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Content of the medical curriculum is the hottest issue which is confronted by most of the educationist, both in developed and developing countries. Traditional medical curricula were designed in such a vogue that student should take benefit of the knowledge of the earlier physicians and then apply the same to treat his patient while stressing on memorization of the differential diagnosis, as suggested by the senior physician, based on their experience. This approach focused on training the future doctors to apply the already searched knowledge in the field without thinking critically about the other unknown factors influencing the outcome of the treatment and based on long didactic lectures. This system of training discouraged out of box thinking approach and physician were used to miss many factors directly or indirectly related to disease but not reported in the text. Research was considered as field reserved for post graduate students and most of the physicians did not know even the basics of research and with their busy clinical practice had no opportunity to train them-selves regarding the principles of research, to report the special problems of the patients, to identify new risk factors and to suggest their solutions. With the passage of time and advancement of technology, some of the physician started to apply scientific approach to solve the medical issues. However most of the physicians trained by the old stem of medical education were following memory based methodology of diagnosing and treating the disease. Though many of these physicians observed various factors in their clinical practice had no opportunity to train them-selves considering the principles of research, to report the special problems of the patients, to identify new risk factors and to suggest their solutions. With the passage of time and advancement of technology, some of the physician started to apply scientific approach to solve the medical issues. It's very unfortunate that in the developing countries like Pakistan and Brazil, most of the medical schools are still practicing old type technique and some had inadequate sample size. Few studies did not control confounding factors, while some other had introduced bias in the study due to inadequate knowledge about the risk factors. All this resulted in loss of huge data which could have been used beneficially to solve the serious medical issues.

Considering the above mentioned deficiency in the medical curricula, it was suggested that medical students should right from the beginning be sensitized about the principles of research and trained in the field in order to empower them to manage and solve the issues of the community, by applying systematic and scientific approach. There is paradigm shift of physician role as simple health care provider to seven star doctors having trained as leader, manager, decision maker, health care provider, communicator, researcher and life-long learner. This required changes in curriculum which gradually shifted from traditional didactic lecture based technique to scenario based teaching, problem based learning, ethics in medicine, integrated curriculum, community oriented and community based teaching and evidence based medicine. Considering this need the developed countries have completely changed their curricula, bringing the research element as small research project even at primary level. The conduction of research in the early years of medical curriculum have immense benefits and have more far-reaching consequences than immediate outcome of paper presentation and publication. Having research papers and/or recommendation of the mentors, increases the chances of getting residency and thus contribute to sense of satisfaction, happiness and achievement to the student. It also adds to the prestige of medical school. The training in research develops and enhances student's ability to critically and objectively analyze the problems and help him in future decisions. Learning laboratory methods helps him in clinical decision making and judicial use of diagnostics, sample collection and outcome. Further a research experience in medical school helps those physicians who want to become researcher, in designing new researchand equip them for identifying new risk factors and thus decreasing the morbidity and mortality. It's very unfortunate that in the developing countries like Pakistan and Brazil, most of the medical schools are still training their medical students using the traditional curricula which emphasize on memorizing the knowledge and discourage out of box thinking. Though the current curriculum, recommended by Pakistan Medical & Dental Council (PMDC) for MBBS students contains 25 marks for the research project and stressed on inclusion of research training as essential component of undergraduate
training for the production of seven star doctors but there are many constraints in implementing it. There was no time allocated for practical research in the field settings in the curriculum. Oliveira et al. 2011 conducted a study to find out the perceived reasons by the students for the lack of research in medical education and found lack of institutional motivation as the most important reason followed by defective infra-structure, lack of professor time to mentor under graduate students, non-availability of personals with appropriate skills and lack of student’s interest. Lack of specific time allocation in the curriculum, lack of credits for the time and efforts involved in research, delayed or no permission from administration/ethical committee are some other factors which may act as barriers.

