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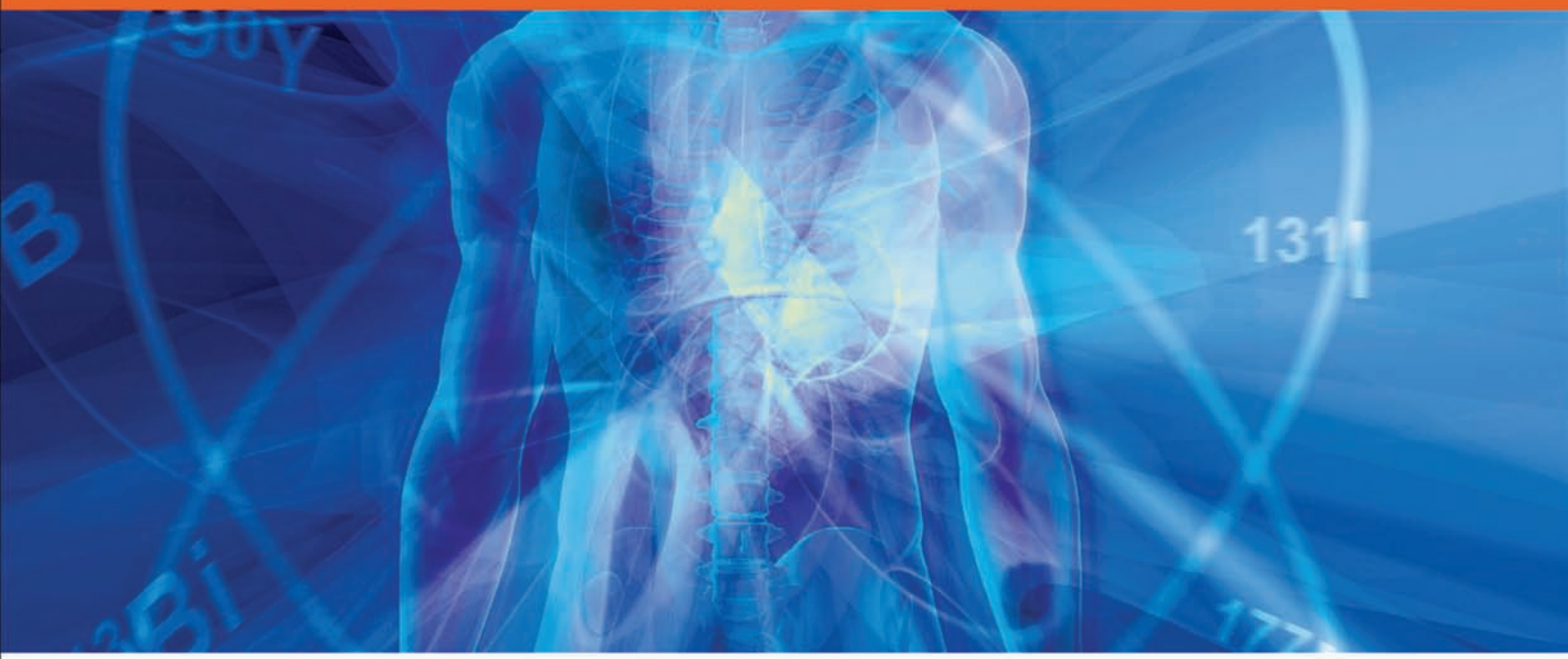

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EDITORIAL

Future Physicians of Pakistan: Towards National Health Priorities

Nighat Huda

With the dawning of 2011, Pakistan medical education direction continues towards preparing graduates for functioning in tertiary care settings. Medical educators and institutions take greater pride in producing specialists and sub-specialists who achieve laurels in developed countries. While Pakistan's failure to meet the Millennium Development Goals (MDGs) by 2015[1] suggest reorientation of physicians' education and research towards improvement of health of individuals and population. A mismatch of medical education with health priorities extends to developed countries including emerging economies such as India. In USA, primary health care is the core of the recent health care reform, and American medical schools now face criticisms for the present dearth of primary care providers. [2] In the context of Pakistan, a paradigm shift is critical towards producing family physicians to respond to the rising expectations of populations from health care, reduce inequities in health, and improve health outcomes.

Most pressing is fostering a favourable image of family physicians among all stakeholders of Pakistan. Over the years, family physicians have gained a reputation of 'jack of all trades' (master of none) with know how to manage only common ailments or advocate prevention.

Overall, medical educators' perception on training in primary health care and community-based settings is that of household surveys, polio immunization campaigns or health awareness talks for which the community medicine department is considered responsible. For medical graduates too, family medicine is not the popular career choice due to low prestige, low pay, and inadequate postgraduate opportunities.[3-4] Crucial is to propagate recognition of family medicine as a specialization with family physicians training focus on local needs of individuals and communities in facilities beyond hospitals including community-based settings.

The challenge to produce family physicians is enormous particularly in view of Pakistan's complex health system, ineffective government policies, growing national insecurity, combined with institutional legacy, and rapid growth of medical colleges. Not forgetting training in tertiary hospitals, out-dated discipline-based curriculum dependence on lectures, and students' rote learning approach to pass examinations based on simple factual information. Interestingly, the Pakistan Medical and Dental Council (PMDC), the regulatory body responsible for curriculum guidelines does not recommend family medicine department for undergraduate institutions.[5] Consequently, very few medical colleges have invested in establishing the department of family medicine. Only two private medical colleges of Karachi are fully accredited for the College of the Physicians and Surgeons Pakistan (CPSP) fellowship training in family medicine.[6] Another major crisis looming over Pakistan which has far reaching consequences is that its trained health workforce including educators, practitioners (including family physicians) are either seeking jobs in the Middle East or migrating to developed countries. In view of the challenges, the task is daunting not only to change the mindset of policy makers, but also of physicians who have achieved fame as specialists, and remain unsure of what primary health care settings have to offer in terms of education and research.

For setting directions towards family medicine, educators can wait endlessly for the right government or "messiah" to initiate the wheel of change without acceding to donor agencies vertical programs. On the other hand, educators forge partnership with like-minded groups including professional associations, non-governmental organisations, students, other professionals for a positive image of family physicians, and create models of primary health care for family physicians to contribute to health of communities with other members of the health team. Lessons can be learnt from the two natural disasters that affected Pakistan, the earthquake of 2005, and 2010 flood which demonstrated the commitment of doctors as individuals and small groups to serve the underserved and disadvantaged populations. The same spirit and leadership is necessary for physicians to assume the role of advocates of family physicians through major reforms in both undergraduate and postgraduate education. The Lancet Commission recent report[7] emphasizes the significant role of health professionals in aligning education to national health priorities.

If health professionals forge unity for high standards of care for all segments of its population, then only pressure can be exerted on the government to invest in the development of primary health care networks, and integrate donor agencies disease specific

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programs to strengthening horizontal primary care system [8].

On taking the initiative, Pakistani physicians will find global models, partners for pursuing the mission of primary health care. For example, the success story of Brazil Society of family physicians (SOBRAMFA) which since 1992 has concentrated on undergraduate medical students to promote the philosophy of family medicine.[9] Moreover, the Network: Towards Unity for Health (TUFH) conference of 2010 [10]demonstrated global efforts in overcoming the challenge of poverty, poor investment in health through partnership of health professions education and health services institutions. For Pakistani physicians, this is an opportune time to align medical education with population health care needs aimed at quality lifestyle and comprehensive health care for its population.

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ORIGINAL ARTICLE

Emergency Obstetrical Hysterectomy

Rozina Mustafa, Rubina Mustafa, Haleema Hashmi, Muhammad Jawed

Abstract: This study was designed to determine the incidence, indications and complications of emergency obstetrical hysterectomy. The cases were analyzed from January 2003 to December 2008 in the obstetric unit of Fatima Hospital, Baqai Medical University, Karachi. The Demographic and clinical variables were obtained from the maternal records. Incidence of emergency obstetrical hysterectomy was found out to be 1:238 deliveries. Out of these 6(40%) of patients were in the age group between 31-35 years. Average age was 31years. Multiparous patients were 7(46.6%) and grand multiparous were 6(40%) with mean parity of 5. The most common indication leading to obstetrical hysterectomy was Atonic uterus causing postpartum hemorrhage in 7(46.6%) of patients. Ruptured uterus was responsible for this procedure in 2(13.3%) patients. Regarding complications, deep venous thrombosis developed in 1(6.6%) patient. The maternal deaths occurred in 3(20%) patients. The incidence of emergency obstetrical hysterectomy is not very much high. Majority of the patients were referred by traditional birth attendants (TBA's) with complications of labor and delivery. To further reduce the incidence, education of TBA's and early referral along with community awareness are essential.

Keywords: Emergency obstetrical hysterectomy, postpartum hemorrhage, ruptured uterus, pregnancy outcomes

Introduction

Obstetrical care in the western world is at its peak. But in developing countries, it is still at the docks, especially in Pakistan due to illiteracy, male dominant society and untrained birth attendants. Majority of population living in rural areas do not have an easy accessibility to a maternity and essential obstetric care. Therefore they may develop life-threatening complications of pregnancy or labor. Hysterectomy on pregnant uterus is a mutilating procedure used by Obstetrician only when there is no choice in case of major complications of pregnancy or delivery. It is the last resort to save the mother's life but reproductive capability is to be sacrificed. However timely performed procedure will help in reducing maternal mortality. Overtime, the incidence has remained low(less than 0.6%).[1] Some current case series report an incidence of 0.1-0.3%.[2] Obstetrical Hysterectomies can be performed as an emergency or an elective procedure. Emergency peripartum Hysterectomy was defined as one performed for hemorrhage unresponsive to other treatments within 24 hours after delivery. Indications for peripartum hysterectomy have also evolved in response to the advent of improved antibiotic treatments, blood banking techniques and uterotonic agents. Intraoperative complication rates range from 10- 36%, whereas postoperative complication rates are reportedly as high as 65%.[1,2]

Emergency Caesarean Hysterectomy implies that some complication arise during the course of Caesarean section, which make it necessary to remove uterus as a life saving procedure. Dr. Eduardo Porro in 1876 performed the first successful Caesarean Hysterectomy, in which both mother and infant survived. By the early 1900s, the technique had been refined and obstetricians were more comfortable performing the surgery even for sterilization purpose, despite a high morbidity and mortality.[3] Modern times have seen a return to using peripartum hysterectomy almost solely for management of obstetric emergencies.[2] In case of failure of a conservative treatment, it is dangerous to multiply techniques. Emergency Obstetrical Hysterectomy should remain the choice procedure.

