annajar B. B; and Abuain K. B.	**370**
32. Factors contributing to the adherence to anti- TB treatment among tuberculosis patients in Abo-setta chest hospital 2015 Tripoli-Libya Anwar Sadek El-Hodiry	**378**
33. Accuracy of ultrasonography in diagnosing Placenta accrete Nasreen Osman1, Dr. Ebtesam Ghodiwan1, Dr Taher Emahbes2	**380**
34. Prevalence of Asymptomatic Bacteria in Pregnant Women in Tripoli, Libya Kheiria A. Elfigih , Microbiology department, Tripoli University, Faculty of Medicine	**387**
35. The prevalence of multi drug resistant organisms in medical intensive care unit in Tripoli medical center –Libya. Zakaria Ali Ben –issa , Abubaker Elmaryul	**392**
36. Prevalence of abnormal glucose regulation in Libyan patients presenting for elective coronary angiography. Hawa Juma El-Shrief1, Khaled Alwaleed2	**400**
37. Influence of Ultrasound on Nuclear Magnetic Resonance Nouri Elmiladi1, Khalid B. Abuain1, Christian J. Hˑohl2, and Karl Maier2	**411**
38. Perception of intern doctor about their internship training program in Tripoli university in 2014. Aisha Ben-Rween(1) , Tarek Alazabee (2), Abubaker	**420**

جامعة طرابلس
كلية الطب

Elmaryul(3),Mohamed Elgara ,Ayman Ezatrini(4)	
39. Study of Some Metabolic Changes in Children that result from scorpion Enovenomation Khaled M. Gdarah(1) , Bashir A. Belkhir(1), , M. S. A. Annajar(2), and Abdurazag I. Zwawi(1)	**431**
40. CONSERVATIVE MANAGEMENT OF ODONTOID PEG FRACTURES, LONG TERM FOLLOW UP. Nabil A. Alageli, Aheed Osman, D. J. Short, W.S. El Masri.	**440**

End of Publications

جامعة طرابلس
كلية الطب