Collar in 2012 described a "John A Burns School of medicine" (JABSOM) model for the involvement of students in research and stressed the need of allocation of dedicated block of curriculum time for a research rotation1.

Another model was adopted by Baqai Medical University, Hamdard Medical & Dental College, and Karachi Medical & Dental College etc and was followed by Bahria University Medical & Dental College (BUMDC) with innovation. This is a method of training students so as to become future research oriented seven stars doctors. The training of students started right from first year of MBBS at BUMDC with sensitization about the basic concepts of research methods, epidemiology and biostatistics followed by brain storming sessions to identify the research problems in the country and community context. Each group has 5-6 students being supervised by one mentor from Department of Community Medicine. Students are facilitated in understanding methods of good literature search and development of research protocol, Performa and questionnaire as well as learning laboratory techniques, depending upon the type of study planned. Students collect data, enter and analyze it under guidance of mentor, write report and submit to the department, which has specific marks in their final examination. The projects are presented in front of a panel of educationist and editors of journals. The students are rewarded with prizes and certificates for good scientific presentation. Students are further encouraged to write papers and get them published. There is progressive improvement in quality of research conducted by students and supervised by mentors. Some of these student’s researches published in the reputed journals indexed by National Library of Medicine.

It is high time that teaching research methodology along with epidemiology and biostatistics should be included in the MBBS curriculum as a separate subject with allocation of specific hours, and under the supervision of Department of Community Medicine in collaboration with basic and clinical health sciences. It should be made obligatory for all students to conduct a supervised research in order to qualify for the MBBS degree. There should be a dedicated block of curriculum time for research rotation in various department jointly supervised by Department of Community Medicine and the concerned department of basic and clinical sciences. Courses offered should have credit hours that must appear on student’s script. The students work should be presented in seminars organized for the same purpose and selected research, in the form of paper or poster presentation should be rewarded by giving certificates and awards. Renewal of Medical license should also be conditioned with at least one research paper in three years of practice. This will help in developing research culture in the country. It has been observed that in those medical institutions where training about research methods are essential components of teaching and conducting research is a requirement, the students take a lot of interest in field projects. This could be beneficial for lifting up the standards of community in future.

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REVIEW ARTICLE
Situational Review Of Child Sexual Abuse In A Low Income Country
Sabeena Jalal

ABSTRACT:
Child sexual abuse (CSA) is an issue of global concern. CSA has been estimated to, affect 2-62% of women and 3-16% of men as victims. The variation in percentage is dependent on the definition of CSA being used. WHO has estimated that globally nearly 40 million children up to 14 years of age, suffer from various types of abuses and require medical attention and social care. This review covers the available literature on child sexual abuse (CSA) in Pakistan since 1999, using search engines Google, Pubmed, Medline and PsychINFO. Data shows that incidence of CSA has been increasing, with mostly acquaintances being the perpetrators. Based on the results recommendations are given to improve the health and well being of survivors of CSA in Pakistan. The issue requires attention by society, law enforcement, public health community, health practitioners and leadership. Poverty and illiteracy are the primary determinants of CSA.

Key words: Child abuse, Child sexual abuse, Pakistan, Health policy, Suggestions.

INTRODUCTION:
Child sexual abuse is an issue of global concern. CSA has been estimated to affect 2-62% of women and 3-16% of men as victims. The variation in percentage is dependent on the definition of CSA being used. World health organization estimated that globally nearly 40 million children up to 14 years of age, suffer from various types of abuse and neglect and hence, require medical attention and social care. The most distressing is child sexual abuse. In one estimate during 1993, there were approximately 300,000 children who were reported to be sexually abused in the USA. However, it is interesting to note that in 2003, the National Child Abuse and Neglect Data System estimated that there were 78,188 victims of sexual abuse in the U.S. This disparity in numbers could be due to the definition of CSA being used. The USDHHS numbers come to be 1.2 per 1,000 American children. In UK, during 2009, one in twenty children, between 11 to 17 years (4.8%) were sexually assaulted. In south east Asia, 1 million were estimated as victims of CSA. This is attributed to poverty and illiteracy, resulting in sex trade and exploitation.