The objective is to determine the incidence, indications and complications of emergency Obstetrical Hysterectomy.

Materials and Methods

The study was done in the Obstetric unit of a community based Hospital, Baqai Medical University, Karachi. Most of the admissions were through emergency. Retrospective analysis of cases was done from January 2003 to December 2008. No elective hysterectomy was done as our women wants to preserve their fertility. The procedure was adopted as a last step to save the life of mother.

The information was collected from the records on a proforma which highlighted the demographic characteristics, indications, operative findings, blood transfusions required and postoperative complications.

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The decision for surgical intervention was mostly taken by Assistant Professor after discussing the case with the Associate Professor and Head of the Department. The procedure was performed by Assistant/Associate Professor, after resuscitation of the patient. The cases were critically analyzed in maternal morbidity and mortality meetings.
The collected information was computerized for analysis by SPSS XII.

Results

There were 3,574 deliveries during the study period. Total number of Obstetrical Hysterectomies performed was 15, so the incidence was 4.1/1000 deliveries. After caesarean 5 (33.3%) patients underwent obstetrical hysterectomy procedure and 10(66.6%) after vaginal deliveries.
Table 1 showed the demographic characteristics of the patients. In our results, only 1(6.6%) patient underwent hysterectomy at the age of 20 years. She was delivered by a Traditional Birth Attendant after a prolonged labor. Between 36-40 years, 3(20%) of patients had Obstetrical Hysterectomies. The average age was 31 years. Regarding parity, 7(46.6%) of patients were multiparous and 6(40%) were grand multiparous. Mean parity was 5.

Table - 1 Demographic characteristics

Age (years)	No	%
<20	01	6.6
21-25	01	6.6
26-30	04	26.6
31-35	06	40.0
36-40	03	20.0
Parity	**No**	**%**
P1	01	6.6
P2-5	07	46.6
P6-10	06	40.0

Out of 15 cases, 3(20%) were booked and only one patient was already admitted in hospital for elective caesarean section but changed to emergency with the onset of labor. The unbooked patients admitted through emergency were 12(80%). All of them were referred by TBA's due to the development of complications of labor or after delivery.
The indications for Obstetrical Hysterectomy are shown in Table 2. The most common indication was Atonic uterus in 7(46.6%) of patients. Extension of lateral tears during caesarean section, and cervical tears after normal deliveries indicated this life saving procedure in 4(26.6%) patients. PPH caused by morbidly adherent placenta led to Obstetrical Hysterectomy in 2(13.3%) patients. Similarly 2(13.3%) of patients had Obstetrical Hysterectomy for ruptured uterus.

Atonic uterus
This was the top most indication of Obstetrical hysterectomy in 7(46.6%) of patients, not responded to aggressive conservative management. Medical management included use of oxytcics, volume replacement, bimanual compression and massage of uterus. Uterine packing was done in four patients. One of the causes of atonic uterus was prolonged labor in three patients, who had vaginal deliveries at home conducted by TBA's. Two patients were admitted with Abruption. Grand multiparity was a risk factor for uterine atony in two patients.

Table -2 Indications of obstetrical hysterectomy

Indications	No	%
Atonic uterus	07	46.6
Extension of tears	04	26.6
Morbidly adherent placenta	02	13.3
Ruptured uterus	02	13.3

Extension of tears
The extension of lateral tears during emergency caesarean section for obstructed labor resulted in obstetrical hysterectomy in 2 patients. After vaginal deliveries, 2 of the patients had cervical/vaginal tears for which this procedure was adopted. One of the patients who had vaginal delivery came after prolonged trial of labor by TBA's, but delivered immediately after admission in hospital.
Morbidly adherent placenta
Previous two caesarean sections caused morbidly adherent placenta in one patient. The other was admitted with retained placenta after normal vaginal delivery at home. Both of the patients developed severe PPH and hysterectomy was adopted to combat severe life-threatening condition.
Ruptured uterus
It was one of the indications for obstetrical hysterectomy. In this study we had 2 patients with ruptured uterus. Those were multiparous patients given oxytocin during labor came with obstructed labor referred by TBA's. Operative findings showed large bilateral tears extending to fundus and broad ligaments, so it was decided to proceed for obstetrical hysterectomies as patients' condition were deteriorating. This is a life-threatening condition with high rate of maternal mortality.
All the patients were given blood transfusions along with fresh frozen plasma (FFP) preoperatively and during the procedure. Maximum blood and FFP's transfused were 8 and 6 units respectively. All patients were given antibiotics along with the supportive therapy. The duration of hospital stay ranged from 7-22 days due to postoperative complications which are enlisted in table-3. Deep venous thrombosis developed in 1(6.6%) patient.

Post operative severe anemia with hemoglobin <7 gm% was noticed in 3(20%) patients treated by blood developed in 3(20%) and 3(20%) patients respectively. Luckily 2(13.3%) patients were discharged without any complication.

Maternal mortality was 20%. Causes of maternal deaths are shown in table-4. Hemorrhage was the major cause of death. Out of them, 1 patient developed disseminated intravascular coagulation due to uncontrollable postpartum hemorrhage, and 1 had ruptured uterus. One patient developed adult respiratory distress syndrome during the operation.

Table -3 Post-operative complications.

Complications	No	%
Wound infection	03	20.0
Urinary tract infection	03	20.0
Post-operative severe anemia	03	20.0
Deep venous thrombosis	01	6.6
No complication	02	13.3
Maternal mortality	03	20.0

Table -4 Causes of maternal mortalities.

Causes	No	%
Hemorrhage	02	13.3
Complication during anesthesia	01	6.6

Discussion

Obstetric hysterectomy was originally evolved as surgical attempts to manage life threatening obstetric hemorrhage and infection. An obstetric hysterectomy is reserved for management of cases where other measures have failed but its performance should not be delayed until the patient is too far deep in trouble. This study showed an incidence of 4.1/1000 deliveries, in contrast to recent studies that showed an incidence of 0.64 and 0.29/1000 deliveries respectively.[4,5] However the ratio of obstetrical hysterectomy to deliveries in this series (1:238) is close to a study conducted in Faisalabad (1:346 deliveries).[6] A recent study of Pakistan showed a high incidence(1:33 deliveries) of this procedure.[7] In this study, the average age and parity was 31 years and 5 respectively. Close demographic pattern was observed in two other studies.[7,8] Regarding risk factors, multiparity is common in this and other studies.[9,10] Multiparity is the root of serious morbidities like ruptured uterus and postpartum hemorrhage. In rural areas unplanned reproductive pattern leading to high parity is a significant factor for obstetrical hysterectomy. Only three patients were booked while all others were emergency cases. So in this study more obstetrical hysterectomies were performed after vaginal deliveries leading to acute morbidity i.e postpartum hemorrhage as compared to caesarean sections. Our results are in contrast to transfusion. Urinary tract infection due to prolonged catheterization and wound infection foreign studies that showed cesarean delivery as a significant risk factor for emergency obstetrical hysterectomy.[4,11] Bakshi stated that cesarean delivery carries a 50-to 95-fold risk for emergency peripartum hysterectomy.[2]

Uterine atony could lead to a catastrophic bleeding. When medical treatment fails to control postpartum hemorrhage, an emergency hysterectomy may become the necessary evil. Our study showed it as the main indication for obstetrical hysterectomy also proved by other studies to be one of the leading causes.[7,8,12,13] The predisposing factors were multiparity, prolonged/ obstructed labor with oxytocin use by TBA's and abruption in the present study. In another study hypertensive disorders, prolonged second stage, oxytocin augmentation were found to be the major risk factors.[14] Same factors as observed in this study were analyzed in another study conducted at Faisalabad.[15] Despite the development of medical, obstetrical and arterial embolization techniques to control PPH due to atonic uterus, familiarity with surgical procedure is essential. In our set up we don't have the facility of arterial embolization, after failure of aggressive medical management, this surgical technique was adopted. Several studies concluded that surgical management must be timely triggered after failure of first line treatment as we did in our patients.[16,17]Atonic PPH can be prevented by meticulous monitoring of patients upto third stage of labor and optimum, timely use of uterotonic agents. This prevention can be applied to patients who delivered at hospital and not to those who arrived in critical condition after home deliveries as in present study.

Hemorrhage during caesarean section and after vaginal delivery due to extensions of multiple tears can be severe enough to warrant emergency hysterectomy to prevent maternal death. In our study 2(13.3%) patients underwent emergency hysterectomy due to extension of lateral tears during caesarean section in comparison to other studies where this complication accounted for 11.6% and 7.9%.[4,7] Two patients had cervical tears after vaginal deliveries, as observed in another study.[7]

An emergency hysterectomy is the most effective method for dealing with hemorrhage due to morbidly adherent placenta. Patients with history of previous caesarean sections should be considered as a high risk for this morbidity. MRI and Color Doppler is useful to diagnose antepartum placenta accreta/bladder involvement in order to plan elective surgery that is associated with reduced morbidity and mortality. In the present series, there were 2(13.3%) cases of placenta accreta and both required a total

hysterectomy. Several studies showed it as one of the main indications opposite to our study results.[4,7,12] Risk factor in reference studies was previous cesarean section scars. However one of our patients had previous 2 cesareans.