Pakistan’s population is 160,943,000, making it the most populated country in the WHO EMRO region. According to Pakistan Social and Living Standard Measurement Survey (2004-05), estimated population growth rate is 1.92. The same survey showed that adult literacy rate is 65.1%. Pakistan is ranked 135 on human development Index rank in 2003 out of 177 countries. Patriarchal system in South Asia and family honour deters families from acknowledging and reporting Child Sexual Abuse. Even though Pakistan has a active media, yet there is a want of focussed stewardship to be directed towards child protection. The stigma associated with CSA in the Pakistani society arises with the prevalent fear of society and family rejecting the child and not the perpetrator. This further prevents the projection of CSA and the issue remains neglected. This societal attitude deters people from acknowledging the very existence of the problem. Pakistan’s high population growth rate and rapid urbanization have promoted child labor, resulting in greater number of children working and living in the slums. These children are vulnerable to all forms of abuse including sexual exploitation, school dropouts and illiteracy. The study shows that need for basics such as food, clothing, accommodation and money compels young boys into commercial sex. Moon also argues that CSA is increasing in South Asia due to sex trade. A study done in Pakistan estimated that most boys, who were forced into prostitution, were sexually abused before they entered the commercial sex trade. Children from the Afghan refugee community are particularly vulnerable because of the extreme poverty and a lack of parental protection and supervision. Public places such as markets, parks, shrines, cinema halls were identified as areas where these children go to find ‘clients’ for sex trade. Exploiters are men from all socio economic backgrounds. Poverty and illiteracy are the primary determinants of child sexual abuse.

A large number of child abuse cases go unreported in Pakistan. The research estimates a high “hidden” burden of child abuse based on the increased prevalence of depression and PTSD among adults coming to psychiatric clinics. The patient history of such adults revealed that as children they were exposed to CSA. Another study concluded that major depression in adults is an extension of childhood depression and is reported amongst 65% of abused children. Khalid studied 100 psychiatric patients and found that a staggering number of thirty three had a history of CSA. The same local study conducted in Pakistan reported that phobic anxiety disorder, recurrent depression, conversion disorder, substance dependence and obsessive compulsive disorder are common in patients who were exposed to sexual abuse as children.

Dr. Sabeena Jalal
Assistant Professor
Community Health Sciences,
Bahria University Medical and Dental College
Disclaimer/Note: This paper had submitted in the 6th World Congress of Family and Child rights.
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Definition of Child Sexual Abuse:
Defining Child Sexual Abuse (CSA) is a difficult issue. Criteria vary worldwide and there is no universally accepted definition available. Hence, the scope and nature of any research changes according to the definition used, for instance, in a study done by Russell, when non-contact sexual abuse was incorporated, the prevalence of sexual abuse in women abused as a child was as high as 54%. However, when non-contact sexual abuse was excluded, the prevalence estimated was reduced to 38%.

National Clearinghouse on Family Violence (1997) states:
Child sexual abuse (CSA) occurs when an adult or adolescent uses a child for sexual purposes. It involves exposing a child to any sexual activity or behavior. Sexual abuse is inherently emotionally abusive and is often accompanied by other forms of mistreatment. It is a betrayal of trust and an abuse of power over the child.

Pakistan and child sexual abuse:
Pakistan has ratified the United Nations Convention on the Rights of the Child (CRC) and its two discretionary protocols, including the Optional Protocol on the Sale of Children, Child Prostitution and Child Pornography. Pakistan has adopted the Stockholm Agenda for Action to Combat Commercial Sexual Exploitation of Children and also committed to the Second World Congress against Commercial Sexual Exploitation of Children in Yokohama in 2001. Pakistan has a National Plan of Action for Children and regularly reports to the UN Convention committee. The country also has a National Plan of Action against Child Sexual Abuse and Exploitation. However, one concern is that Pakistan has few child safeguard laws. Moreover, another study argues that enforcement of the existing laws is weak, as they say that the very laws that criminalize prostitution fail to decipher between adults and children. This caveat in the law implies that children who are forced into prostitution are unfortunately treated as adults as per the country's legal system, and are therefore, punished rather than rehabilitated, if they are convicted. Pakistan's legal system also places the onus of guilt and responsibility on the sexually abused rather than on those who force or persuade the children into prostitution.

MATERIALS AND METHODS:
This study was designed to review the available literature on child abuse in Pakistan. To identify the activities of various organizations working for child abuse prevention. Finally, based on the results, give recommendations for best practices to improve the health and well-being of survivors of child abuse in Pakistan. The study included review of published literature and web sources, since 1999 following the incident of mass child abuse and murder in Pakistan. Public and non-government organizations working for child abuse in Pakistan were identified with the help of the literature search, through snowball technique. PubMed, PsycINFO, and MEDLINE were searched using key words 'CSA' and 'Child Abuse in Pakistan'. A list of these organizations was made and their activities regarding addressing child abuse were assessed.

RESULTS AND DISCUSSION:

Review of literature on CSA
Most of the literature that was reviewed, described the global scenario of child sexual abuse; very little data was available on the problem of child abuse in Pakistan. After critical analysis of the relevant literature, following were the main themes that emerged.

Definition
Pakistan has no legal definition of child abuse and neglect (CAN) and professionals generally rely on the definition offered by the World Health Organization. Mandatory reporting of Child abuse does not exist in Pakistan and hence, there is a dearth of data on prevalence of child abuse.

Policy interventions/ratifications
Pakistan has ratified the UN Convention on the Rights of the Child (CRC). Country has signed its two optional protocols. Pakistan has adopted the South Asia Strategy, the Stockholm Declaration and Agenda for Action and the Yokohama Global Commitment against Commercial Sexual Exploitation of Children. Pakistan reports on a regular basis to the CRC committee and has a National Plan of Action. The central organization for child rights and welfare in the country is the National Commission on Child Welfare and Development (NCCWD). Pakistan designed a child-friendly Juvenile Justice System Ordinance in 2000.

Efforts for addressing child abuse menace in Pakistan
Addressing the menace of Child sexual abuse in Pakistan requires integrated efforts: (1) working together of agencies providing legal advice to the neglected and abuse children and reinforcing laws regarding child rights, (2) organizations and researchers need to work on gathering baseline data about the burden of CSA in the country and (3) interventional agencies working towards improving the situation holistically.

So far, in Pakistan most of the identified public and private organizations have focused their efforts towards protecting and reinforcing the rights of children. Which leaves a want for authentic baseline data, a surveillance data base and hence the evaluation of the actual prevalence of CSA which would assist in determining the targeted intervention.

The social welfare department has a referral system for the child abuse victims. This department is working in collaboration with NGOs and is accountable for CRC execution and evaluates the existing laws and services.
for children. Labor department of Sindh has inspectors' teams. The role of these teams is to visit various organizations that employ child labor and to inspect the children who are working there. They look for any kind of abuse that may be taking place. However, the mandatory preceding notice of the inspector's visit to the organization, generally leads to under reporting and hence only an estimation of actual figures of CSA within those organizations is possible. Some private organizations are providing free of cost, legal support in cases of child abuse at work place by providing the services of lawyers and legal aid committees. They create awareness among school children regarding their rights. Help lines have been established by Government and NGOs for immediate notification of child abuse cases. However, the burden lies in raising awareness in general public for the existence of this service. It is alleged that these organizations contributed in bringing up Juvenile Justice System Ordinance (No XXII), which was enacted on July 1, 2000. The Ordinance provides protection to the children who are caught up in criminal litigation.