Rupture of uterus is a life threating obstetrical emergency. This risky condition accounted for 2(13.3%) patients ranking third in this study as compared to other studies, where it was on the top.[5,18,19] The predisposing factor was mis-management by TBA's, similar to Abbotabad study.[20] Overall, in our study, the indications for emergency obstetrical hysterectomy were uterine atony followed by hemorrhage due to tears, morbidly adherent placenta and ruptured uterus, as shown in a Nigerian study.[21] So early decision to perform an emergency hysterectomy is essential before the patients condition deteriorates, besides availability of an experienced obstetrician to undertake a technically demanding operation. TBA's should be properly trained and not allowed to use oxytocin without the supervision of trained doctor.

The complications associated with the procedure were due to a delay in carrying out the definitive treatment rather than due to the procedure itself. Also the preoperative status accounted a lot for the development of complications. In this study 3(20%) patients had wound infection, 3(20%) developed severe anemia due to excessive blood loss and 3(20%) suffered from UTI due to prolonged catheterization. Same complications were developed in patients of some other studies with almost similar frequencies.[21,22,23] Deep venous thrombosis due to prolonged operative time developed in 1(6.6%) of patient. However no patient developed this complication in above mentioned studies.

Complications during hysterectomy decrease with skill and experience of the surgeon. At times the performance of this procedure may be the difference between life and death for patient. Maternal mortality is the dark side of obstetrics. The maternal mortality has been reduced dramatically in developed countries by hospitalization for delivery and the availability of blood transfusion. Home deliveries by TBA's and immediate non-availability of blood products are still a major factor in developing countries contributing to maternal deaths. In this study disseminated intravascular coagulation was responsible for the death of 1 patient. Another study showed disseminated intravascular coagulation as a major morbidity but not causing mortality.[24] Our result is in between two other studies that showed 2.8% and 17.04% of maternal mortalities.[7,25] Hemorrhage was responsible for mortality in present and in another study.[4] Obstetrical hemorrhage is most likely to be fatal to mother in circumstances in which blood or blood components are not available immediately. Prompt restoration of blood volume after an accurate estimation of the loss is necessary. A standardized management protocol implemented smoothly would go long way in preventing maternal deaths from massive hemorrhage.

The practicing obstetrician should be fully prepared to face all the situations during and after surgery of this life saving procedure.

Conclusion

The incidence of this procedure can further be reduced by community awareness regarding women reproductive health. Prevention must include easy availability of family planning services, improved antenatal care, delivery at hospital under good supervision and active management of third stage of labor. Education of traditional birth attendants on the dangers of prolonged/obstructed labor and injudicious use of oxytocin should be the top priority. They should be trained for recognition of complication and early referral in order to prevent severe morbidities and to reduce mortalities. Performance of surgery by experienced staff reduces the intra and postoperative serious complications.

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ORIGINAL ARTICLE

Health Problems of Children in Women Jail (Karachi)

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Abstract

Objective: The purpose of this study was to assess the health status & problems of children in women jail Karachi.

Methods: A cross sectional study was carried out in Women Jail which is part of Central Jail, Karachi. Convenient sampling technique was adopted and the data was collected through interview of mothers and anthropometric measurements of the children.

Results: There were 22 children in jail and male to female ratio was same. Analysis of the data indicated that 54.5% children were exclusively on breast feeding up to 4-6 month and were given homemade food at weaning. Eighty two percent of children were born by normal delivery, 68.2% children suffered from different illnesses and most of them had frequent attacks of diarrhea. Children faced a lot of problems Moreover they had no recreational facility and separate area, to avoid mixing with criminals. Hence the living conditions of the children were not acceptable. Most of the mothers (66.7%) were uneducated, 57.1% mother had 3-4 children, 54.5% mothers had received tetanus toxoid vaccination during pregnancy. Sixty eight percent (68.2%) mothers received antenatal care in jail.

Conclusion: It was concluded that the living conditions were not suitable for the physical and the social growth of the children in women jail. Immediate measures should be taken to handle these problems.

Keywords: Women, children, jail

Introduction

The women in jail have important role on the health of their children as according to various studies the proportions of mothers is 57 to 80% out of all women in jail.[1-3]

The health status of mothers affect the physical, mental, social and spiritual health of the children who are living in jail along with their mothers. The mothers and pregnant women with their children in jail pose serious ethical, social, and legal issues which society finds difficult to manage. The children are more prone to infectious diseases, psychological problems and other health hazards. The prison populations have poor hygienic condition and poor health care, [4-7] A study conducted in Italy, demonstrated that the children in jail had a mean low weight at the time of admission while they caught up their growth because of better medical and nutritional facilities in jail.[4] That could be because most of the mothers in jail were from poor socioeconomic and demographic background and the provision of good care resulted in improvement of health status of children. If the health care services of mothers in jail of Italy are replicated in developing countries, one may expect improved health indices of the children of them.

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Another study carried out in Srilanka, observed that most of the children living in the jail had skin problems such as, scabies, pediculosis and impetigo. Their educational needs also suffered. The child-friendly dormitory was inadequate to accommodate all children.[8] A study conducted by Messina et al observed that mental health problems increased by 40% for these children in their later life.[9] A study was conducted at juvenile prison in Karachi to find out the social and psychological problems of children.[10] However limited studies are available to highlight the problems of children living with their mothers in women jail of Pakistan.

As the environmental and sanitation condition in Pakistani jail are much poorer than the other countries, it is expected that children of Pakistani jail may be having more physical, social and health problems as compared to other countries. The upper age limit for the children in Italy was 3 years and in Pakistan 13 year thus enslaving children to jail condition for longer time, affecting the children personality traits. [4] More-over the adolescent age group is more vulnerable to psychological and social problems. Hence keeping these age group children in jail with their mother may adversely affect their development as a responsible citizen.

The objectives of this study were to find out the nutritional status, illnesses and the problems faced by the children living with their mothers in jail.

Subjects and Methods

Setting: This cross-sectional study was conducted in the "Central Jail Karachi" located in the downtown of Karachi in the month of July 2006. Karachi is the economical hub and the largest city of Pakistan with an estimated population of more than 15 million. Necessary permission from the jail authorities were obtained along with the informed consent from the

respondents. A questionnaire was filled from the children and their mothers.

Sampling technique: During the study period there were 22 children in jail who were all included. It was non- probability, convenience sampling.

Data analysis: The data was analyzed by SPSS ver. 14. The qualitative statistics marital status, antenatal care, and place of delivery were tested by Fisher Exact test and quantitative measurements like anthropometry, education,parity were subjected to t test. The power of the cut off value was set at 80%. The p value in all condition was fixed at 0.05 or less.

Data collection procedure: Permission was sought from home department of Sindh, followed by I.G Sindh, and finally from Superintendent Jail and data was collected through interview of mothers and anthropometric measurement of the children after taking their verbal consent.

Results

A group of 22 children were found (during the month of July 2006) with 21 mothers in the Central Jail Karachi. Only 33.3% of mother had some form of education, one mother was unmarried (4.8%). One mother had more than 4 children (5%) and two had foreign nationality (9.5%), 54.5% received tetanus toxoid vaccination, 32% did not receive any antenatal care, and two delivered in-side the Jail (9.0%) (Table 1). The proportion of <5 year children was 77.3%, with equal sex ratio and 13.6% children had been attacked by illnesses for more than six times during previous year. Only 41% had completed immunization, while 45.5% were undernourished. There was no case of severe malnutrition (Table 2). Children complained about lack of recreational facility and separate area for them, to avoid mixing with criminals. The only good thing was availability of clinic with a qualified physician (Table 3). Mean mid arm circumference was 16.4 cm with 3.03 standard deviation (Table 4).

Table- 1 Frequency distributions of demographic feature of the mothers

Education of mother	n=21	%
• **No education**	**14**	**66.7**
• **Less than Matric**	**4**	**19.5**
• **Matric**	**3**	**13.8**
Marital status	n=21	
• **Married**	**20**	**95.2**
• **Unmarried**	**1**	**4.8**
No. of Children	n=22	
• **1-2**	**8**	**38.1**
• **3-4**	**12**	**57.1**
• **>4**	**2**	**5**
Nationality	n=21	
• **Pakistani**	**19**	**90.5**
• **Foreigner**	**2**	**9.5**
Vaccination of mothers in total 22 pregnancies (tetanus toxoid)	n=22	
• **Received**	**12**	**54.5**
• **Not received**	**10**	**45.5**
Antenatal care	n=22	
• **Received**	**15**	**68.2**
• **Not received**	**7**	**31.8**
Place of Delivery	n=22	
• **Hospital**	**20**	**91**
• **Jail**	**2**	**9**

Table-2 Frequency distributions of demographic variables of the study population (Children)

Age	n=22
<5 year	**17 (77.3%)**
>5 year	**5 (22.7%)**
Sex	n=22
Male	**11 (50%)**
Female	**11 (50%)**
Frequency of illness	n=22
No illness	**3 (13.6%)**
1-3 times	**15 (68.2%)**
4-6 times	**1 (04.6%)**
>6 times	**3 (13.6%)**
Immunization	n=22
Not given	**3 (13.6%)**
Incomplete	**10 (45.5%)**
Complete	**9 (40.9%)**
Nutritional status	n=22
Normal	**11 (50.0%)**
Over nourished	**1 (04.5%)**
Undernourished	**10 (45.5%)**

Table -3 Problem faced by the children

Problems/facility	Provided
TV	No
Play ground	No
Facility to take children outside the jail	No
Exposure to abusive language	Yes
Children were learning abusive language(Gali-Galoch)	Yes
Provision of Toys	No
Pediatrician/ consulting facilities	No
Hygienic care	No
Ordinary Clinic	Yes
Separate living	No

At the time of study the most common illness was diarrhea and skin rashes (Figure-1). for sex and age and there was no significant difference by Fisher Exact value of 1.09 ($p < 0.58$) (Figure-2).