### Burden and distribution of child sexual abuse in Pakistan

In 1999, a large number of boys were found to be victims of sexual exploitation. What was even more dreadful was the murder of one hundred children in Lahore. These children belonged to low-income families. Most families when interviewed after the event alleged that they had not asked their children where they were working. They were merely grateful for the money the child was bringing home. A three month study published in 2001, the local newspapers of Pakistan reported 46 cases of child sexual abuse in NWFP Province. These cases included individual sexual assaults, gang rapes, incest and exposure of children to pornographic materials. It is a criminal offence under the Pakistan Penal Code of 1860 to exploit a girl under the age of 18 years for purposes of prostitution, making the offence is punishable by 10 years imprisonment or fine or both. During the provincial interviews conducted by the United Nations in 2001 with 233 sexually abused and sexuaily exploited children, 74 boys and 32 percent girls were identified as victims of sexual abuse. Teachers, family members, neighbors, shopkeepers were reported as being the people responsible for sexually abusing these children. Exact age of 39 victims was unknown, however, they were under 18 years of age at the time when the abuse first began. First-time abuse was most commonly reported among the 14-year-old children. Many reported cases were under 10 years of age. Five victims were five years old. Out of the reported 159 sexually exploited children, the highest percentage, that is, 28.9% were from Baluchistan province, followed by a 23.9% from Sindh province.

According to a five month survey done by an NGO in 2004, of the 260 total reported child sexual abuse cases throughout Pakistan, 153 were girls and 107 were boys. In Punjab province, there were reported 171 cases, followed by Sindh province with 77 and the NWFP and Balochistan with 6 cases each. Among the offenders were fathers, acquaintances, teachers, police and total strangers. Major forms of abuse reported were: 85 cases of rape, 65 of sodomy, 77 of sexual assault, 8 rape-murders and 25 sodomy-murders. There was an estimated 50 percent increment in cases of CSA in Pakistan between the years 2002 and 2006. 8,209 children were reported to have been abused. Of them 74 per cent (5,941) were girls and 26 per cent (2,268) boys. It is estimated that in 2002, 1.2 children were abused daily and this increased to four children per day in 2006.

Although the reported data do show an increasing pattern in CSA, there seems to be a huge under reporting. More than eighty percent of the CSA cases go unreported. Women are more frequently abetting such crimes, posing difficulty in reporting and recording such cases leading to under reporting. Mostly the acquaintances were responsible for CSA, followed by the category of male strangers. During five year period, 1,115 girls and 550 boys were gang raped. The report noted that about 210 victims were murdered after gang rape and 272 after rape or sodomy and molestation recorded the second most consistent increase among crimes, after kidnapping. Children between the ages of 11 and 15 years were most commonly victimized. Followed by the age group between six and 10 years. What is shocking is that most victims were abused at their homes. The report showed that 67 per cent of cases were reported in Punjab province, 24 per cent in Sindh, six per cent in federal areas, two per cent in the NWFP and one per cent in Balochistan. During the period, the number of reported cases showed a decline in Balochistan and the NWFP. This is thought to be under reporting. During 2006 till 2009, there were nearly 8,000 reported CSA cases (Table 1).

When comparing the literacy level of the exploited children, it was noted that 31% were uneducated 1983.6% were educated below grade 5 level. Younger and less educated children were more prone to be victimized. Interestingly, other studies have discussed the significance of level of education. Low education level of the parents also leads to neglect of children and neglected children may be more prone to child abuse. Limitations of the study: This study attempts to carry out a situation analysis of child sexual abuse in Pakistan, based on a review of documents, published reports from various agencies and organizations working in Pakistan. Some of the
unpublished data in different universities and organizations can be missing due to lack of availability and access. NGOs in Pakistan were identified using snowball technique. However, there is possibility that some organizations whose work is not accessible via the internet, may have been missed in this analysis. Visiting the office of each NGO working for the protection of child rights against CSA, would require extensive resources and was beyond the scope of this situational analysis. This was an observational study. Electronic literature search was carried out for the period between 1999 till 2011. The sites searched were Google, Pubmed, Medline and PsychINFO. The key words used were 'Child sexual abuse', 'CSA', and 'Child sexual abuse in Pakistan'. Boolean operator "AND" was used.