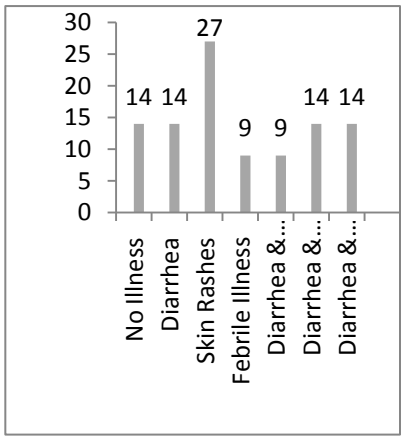

Figure-1 Distribution of type of illnesses

The nutritional status was cross matched. The pattern of illness was also compared by sex, without any significance ($p< 0.19$). However febrile illness was reported only for female children (Figure-3).

Discussion

This study recorded the finding of 22 children living with their mothers in jail while study conducted in Ireland by Enright had 14 children[13]. Ferrara in Italy studied 64 children[4] while Senanayake in Sri Lanka

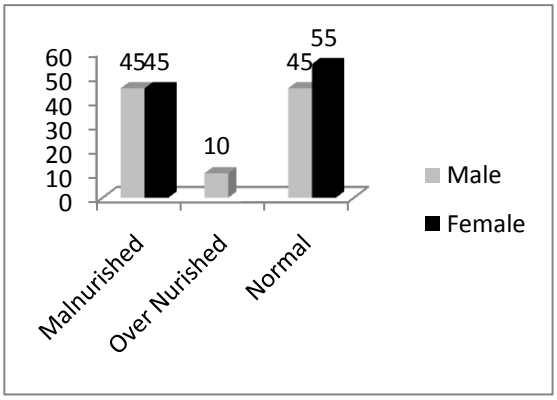

Figure-2 Frequency distribution of nutritional status by sex

studied 70 children[8] and Jesus in Spain reported study on 127 children[5]. The mothers have a similar background as found in other studies i.e. low socioeconomic and demographic profile. We found 9.5% of the inmates as foreigner while Jesus found 22.3% as foreigner, mostly from South American countries. We found no special arrangement to keep the children away from the stressing factors inherent in jail environment while in Spain the mothers are provided with two types of options to keep the children completely secluded from other inmates in jail. First option is "non open prisons" called "mother units". These units have complete pediatric medical and nursery facilities but it is in the jail premises and the prison rules prohibit any of the toys from out side, so playing materials are provided by NGO. The second option is "dependent unit which are shared by 4-5 women with their children. These units are open, like houses and apartment, but supervised by jail staff and, are integrated into community[5]. This study found mean number of children as 1.9 with mode 2. Minimum numbers of children were 1 with maximum 9. The standard deviation was 1.66 while Jesus found the mean number of children as 3.2[5]. In our study 95.2% women were married, while study conducted in United States by Diana, only 3% were married[14]. Another study conducted in Spain observed that 22% mothers were married. According to this study 33.3% mothers had some education, while study conducted by Diana indicates that all mothers had at least some education. Jonhston found 38% mother with complete undergraduate education[2] while Jesus found the literacy level as low as 28%[5.] In our study only one mother had two children with them in side the Jail while in Jesus study 6 mothers had 2 children with them[5].

Hundred percent of mothers had breast fed to their child in our study, while in Srilanka Jail 70% mother breast fed their child [8]. Jesus found 63% children

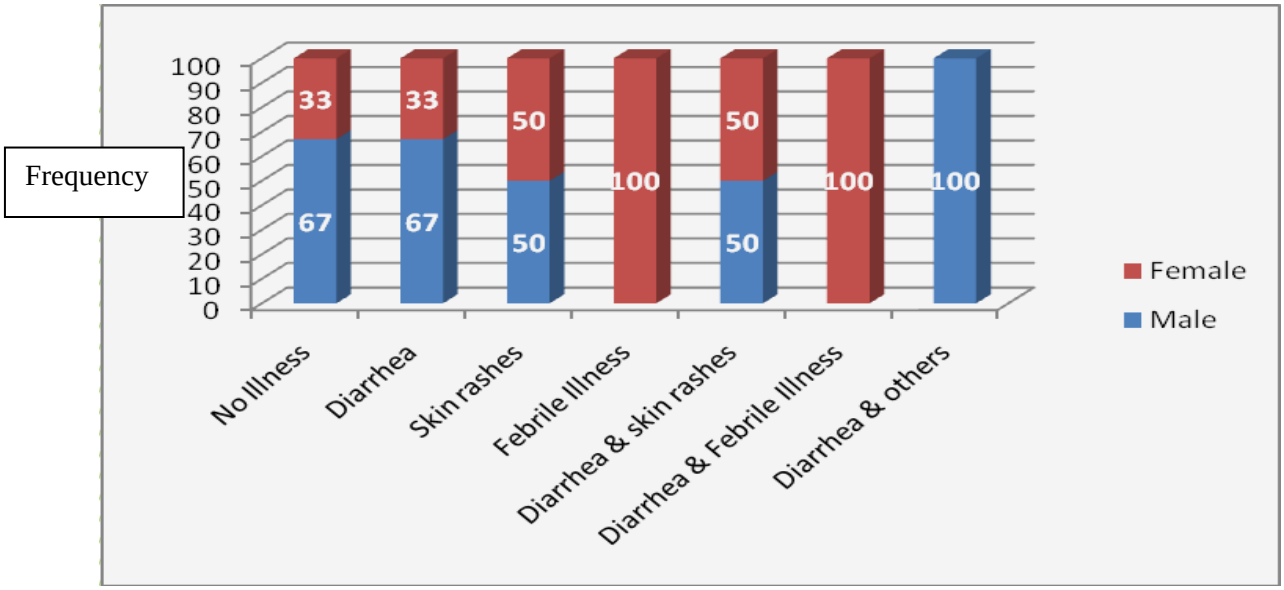

Figure-3 Pattern of illness by sex

Table-4 Anthropometric measurements

Character	Mid arm circumference (cm)	Weight (kg)	Height (cm)	Head circumference (cm)	Chest circumference (cm)
Mean	16.3841	12.3991	88.491	46.8455	49.8182
Std error	.6466	1.63	5.3	1.7	2.3
Median	15.75	10.77	87	47	49.75
Mode	15	7.5	70	47	47
Standard Deviation	3.0330	7.6502	25.132	7.9859	11.0965

Body mass index = weight (kg)/height (m^2), Mean BMI=12.80
Mean BMI=14.18 (female), Mean BMI=11.43 (male)

born in Jail [5]. Up to the age of 3 year children can live with their mother in jail in Italy,[4] while in Pakistan the age limit is 13 year.Jesus found that in most of the country the age limit is 3 years. [5]

This study found almost the same proportion of mal-nourished children in jail as in the general community[15]. A lower frequency was found by Jesus who shows only 10.2% children had nutritional problems.[5] While Casado in Spain found 17% malnutrition in children[16]. The mean ages of children were 43.8 months with median as 36 and mode 60. The data was skewed with a standard deviation of 31.16 months for age. The frequent attack of diarrhea was the most common illness in this study, which affected most of the children followed by skin rashes, while study conducted in Srilanka showed 40% children had skin problems like impetigo, scabies[8]. Jesus found less number of children with Gastric problems; however he found more cases of infectious diseases.[5]

The frequency of illnesses in our study was 68%, Casado in Spain founded a higher percentage[16]. There was insignificant difference in the nutritional status of children by sex. There was no case of severe malnutrition observed in ours and other studies. In this study male, female ratio was same while study conducted in Spain 54.3% were girls. [5] Quilty et al found a ratio of 1:3 between male and female.[7] In our research just 41% of children have complete immunization.

Conclusion

It was observed that most of the children were suffering from illness of one kind or another, which had bad impact on their physical health. They had no recreational facility and were learning abusive language. Special program should be designed to meet the health needs of the children in women jail. Steps should be taken to separate the children from the jail environment as done by other countries in the west.

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ORIGINAL ARTICLE

Relationship of Age, BMI, Serum Calcium and Estradiol with BMD in Postmenopausal Osteoporotic Females

Mukhtiar Baig, Mehreen Lateef, Abid Azhar

Abstract

Introduction: The current study was designed to investigate the relationship of age, body mass index (BMI), serum calcium and estradiol with bone mineral density (BMD) in postmenopausal females with and without osteoporosis.

Subjects & Methods: One hundred females were included in this study and were divided into two groups (fifty in each group): postmenopausal females without osteoporosis (age: 54.36 ± 0.51 yrs) and postmenopausal females with osteoporosis (age: 59.92 ± 0.68 yrs). BMD assessment was done on calcaneous by peripheral ultrasound bone densitometry and T scores were calculated. Serum estradiol was measured by ELIZA and calcium levels were determined by using spectrophotometric kit.

Results: BMD was significantly lower in postmenopausal osteoporotic females as compared to postmenopausal non-osteoporotic females which indicated increased bone loss in osteoporotic group. Serum calcium levels were significantly lower in postmenopausal females with osteoporosis (8.73 ± 0.08) as compared to postmenopausal females without osteoporosis (9.04 ± 0.09). BMD was correlated with body weight (r= 0.50, $p<0.05$; r= 0.45, $p<0.05$) and BMI (r=0.61, $p<0.01$; r= 0.31, $p<0.05$) in both groups. Negative correlation of BMD was found with age (r= -0.67, $p<0.01$r= -0.57, $p<0.05$) and calcium (r= -0.44, $p<0.05$; r= -0.38, $p<0.05$) in postmenopausal females with and without osteoporosis respectively. Osteopenia was detected in postmenopausal females without osteoporosis.

Conclusion: It is concluded that increasing age, low body weight, low BMI, and low BMD are few of the contributing factors to osteoporosis.

Key words: Postmenopausal women, BMD, osteoporosis

Introduction

Osteoporosis is a metabolic bone disorder that affects more than 200 million people worldwide[1]. The disease is characterized by low bone mass, which makes bones fragile and susceptible to fractures. Osteoporotic fractures are more common in the elderly and result in excess morbidity and mortality in this population[2]. In 1994, the World Health Organization[3] (WHO) proposed a clinical definition of osteoporosis based on measurements of BMD. According to the WHO definition, a patient is osteoporotic based on a BMD measurement that is 2.5 standard deviations (SDs) below typical peak bone mass of young healthy white women. This measurement of standard deviation from peak mass is called the T score. Regarding the interpretation of bone densitometric findings, a T-score of more than 1 standard deviation (SD) but less peak value confirms osteopenia and a level more than 2.5 SDs below the mean peak value is diagnostic of osteoporosis.

The risk factors of osteoporosis are modifiable and non modifiable. The non modifiable factors are advanced age, female gender White/Asian race, low peak bone mass, family history of osteoporosis, personal history of fracture, low body mass index and modifiable factors are smoking, inadequate calcium intake, inadequate vitamin D, low body weight (BMI <21 kg/m^2), estrogen deficiency, hypogonadism, chronic glucocorticoid therapy[2].

The incidence of osteoporotic fractures is increasing in Pakistan because of the increasing age of the population and many other factors are also implicated in this process. Sultan et al[4]., (2006) found in their study that the frequency of osteoporosis was more common in poor, illiterate, multiparous, sedentary women with imbalanced diet.

The treatment of established osteoporosis is complex and costly and having many long term undesirable effects. Therefore, it is essential to find out the risk factors for developing osteoporosis, so that modifiable factors can be avoided to decrease the incidence of osteoporosis.

The current study was designed to explore the relationship of BMD with age, BMI, serum calcium and estradiol in postmenopausal females with and without osteoporosis.

Subjects & Methods

One hundred (100) female subjects were divided into two groups (fifty in each group: postmenopausal females without osteoporosis (age: 54.36 ± 0.51) and postmenopausal osteoporotic females (age: 59.92 ± 0.68). Subjects on corticosteroids and on hormone replacement therapy were excluded.

The postmenopausal females having age greater than fifty years with LMP > 5 yrs and no endocrinal disease were included in this study. For this obersavational study, newly diagnosed and untreated postmenopausal osteoporotoic females were selected

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from different osteoporotic clinics with age limit of not less than fifty years. These subjects were free from any endocrinal disease. Questionnaires were filled in by the subjects, including their case-history, fracture history (if any) along with their dietary habits and height, weight, waist circumference, hip circumference, age at menarche, years since menopause, and history of disease were recorded. Five mlilliliters of blood was drawn from each subject and after centrifugation (3,000 rpm) within an hour of blood collection; serum was stored at −70°C for subsequent analyses. The samples were analyzed for estradiol and calcium. Serum estradiol was measured by ELISA kits, supplied by DSL, USA. Serum calcium levels were determined by using spectrophotometric kit, supplied by International Diagnostic Links, USA. Bone mass density assessment was done on the calcaneous (heel) by peripheral ultrasound bone densitometry by Bone Sonometer (IEC 601-1 Class II Type BF.IPXO), and T-scores were calculated. Bone mass density was measured by quantitative ultrasound (QUS) as it has the advantage of being small, portable, relatively inexpensive, and using non ionizing radiation[5].

Statistical analyses: The statistical analyses were performed using statistical software Statistica 5.0 (Stat Soft, USA). The significant difference was determined by applying Student's t-test.

Results

Figure 1 shows comparison of BMD in the two groups. BMD was significantly lower in postmenopausal females with osteoporosis as compared to postmenopausal females without osteoporosis ($p < 0.05$) showing increased bone loss in osteoporotic group.

Table 1 shows the comparison of physical and biochemical parameters of postmenopausal females with and without osteoporosis. There was a significant difference in age ($p<0.05$) and serum calcium levels ($p<0.05$) in both groups.

There was a negative correlation between BMD and age (r= -0.67, p<0.01r= -0.57, p<0.05) in postmenopausal females with and without osteoporosis respectively (Table 2). Serum calcium was also negatively correlated with BMD (r= -0.44, p<0.05; r= -0.38, p<0.05) in both groups. BMD was correlated with body weight (r= 0.50, p<0.05; r= 0.45, p<0.05) and BMI (r=0.61, p<0.01; r= 0.31, p<0.05) in postmenopausal females with and without osteoporosis respectively.

Table1- Physical and Biochemical parameters of postmenopausal females with and without osteoporosis

Parameters	Postmenopausal females (n= 50)	Osteoporotic females (n= 50)
Age (yrs)	54.36 ± 0.51	59.92 ± 0.68*
BMI (kg/m^2)	25.69 ± 0.85	27.17 ± 0.81
Estradiol (ng/ml)	08.89 ± 2.61	05.97 ± 1.1
Calcium (mg/dl)	09.40 ± 0.09	08.73 ± 0.08*

*p < 0.05

Table 2- Correlation of BMD with Age, anthropometric and biochemical parameters

	r values	
Para-meters	Postmenopausal females (n= 50)	Osteoporotic females (n= 50)
Age (yrs)	r = -0.57, p < 0.05	r = -0.67 p < 0.01
Weight (kg)	r = 0.45 p < 0.05	r = 0.50 p < 0.05
Height (m^2)	r = -0.18	r = -0.16
BMI (kg/m^2)	r = 0.31 p < 0.05	r = 0.61 p < 0.01
Estradiol (ng/ml)	r = 0.17	r = 0.28
Calcium (mg/dl)	r = -0.38 (p<0.05)	r = -0.44 p < 0.05

Discussion

Present study shows hat the BMD in postmenopausal osteoporotic females is significantly decreased as compared to postmenopausal females without osteoporosis having similar BMI. Even though BMD values of non-osteoporotic postmenopausal females were higher than the osteoporotic but these females were also osteopenic suggesting a need for some intervention to prevent osteoporosis in such females.

It has previously been reported that in Faisalabad 20% postmenopausal women were osteoporotic out of 300 postmenopausal women, while 44% were suffering from osteopenia, and 36% had normal BMD[6]. Sharma et al[7]., (2006) found that a substantial female population had esteopenia and osteoporosis after the age of 45 years. The osteopenia (36.79%) with maximum number of both osteoporosis and osteopenic women recorded in the age group of (55-64 years).

Hafeez et al[8], (2009) observed that the risk factors in postmenopausal group were low BMD, low

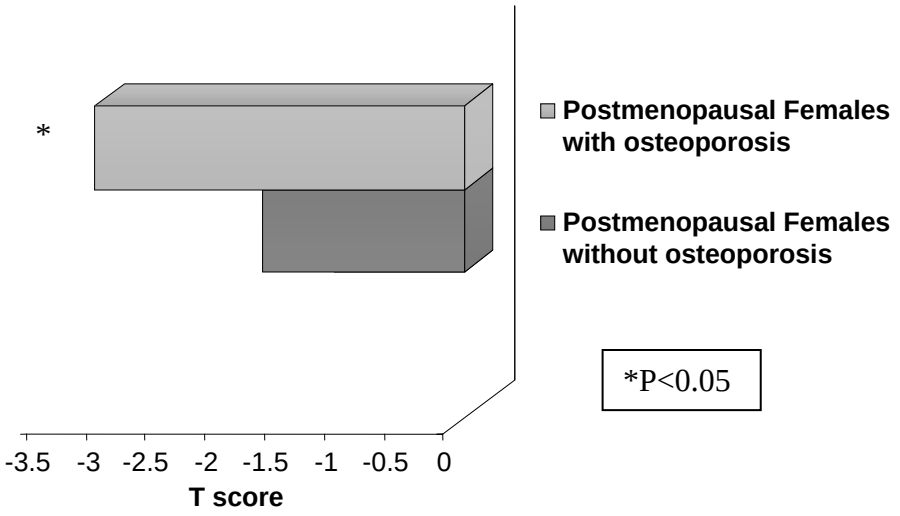

Figure 1 comparison of BMD in postmenopausal females with and without osteoporosis

oestrogen levels, poor intake of milk and calcium and lack of physical exercise. Therefore, it is recommended that diet should be balanced with proper calcium intake and daily exercise should be required to maintain BMD, while postmenopausal females require greater calcium intake to avoid osteoporosis.

There was a negative correlation found between serum calcium levels and BMD in postmenopausal females with and without osteoporosis. It seems that to maintain normal calcium levels in blood, bone resorption increases as indicated by decreased BMD. A deficiency of calcium intake itself is considered a major risk factor for osteoporosis[9]. Low calcium intake causes secondary hyperparathyroidism as the calcium homeostasis in blood must be kept stable. This causes resorption of calcium from the bone with ensuing bone loss and an increased susceptibility to fractures[10-11].

The importance of calcium in developing and maintaining bone mass varies throughout a person's life. At times of rapid and significant bone growth (during the teenage years) or rapid bone loss (after age 50 years), calcium is more important. Therefore, to reduce the risk of osteoporosis, calcium intake should be the highest during adolescence and after age 50 years[12]. It is suggested that postmenopausal women require greater calcium intake to maintain calcium balance.

Serum calcium level was significantly higher in postmenopausal females without osteoporosis as compared to postmenopausal females with osteoporotic. This was similar to reported higher calcium levels in other study[13].

Present study found that BMD is positively correlated with body weight. It means whenever there is increase weight there would be increased peak bone mass which is protective of osteoporosis. These results are similar as found by other studies[14-17]. Keramat et al[18]., (2008) found that weight less than 60 kg, height less than 155 cm and BMI less than 26 have been as a risk factor for osteoporosis. Robbins et al[19]., (2006) in their large epidemiological studies analysis observed that weight alone is a better predictor of BMD than BMI.

In the present study, BMI was significantly correlated with BMD. Several studies reported that obesity (greater body weight and BMI) is associated with higher BMD[14-15]. The protective effect of obesity on bone loss appears to be related to the both mechanical factors and estrogen synthesis in adipose tissues[20]. However, since obesity is an important risk factor for cardiovascu- lar disease and diabetes, therefore, appropriate body mass index (20-25 kg/m2) or prevention for leanness should be recommended for good general health[15].