CONCLUSION:
This analysis highlights the need for a population survey. Magnitude and reasons of child abuse, information on adverse health and social effects of child abuse on the victim population in Pakistan need to be studied. Such studies are done worldwide to understand the long term effects of CSA. The best practices identified include evening schools and drop-in centers for working children with provision for basic health facilities, skills based education, training of a multi disciplinary team comprising of doctors, nurses, lady health visitors, police and social workers to be able to recognize CSA and an ombudsman for child sexual abuse. Economic reforms that help alleviate poverty affecting children are also needed. We need to make certain that the services offered by NGO’s and government are socially acceptable to the people and are widely and easily accessible by them.

RECOMMENDATIONS:
Applying trans-theoretical model approach To develop a model to assist the actions of NGO’s and government, we can plan on implementing their actions to a larger scale with a centrally coordinated technique. Applying the trans-theoretical model of behavioral change, we see Stages faced when attempting to deal with child abuse:
(a) Pre contemplation: the victim/guardian does not recognize child abuse as an issue and is not interested in change.
(b) Contemplation: the child/guardian acknowledge’s the problem and consider possible change
(c) Preparation: the child/guardian intends to modify and has made a plan
(d) Action: the child/guardian follows through the plan
(e) Maintenance: the child and guardian keeps the new action as part of her daily activity and is taking steps to prevent relapse.

Public Health Prevention strategy:
Primary preventive actions
Create a better environment for the children through education and awareness. Educating the masses will help to reduce the demand for the sexual exploitation of children. Media is a very useful tool that can help facilitate. Radio and television programs could be scripted in such a way that is acceptable to the society and yet raises awareness. The HIV/AIDS awareness campaigns must also call attention to the children involved in prostitution.

Secondary Prevention
It is the instantaneous response to violence. Care must be given to the victim before taking to a hospital emergency department.

Tertiary prevention
Rehabilitation of the exploited children is crucial, thus there is a need to develop and execute comprehensive strategy to protect and help the child victims and to facilitate their reintegration into the society. As one agency trying to provide a complete array of services related to child abuse might not deliver as well as various organizations coming together and working together in addressing various challenges faced by child abuse. Rehabilitation includes but is not limited to psychological support, emotional support, educational support and assistance in integrating into the society. Education takes a back seat when poverty is rampant. Such is the case with Pakistan. In countries where child labor is existent, best is to regulate it with laws, rates and timings. This would encourage children to avoid commercial sex trade.

Table 1:

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cases</td>
<td>2447</td>
<td>2321</td>
<td>1838</td>
<td>968</td>
</tr>
<tr>
<td>Pattern of reporting</td>
<td>Decreasing (due to under reporting)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig 1:
Steps towards integrated community fighting Child sexual abuse menace. Community factors may be critical to the success of these programs.

Table 2
Types of relationship between Abusers and Victims.

<table>
<thead>
<tr>
<th>Abuser</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquaintance</td>
<td>3667</td>
<td>2986</td>
<td>1672</td>
</tr>
<tr>
<td>Strangers</td>
<td>900</td>
<td>650</td>
<td>435</td>
</tr>
<tr>
<td>Relatives</td>
<td>133</td>
<td>71</td>
<td>46</td>
</tr>
<tr>
<td>Incest</td>
<td>39</td>
<td>53</td>
<td>8</td>
</tr>
</tbody>
</table>

Source:

Fig 2:
Child Sexual Abuse (CSA) prevention and policy suggestions- stepwise approach.
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**ORIGINAL ARTICLE**

Compliance and Association of Ventilator Associated Pneumonia Bundle Strategy With Ventilator Associated Pneumonia rate: A Saudi Experience

Mohammad Garout

**ABSTRACT:**

**Objectives:** To evaluate the effectiveness and compliance of Ventilator Associated Pneumonia (VAP) care bundle in local setting at Erfan & Bagedo General hospital, Jeddah, KSA.