Present study found negative correlation of BMD with age. These results are consistent with several other studies[4,15-16]. A study observed that when the menstrual cycles get irregular toward menopause, the serum calcium level rises rapidly and reaches maximum in 2–5 years after menopause, and then slight decrease afterwards[21-22]. Because of this reason there was decrease level of serum calcium in those women who have more duration of menopause as compared to those who have less duration.

The limitation of this study is that the mean value of BMD of non osteoporotic females was more than -1SD. It may be because of the low sample size and the sample for this study were also collected from osteoporosis clinics so the female came over there having some problems of bone and were referred by

the general practitioners.

Conclusion

Osteoporosis is a preventable problem. Therefore, it is recommended, that we should educate the masses about the consequences of osteoporosis and its preventive measures. Its awareness campaign should be started from the media. The primary approach for reducing osteoporosis is to reduce bone loss after menopause by maximizing calcium intake and guiding them to do exercise regularly and there should be some exposure to sunlight daily.

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MEDICAL EDUCATION

Mini Clinical Evaluation Exercise (Mini-CEX): An overview

Sobia Ali, Nazish Fatima, Mukhtiar Baig

Over the last two decades, medical education has changed its role significantly to move from the traditional curriculum to the outcome based education. This is done after deciding the competencies to be achieved by the students more clearly[1]. The Institute for International Medical Education (IIME) has clearly focused the minimum essential core competencies that a medical graduate must possess including the clinical skills, communication skills, professional values, attitudes and behaviors[1].

To check students' minimum essential core competencies, examinations are organized at the end of the final year of medical school, which consists of written, practical and oral examinations. However, the critical question is if the assessment tools in practice are sufficiently enough to assess the competencies required for future doctor? The response leads to a need for improved performance based assessment tools for better judgment of these outcomes.

Why is there a need to change the assessment tools?

For refinement of assessment tools we should have valid arguments and the following may be considered facilitative:

Traditional long cases are being used for assessing the outcomes. It becomes hard to achieve a reliable overall judgment because it mainly relies on single observation and cannot predict the habitual performance in practice[2,3].

Objective structured clinical examination (OSCE) is frequently used to assess the performance and behaviors of future doctors. Along with many advantages, its drawback is that trainee's performance is assessed in a controlled representation of practice and cannot predict the performance in the future. For a reliable judgment, student should be in certain conditions.

Objective structured clinical examination (OSCE) is frequently used to assess the performance and behaviors of future doctors. Along with many advantages, its drawback is that trainee's performance is assessed in a controlled representation of practice and cannot predict the performance in the future. For a reliable judgment, student should be in certain conditions.

A minimum of 20 stations for OSCE is recommended which is seldom followed due to logistic reasons. [4].

Similarly, the validity of the summative ratings in questionable due to indirect observation that fails to provide students with feedback regarding the improvement of their clinical skills[5].

On the other hand, the use of formative assessment during the clinical years has a potential to direct the learning towards the outcomes by reinforcing desired learning behavior[6].

The emphasis has been on attaining knowledge during the clerkship now also incorporates achieving skills and behaviors side by side for the attainment of integrated competence. This phenomenon also leads for a need to shift in assessment tools use to determine the outcomes of clerkship[7].

After a thorough analysis of these aspects, educationists are now persistent that the validity of final examination would improved if it is aligned with continuous assessment during the training[8,9]. Therefore workplace-based assessment plays a key role in aligning training and learning with assessment[6]. Hence, mini clinical evaluation exercise (Mini-CEX) appears to be a best alternative for assessment of medical graduate clinical competence and can be used for the summative purpose too.

Historical background

In 1972, the American Board of Internal medicine decided not to use oral examination as part of evaluating residents' clinical competence due to above mentioned reasons. The Board then developed and recommended clinical evaluation exercise (CEX) for a better judgment of clinical competencies.

However, then again, the objections arose that this method did not assess the students frequently, leading it to be the less relevant measure of clinical competence. The efforts were directed towards a tool that can evaluate the skills that are most often needed

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by residents in the real patient encounter. The term mini-CEX was introduced to overcome the short comings of traditional CEX[10]. Mini-CEX was initially used for evaluating the internal medicine trainees. It was introduced for undergraduates in 90s, when the issues regarding the reliability of the assessment taken at the end of clerkship originated. In-training assessment has been incorporated during rotation in wards and the mini-CEX , evaluate the clerks' competence of this in-training assessment program[11].

In addition to the assessment of internal medicine residents, mini-CEX is used for cardiology, psychiatry, anesthesiology residents, international medical graduates and undergraduates as well[3,5,12-15].

Mini-CEX in undergraduate evaluation

For evaluation of undergraduates, mini-CEX comprises of a series of 30-45 minutes of observations as compared to 15 minutes for postgraduates followed by 15-20 minutes of feedbacks longer than 5 minutes for post graduates[16]. The observation is done by a faculty member or resident or a senior house officer and then recorded on a short evaluation form (appendix A) using a nine point scale, where 1-3 is unsatisfactory, 4-6 satisfactory and 7-9 superior. On each form, evaluators document the number of minutes spent observing the student and providing feedback, and the evaluator and student rate the satisfaction with the mini-CEX using a nine point scale (1=low and 9=high). The feedback given after observation should be interactive with the following three basic components[17]:

1. Discussion on every aspect, especially on what is competently performed.
2. Providing suggestions for development on lacking or poorly performed skills.
3. Agreed plans of improvement made by the student with the help of the assessor.

Competencies assessed during mini-CEX

Seven competencies that are evaluated in mini-CEX include:

1. Medical interviewing skill
2. Physical examination skill
3. Professionalism/ humanistic qualities
4. Clinical judgment
5. Counseling skill
6. Efficiency skill
7. Overall clinical competence

Validity, Reliability and Feasibility of Mini-CEX

Numbers of studies on the measurement of mini-CEX have been published and different conclusions were made based on them. Most studies conclude that mini-CEX is a valid assessment tool as its scores correlates well with written examination and other assessment methods and also by its capability of discriminating between the preexisting levels of clinical competence[3-6,15,18-22].

In order to declare the results of mini-CEX to be reliable, some studies suggest that 8 evaluations in a single clerkship are enough to get reliable scores from mini-CEX[5] while others suggest that 10-11 evaluations are needed[3,15].

Regarding its feasibility, most researchers suggest that because it is brief and focused, it is feasible to use in both the inpatient and outpatient clinical core settings[5,12,17,22,23]. While others argue that in order to achieve the reliability of 0.8, minimum of 8-11 evaluations' scores are required in a single clinical rotation of three months, which is not practical for the busy clinicians or residents[15].

Strengths of mini-CEX

The most attractive feature of mini-CEX is that it involves direct observation of a trainee in a focused clinical encounter by an assessor that helps to identify the performance level of student[12,18].

Mini-CEX with its multiple encounters evaluates a student in diverse aspects of clinical settings with a variety of patient problems that help to achieve integrated whole competence[24].

Direct observation also helps to build a relationship between faculty and students[19].

During the clerkship, the students learn to integrate theoretical knowledge with practical work. However, with supervision and feedback given during mini-CEX they refine their skills to be more competent when encountering the real patient[4].

By the help of feedback, the information on the positive and negative aspects of students' performance is shared. This helps to identify the students' specific area to gain competency which in turn leads to better evaluation of students[20,21,25].

Performance of the student followed by immediate feedback also helps the student to have an insight into his own performance that is what he or she does habitually when not observed. It thus creates an ability of self assessment in students.

It helps the learner to take the onus of his own learning by generating a capacity to adopt change, find and generate new knowledge and improve overall performance and thus help the student to become deep learner[14,15].

The feedback given to students is from an expert of the respective field which adds credibility to assessment[26,27].
It has also been proven that professionalism cannot be acquired by role modeling only, because mini-CEX has professionalism as a category to assess, it helps to develop humanistic qualities in students[19].
After complete evaluation of student along with proper feedback, the evaluator can consult the student's mentor to discuss the student's performance that can also help to achieve the required competence[24].
Last but not the least mini-CEX, shifts the paradigm of assessment to assess the student from "show level" to the "does level" of Miller's pyramid of clinical competence[8,15].

Weaknesses of mini-CEX

Habitual behaviors cannot be assessed by this method as the student is aware that he/she has been observed[26,27].
Although it is time efficient for a single evaluation but for getting a valid and reliable assessment from mini-CEX at least 8-14 observations are needed, this is quite time consuming[3].
Repeated observations made for the formative purpose, may add a component of bias when the same assessor is involved in summative rating. This common rater error makes it a less reliable tool for summative testings[5].
Even it is evaluated by credible experts, the question of inter-rater reliability still exists because it is well documented that residents are lenient raters than faculty members[5].
Evaluators usually need training to use the form of mini-CEX, which is again a burden on the faculty as well as administration[5].
An improper and non interactive feedback does not have any effect on performance.
A feedback in a negative manner may discourage the students, which again can cause a barrier in the way of one's learning.

Principles of assessment followed by mini-CEX

Mini-CEX has been designed in a way that it follows the modern principles of assessment as follows:

- The main purpose of formative assessment in medical education is that it should provide direction and motivation for future learning, including knowledge, skills and professionalism and mini-CEX helps to achieve these basic competencies in a self directed way.
- By repeated direct observation during the clerkship, the assessor got the chance to assess the habits of mind and behavior of the students.
- Through the help of interactive feedback, it enhances the desire to self regulate one's own performance.
- Application of the knowledge can be assessed by this method.
- Communication skills and professionalism can be assessed.
- Clinical reasoning and judgment skills in new situations can be evaluated by this method.
- Practice based learning can be assessed
- While conducting a mini-CEX evaluation in clerkship, the assessment is organized into a repeated and related developmental program of the students.
- It uses experts to make the judgment of students' performance.
- It provides timely feedback and mentoring for students in their clerkship.
- Its reproducibility is higher than traditional methods of assessment[10].

Conclusion

Mini-CEX has been in practice as a formative assessment tool in West for the last three decades for post graduates and undergraduates as well. However, limited data available on the internet regarding its implication and effects in Pakistan, doesn't mean that it is a new phrase for us. In Pakistan, educationist are working on the subject; as evident from the conference presentations and publications[28,29]. Mini-CEX has also been practiced in the pediatric neurology fellowship program at Agha Khan University Hospital (AKUH)[30].
Documented evidence for its practice in our country is not readily and easily accessible. However, it is not difficult to practice this comparatively newer assessment tool in our circumstances. A structured stepwise implementation plan will help educators to measure the clinical competence as well as integrated competence required for future doctors:

- The first step is to motivate the practitioners and residents for this tool, so they could struggle to combine their clinical and administrative duties with teaching responsibilities.
- Training of assessors is also an essential requirement for its effective implementation. This includes training to give feedback to students and to use the evaluation form too.
- The observations made during mini-CEX should be recorded on highly structured form so that all

the skills needed to be evaluated, can be assessed properly.
- For avoiding the common rater reliability issue, proper sampling of assessors will be an important step to be taken.
- Proper weighting to all levels of case complexities and settings should be assigned because a trainee who is assessed only on simple cases or on outpatient settings would be in disadvantage.
- Time and resources should be officially allocated for this purpose so that trainees and assessors both can enjoy the process in an organized manner.

To make it more valid it can be done in conjugation with other assessment tools such as oral case presentation, written exercises that assess the clinical reasoning and literature searches.

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Case Report

A Rare Case of Orbital Lymphoma

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Abstract:
Orbital lymphoma without systemic involvement is rarely seen in ophthalmological practice. We diagnosed one such case in our set-up. An old female presented with diplopia and proptosis right eye. CT-scan revealed an intraorbital mass along the superior orbital wall. MRI orbit showed space occupying lesion involving frontal sinus which was confirmed on histopathological and Immunohistochemical examinations. The histochemical studies confirmed the presence of non-Hodgkin's lymphoma. This is a rare manifestation of non-Hodgkin's lymphoma with primary involvement of orbital mass extending into frontal sinus and cranial fossa with no systemic involvement. This case was being reported for general awareness as the tumour is potentially curable.

Introduction

Primary non-Hodgkin's lymphoma (NHL) of the orbit is seen infrequently. The orbit is rare primary site for NHL, without systemic involvement, accounting for 0.5% of all presentations. However, orbital lymphomas are most common malignancy, consisting 10% of orbital tumors[1].

Case report

A 65 years old female was admitted in PNS Shifa with complaints of diplopia and painless proptosis right eye for past one and half months. There was no other co-morbidity. Corrected vision in right eye (RE) was 6/12 and left eye (LE) was 6/6 unaided. Anterior and posterior segments were normal in both eyes except early cataractous changes. Pupil was fixed nonreactive to light on A 65 years old female was admitted in PNS Shifa with complaints of diplopia and painless proptosis right eye for past one and half months. There was no other co-morbidity. Corrected vision in RE was 6/12 and LE was 6/6 unaided. Anterior and posterior segments were normal in both eyes except early cataractous changes. Pupil was fixed nonreactive to light on RE but reacting on LE. Extra-ocular motility was restricted in all direction of gaze on right side while full and unrestricted on left side. The proptosis was non-axial measuring 6mm. The eyeball was displaced 6 mm downwards and 10 mm outward laterally (Fig.1). Diplopia was found in lateral gaze. Intraocular pressure and visual field was normal on both eyes. Mass was firm, non-tender, non pulsatile, occupying the superior orbit and resulted in mild ptosis.
There was no cervical lymphadenopathy and systemic examination was also normal.

Fig.1 Photograph of patient.

On investigation, blood picture was normal. CT-scan orbit showed intraorbital mass 3.5x 3.2x2.5 cm along superior orbital wall with destruction of adjacent superior orbital wall and extension into frontal sinus, anterior and middle cranial fossa. MRI orbit revealed space occupying lesion involving frontal sinus. Trans-septal anterior orbitotomy was done with wedge resection for diagnostic purpose. Histopathology revealed poorly differentiated malignant growth. Diagnosis was made on immune histochemical study which was consistent with diffuse B-cell non-Hodgkin's lymphoma. Patient was referred to oncologist for further evaluation, radiotherapy and chemotherapy.

Discussion

Orbital involvement at the time of diagnosis of NHL is an uncommon presentation. Median patient age is 75 years[2]. In older patients, the evolution of

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symptoms tends to occur over a period of 6 to 12 months. In younger patients, malignant lymphoma tends to exhibit a more rapid clinical course with almost invariable evidence of systemic involvement. Orbital lymphomas are usually unilateral but may involve both orbits. It usually presents with painless proptosis, insidious onset, downward displacement of the globe, a palpable non-tender mass and ptosis[3]. Imaging studies usually confirm the presence of a mass, most commonly in superior and anterior orbit but less commonly deep in orbital apex. Diagnosis is accomplished with computed tomography (CT) and/or MRI. Recent valuable tool is gallium scanning. The treatment of choice is external beam irradiation. Local control of the tumor is excellent with 97% success rate. A promising frontier of treatment is proton beam radiation therapy. Non-Hodgkin's lymphomas are the most chemo-responsive of cancers[4-5]. However, few patients fail to attain complete remission. Surgery is rarely used[6]. New therapeutic modalities include monoclonal anti-bodies, recombinant interferons, and interleukin-2[7].

Conclusion

Orbital involvement of non-Hodgkin's lymphoma is uncommon, but may occur at any time during the course of the disease. It should be suspected in any patient who presents with subtle ocular signs and symptoms.

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Student's Corner

Morphologic and Immunophenotypic Patttern of Non Hodgkin's Lymphoma

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Abstract:
Objective: To describe morphologic and immunophenotypic pattern of Non-Hodgkin's Lymphoma and to estimate the LDH (Lactate dehydrogenase) levels.
Materials And Methods: The study was carried out in Bilquees Naz Children Cancer Hospital, Karachi. Sample size was 205 cases of Non-Hodgkin Lymphoma and study design was cross sectional. Entire research was completed in 5 months. The antibodies used included LCA (leukocyte common antigen), PAN-B and PAN-T. Written consent was taken from the parents of the patients. Confidentiality was maintained of their names and addresses.
Results: Non Hodgkin's lymphoma was more in males as compared to females and common age group (41%) was between 7-12 years of age. B-cell non Hodgkin's lymphoma was more common than T-cell NHL. Burkitt's lymphoma was found to be the most common type (18%) of non-hodgkins lymphoma.
Common primary site of non hodgkin lymphoma was abdomen (34%) followed by neck (11%) and chest (10%). B-cell lymphoma had predilection for abdomen (59%) while in chest, commonest form was T-cell lymphoma (14%). This association was highly significant as p value came out to be 0.00. The most common tumor marker detected was PAN-B (60%). Most of the cases (85%) had abnormally raised lactate dehydrogenase level. The CSF report showed that in 90% of cases the tumor was not metastasized to central nervous system i.e good prognosis. Most of the patients diagnosed were in stage I of the tumor i.e they had good prognosis.
Conclusion: Among morphologic pattern, Burkits lymphoma was the commonest one. In most of the patients LDH level was found to be abnormally high. Among phenotype, B-cell phenotype was the commonest one.
Key Words: Non Hodgkin's Lymphoma, LDH, Burkitt's Lymphoma

Introduction

Lymphoma is a type of cancer involving cells of the immune system, called lymphocytes. Lymphomas are the 5th most common childhood cancer[1]. They occur most often in children between the ages of 7 and 11year, but can occur at any age from infancy to adulthood [2].
Lymphoma is not a single cancer but a group of many related cancers. In fact there are nearly 30 different types of lymphoma. Broadly they are grouped under 2 categories as Hodgkins Lymphoma and Non Hodgkins Lymphoma [2]. These two broad groups behave differently when they affect a person.
Non Hodgkin lymphomas are a heterogeneous group of disorders involving malignant mono clonal proliferation of lymphoid cells in lymph reticular sites, including lymph nodes, bone marrow, the spleen, the liver, and the gastrointestinn tract. According to the estimates by the Leukemia and Lymphoma Society, almost 85% of lymphomas diagnosed in the US in the 2006 were of Non Hodgkin's lymphoma type [3].
Non Hodgkin's lymphoma causes the cells in the lymphatic system to abnormally reproduce, eventually causing tumors to grow. Non Hodgkin's disease cells can also spread to other organs and tissues in the body.

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Prognostic factors:
Prognosis is the prior knowledge of outcome of a disease. To be able to determine how a disease is likely to behave, with or without treatment, it is necessary to know certain facts about the disease. These are called prognostic factors [4].
Common symptomatology include pain & swelling at the site of the cancer. Other symptoms include abdominal bloating, change in bowel habits, fever, sweating especially at night, weight loss and itching[3].
The cause of NHL is unknown, although, as with the leukemia's, substantial evidence suggests a viral cause (eg, human T-cell leukemia-lymphoma virus, Epstein-Barr virus, hepatitis C virus, HIV), weakened immune system, H.pylori infections. Researchers are working on obesity at present [4].
In the United States, approximately 15% of cases of non-Hodgkin lymphoma cases develop from T lymphocytes and 85% develop from B lymphocytes [2].
The American Cancer Society estimates approximately 66,120(89%) of 74,340 lymphoma cases diagnosed in the US in 2008 will be classified as NHL [2]. Non-Hodgkin lymphoma is diagnosed by clinical presentation, bone scan, C.T, MRI and PET [5].

NHL affects males more often than females, affects males 3 times more than females [5]. Distribution of different morphological & immunophenotypical types of NHL varies in different regions & there is no large published data of pathological sub-types in Pakistan.

The objectives of the study were to:

- List different morphologic and immunophenotypic types of nonHodgkin's lymphoma
- Determine the LDH levels in different types of lymphoma
- Determine the association between primary site of tumor with final diagnosis

Material and Methods

This cross sectional survey was carried out in Chidren Cancer Hospital, Karachi. Sample size was 206. We selected diagnosed patients of non-hodgkin's lymphoma from 1 to 18 years of age. Patients with relapses were not included. Sampling technique was non probable purposive.