**Materials and Methods:** The study was a Quasi experimental before and after observation type of study, in which VAP care bundle was implemented to the ventilated patients without any control group. It was conducted from February 2010 to January 2011.

**Results:** Out of a total of 3011 patient ventilator days, 18 patient developed VAP. Number of VAP care bundle implementation increased from 42 (17.36%) in February 2010 to 315 (91.8%) in October 2010. However the implementation rate was 100% during November, December 2010 and January 2011. VAP rate dropped from 8.85/1000 ventilator days in February 2010 to 3.15 in January 2011.

**Conclusion:** There was a strong negative correlation between proportion of implementation of VAP care bundle and VAP rate (r= -0.534 p value=0.037 for one tailed test). Adopting VAP care bundle approach may help in reducing the morbidity and mortality in the ventilated patients.

**Keywords:** Ventilator Associated Pneumonia, Compliance, Infection, VAP care bundle, Saudi Arabia

**INTRODUCTION:**

Ventilator Associated Pneumonia (VAP), one of Healthcare Acquired Infections (HAIs) associated with intensive care units (ICU) of hospitals is a major challenge for health professionals these days. It is one of the most common hospital infections among the ventilated patients. It has serious implication as it continues to pose potentially fatal complication of ventilation care. It results in load on health resources associated with increase morbidity and mortality. VAP is further divided into two; early-onset pneumonia (That occurs within 48-72 hours) and late-onset pneumonia (72 hours or more after intubation). Incidence of pneumonia varies from 9% to 68% and 90% of all HAIs in mechanically ventilated patients are attributed to VAP. Increase prevalence of VAP is associated with the following risk factors identified by various studies. Most common microorganisms include Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis. Late-onset VAP occurs 5 or more days after intubation.

**Evidence based guidelines for the prevention of VAP have been developed in North America by CDC.** This ventilator care bundle included four elements: 1. Elevation of head of bed to 30-450 2. Deep Sedation hold. 3. Deep vein thrombosis (DVT) prophylaxis. 4. Gastric ulcer (GU) prophylaxis. This care bundle was updated in July 2007 and now includes some more strategies like appropriate humidification of inspired gases and tubing management.

**MATERIALS AND METHODS:**

This study was designed as a Quasi experimental before and after observation type of study, in which VAP care bundle was implemented to the ventilated patients without any control group. It was conducted in Erfan & Bagedo General hospital, Jeddah, KSA and to compare the VAP rate with compliance rate.
1. CDC definition of VAP was used to define the case.
2. Implementation of standard template for VAP care bundle.
3. Daily compliance monitoring by the principal investigator.
4. Training of involved staff.
5. Pilot study was done to find out the difficulty in VAP care bundle implementation and factors that could increase compliance.

**Method of data collection:**
A meeting was held with the head of ICU and ICU head nurse to discuss the implementation of VAP bundle and explore the role of physicians and nurses (formation of VAP care bundle team).

- Principal Investigator himself trained all the nurses working in the ICU of hospital, regarding VAP strategy.
- VAP care bundle elements were selected by infection control team, based on extensive literature review and consisting of the following elements:
  1. Elevation of the Head of The bed between 30-40 degrees.
  2. Daily Sedation vacations of assessment of readiness to extubate.
  3. PUD prophylaxis.
  4. DVT prophylaxis.
  5. Proper subglottic suction.
  6. Optimal oral care with chlorhexidine.