Data collection procedure

Performa and laboratory reports were used as data collection tools. Before filling Performa, verbal consent was taken from the parents of patients suffering from NHL. Confidentiality was maintained regarding their names, addresses and diagnoses.

Variables used were age, gender, primary site of tumor, symptoms (fever, weight loss, gastro-intestinal symptoms) and markers (PAN-B, PAN-T, LCA).

Information regarding the demographic profile of the patients was taken from the patients' record. Symptomatology was taken from parents and patients' files. Information regarding markers and primary site of tumor were taken from reports. Information regarding laboratory diagnosis includes Lactate dehydrogenase level; biopsy of relevant site, CSF and bone marrow findings was taken from the written lab. reports.

Data was fed in Microsoft Excel and SPSS version 11.0 Data analysis was done on SPSS version 11.0 and frequencies of all variables were calculated. Bar charts were plotted for final diagnosis, common symptoms, stage of tumor and tumor markers. LDH was transformed from quantitative to qualitative variable to calculate Prognostic Index. For LDH and CSF findings pie charts were plotted. Cross tabs were plotted to find association between primary sites of tumor with final diagnosis.

Results

Non Hodgkin's lymphoma was more in males as compared to females and common age group (41%) was between 7-12 years of age. B- cell non Hodgkin's lymphoma was more common than T-cell NHL. Burkits lymphoma was found to be the most common type (18%) of non-Hodgkins lymphoma as shown in table 1.

Table-1 Morphology of tumor

Morphology	Frequency	Percentage
Burkitt's lymphoma	37	18
Lymphoblastic NHL	24	12
Large cell or diffuse histiocytic nhl	22	11
Anaplastic large cell lymphoma	13	7
Others	21	9
Not noted down	88	43
Total	205	100

In 30.3% cases bone marrow biopsy was negative that is tumor was not metastasized to bone marrow (good prognosis), shown in table 2.

Table-2 Bone marrow finding

Tumor cells	Frequency	Percentage
Not present	64	30.3
Present	17	8.1
Not noted down	2	0.9
Valid	128	60.7
Total	211	100

As revealed in table 3, common primary site of non Hodgkin lymphoma was abdomen (34%) followed by neck (11%) and chest (10%).

Table-3 Primary site of tumor

Primary site	Frequency	Percentage
Abdomen	66	34
Chest	21	10
Neck	24	11
Pelvis	4	2
Head	11	5
Others	7	4
Not noted down	72	34
Total	205	100

Table 4 revealed that B-cell lymphoma had predilection for abdomen (59%) while in chest, commonest form was T-cell lymphoma (14%). This association was highly significant as p value came out to be 0.00.
Figure 1 showed that most common tumor marker detected was PAN-B (60%). Most of the cases (85%) had abnormally raised lactate dehydrogenase level (figure no.2). CSF report showed that in 90% of cases the tumor was not

Table- 4 Association of primary site of tumor with final diagnosis (B cell and T cell)

Primary site	B cell NHL	T cell NHL
Abdomen	59	2
Chest	6	14
Neck	12	11
Pelvis	4	1
Head	8	3
Others	4	3

P value 0.000

metastasized to central nervous system i.e good prognosis.

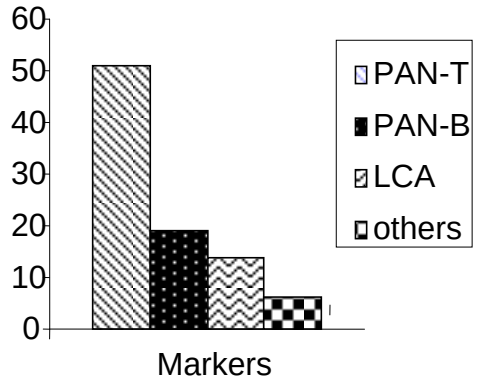

Figure-1 Tumor Markers

Most of the patients diagnosed were in stage I of the tumor i.e they had good prognosis sign.

Discussion

According to the results Non Hodgkin's Lymphoma was more common in the age group 7-12 years and B-cell type was commoner. This is consistent with the international findings[7 & 8].
According to CSF reports in most of the cases there has been no metastasis to brain. Also bone marrow involvement is only 30.3%. These facts indicate the better prognosis if diagnosed and treated early[8].
As far as morphology is concerned it is evident that

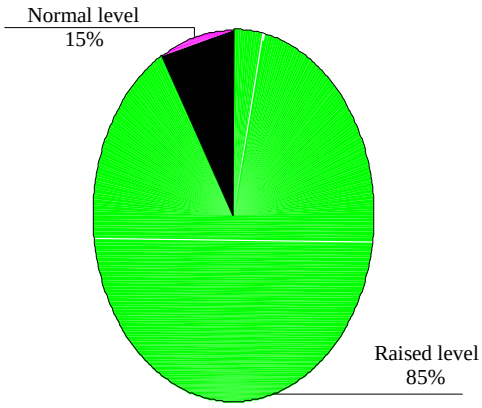

Figure-2 LDH Levels

Burkitt's Lymphoma is the most common type. Fortunately it has typical presentation and can be detected early as the disease presents primarily as extra lymphatic tumor arising in the bones of the jaw. Here we see bone marrow involvement is less. The tumor is very responsive to single drugs, particularly alkylating agents and has long term complete remission with out maintenance therapy.
There was significant association between primary site of tumor and final diagnosis which was similar to other international studies[8].

Conclusion

Among morphologic pattern Burkitt's lymphoma was the commonest one. In most of the patients LDH level was found to be abnormally high. Among phenotype B cell phenotype was the commonest (p value 0.000).

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Instructions for authors

Aims and objectives

The JBUMDC is a biannual journal and publishes original scientific articles, reviews and case studies in clinical and basic sciences. The journal would encourage and support meaningful basic and clinical research, and facilitates and promotes excellence in medical sciences.

It accepts manuscripts prepared in accordance with the "Uniform Requirements for Submission of Manuscripts for Biomedical Journals, updated October 2008", adopted by International Committee of Medical Journal Editors (ICMJE), online available at URL: www.icmje.org.

Submission items include a cover letter, the manuscript (including the running title, title page, structured abstract, manuscript text, references, tables, and figures. The cover letter should identify the person (with the address, telephone number, fax numbers, and e-mail) responsible for correspondence concerning the manuscript.

All correspondence regarding submitted manuscripts will be handled via e-mail. Send all other correspondence to: Editor, JBUMDC, Bahria University Medical & Dental College, 13-National Stadium Road, Karachi.

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Preparation of manuscripts

Original Articles should be no longer than 3500 words and include no more than six figures and tables and 40 references.

Clinical Reviews and other Reviews should address topics of importance to clinical and basic sciences. These manuscripts should be no longer than 4000 words and include no more than four figures and tables and 80 references. Authors should include a brief section describing the search strategies used to obtain information for the review.

Clinical Case Reports must be of academic and educational value and provide relevance of the disease being reported as unusual. Brief or negative findings may appear in this section. It should have a non structured abstract of about 100 words with maximum of 8 references.

Manuscripts must be typed double-spaced with margins of at least 25 mm (1 in). Each of the following manuscript components should begin on a new page in the following sequence: Page 1, Running Title, a maximum of 40 spaces and letters; Page 2, Title Page, provide the full title, full name(s) of author(s), highest awarded academic degree, institutional affiliation(s), address(es), and acknowledgement of financial support (grant number, institution, and location) if any; Page 3, Structured Abstract and Key Words. The abstract should present the study objective, design, setting, patients, interventions, main outcome measure (s), results, and conclusions. Emphasize new and important aspects of the study or observation. Abstract should not exceed 200 words. Below the abstract provide 3 to 5 key words or short phrases that will assist indexers in cross-indexing the article. The following components should be identified after the abstract: Introduction, Materials and Methods, Results, Discussion, Acknowledgments, References, Tables, and Legends.

Introduction

The article should begin with a brief introductory statement that places the work to follow in historical perspective and explains its objective and significance.

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These should be described and referenced in sufficient detail for other investigators to repeat the work. The source of kits, chemicals and reagents, and special pieces of apparatus should be stated. For modified methods, only the modifications need be described.

Results and Discussion

The Results section should briefly present the experimental data in text, tables, and/or figures.

The Discussion should focus on the interpretation and significance of the findings with concise objective comments that describe their relation to other work in that area. The discussion should not reiterate the results.

Acknowledgments

The Acknowledgments section should include the names of those people who contributed to a study but did not meet the requirements for authorship.

All persons designated as authors should qualify for authorship. Each author should have participated sufficiently in the work to take public responsibility for the content. In general, no more than six authors are considered appropriate.

Units of Measurement.

Measurements of length, height, weight, and volume should be reported in metric units (meter, kilogram, or liter) or their decimal multiples. Temperatures should be given in degrees Celsius. All hematologic and clinical-chemistry measurements should be reported in the metric system in conventional units.

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Examples of references:

Journal articles

1. Lateef M, Baig M, Azhar A. Estimation of serum osteocalcin and telopeptide-C in postmenopausal osteoporotic females. Osteoporos Int 2010; 21:751-5.

2. Isidori AM, Storollo F, More M, et al. Leptin and aging: correlation with endocrine changes in Male and Female healthy adult populations of different body weights. J Clin Endocrinol Metab 2000;85:1954-62.

Books

1. Colson JH, Armour WJ. Sports injuries and their treatment. 2nd rev. ed. London: S. Paul; 1986.

2. Gilstrap LC , Cunningham FG, VanDorsten JP, editors. Operative obstetrics. 2nd ed. New York: McGraw-Hill; 2002.

3. Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York: McGraw-Hill; 2002. p. 93-113.

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Editor's Corner

Brief manuscripts written in editorial fashion on current social, political, and other issues pertinent to teaching and research in clinical and basic sciences would be published. The manuscripts should be double-spaced and are limited to 1,000 to 1,500 words.

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