VAP care bundle lecture was given to the ICU staff (physicians & nurses). Introduction was done, the care bundle elements were explained and questions answered. Date to start implementing the VAP bundle was proposed after getting the approval from the infection control committee and ethical committee of the hospital. Revision of the implementation of the care bundle to be done after six month or when required. It was decided to assess the effect of the VAP care bundle implementation on the reduction of VAP rate to be looked at after 12 months.

**Statistical analysis:**
SPSS software ver. 13 was used to analyze the data. Confidence interval was set at 95% and a p value < 0.05 was considered as statistically significant. The VAP rate was compared with CDC National Health Care Safety Network (NHSN) data which was reported as 0.6/1000 ventilator days. A reduction of 4.3/1000 (70.5%) ventilator days. A reduction of 4.3/1000 (70.5%) ventilator days. A reduction of 4.3/1000 (70.5%) ventilator days. A reduction of 4.3/1000 (70.5%) ventilator days. A reduction of 4.3/1000 (70.5%) ventilator days. A reduction of 4.3/1000 (70.5%) ventilator days.

**RESULTS:**
Out of a total of 3011 patient ventilator days, 18 patient developed VAP. Some of the patients were readmitted more than once. The range of age was from 16 to 95 years with Mean as 63.5, Mode 70, Median 66 and standard deviation as 18.9. Twelve (66.6%) of them were male. Most common co-morbidities were hypertension and diabetes and the most common organisms found were Acinetobacterbaumannii and Pseudomonas aeruginosa (Table 1).

Regarding VAP care bundle observations, the range included minimum of 161 and maximum of 343 from February 2010 to January 2011 (Table 2). Number of VAP care bundle implementation increased from 42 (17.36%) in the month of February 2010 to 315 (91.8%) in the month of October 2010. However the implementation rate was 100% for the months of November, December 2010 and January 2011. VAP rate dropped from 8.85/1000 ventilator days in the month of February 2010 to 3.15 in January 2011 (Fig 1).

**DISCUSSION:**
The ventilator Associated Pneumonia Care Bundle (VAP care bundle) strategy was designed to reduce the VAP rate and improve the health care of the ventilated patient. The current strategy demonstrates that VAP care bundle approach has shown strong association with the VAP rate. There was significant negative correlation between percentage of application of VAP care bundle and VAP rate. In the present study, the mean age of the patients was 63.5± 18.9. Male: Female ratio was 2:1. The total ventilation days were 3011. Most of the studies did not report demographic characteristics of studied population. However Bukhari has documented a total ventilation days during their one year study period as equal to 27 47 18. We had a total of 18 patients identified during the study period. Some of the patients were admitted more than once. Most common co-morbidities identified were hypertension and diabetes. Most common organisms identified in this study were Acinetobacterbaumannii (28.6%) and Pseudomonas aeruginosa (25.0%). Allan2 found the same two pathogens as the leading isolates with Pseudomonas aeruginosa as 29% and Acinetobacterbaumannii as 27%. Bukhari also found the same two organisms as the two most frequent isolates Pseudomonas aeruginosa 30.8% and Acinetobacterbaumannii as 27.7% respectively. Regarding VAP care bundle compliance rate, it started with 17.36% and reached to 100% within 9 months. Bukhari has reported 100% compliance within 6 months, probably because of the reason that they started with 30% compliance rate right from the start of study. In the current study the VAP rate at the beginning of the study was 8.85/1000 ventilator days which decreased to 3.15 at the end of study with a mean rate of 5.36/1000. Thus a reduction of 5.7 per 1000 (64.4%) was observed in this study Buchhari found a decrease of 1.41/1000 ventilator days. However the percentage reduction was less (41.6%) than our result. They started their study with a lower baseline VAP rate of 3.39 and achieved a rate of 1.98/1000 after one year implementation of VAP care bundle.18,19 Youngquist had similar findings for Maxcy Hospital where VAP rate dropped from 6.1/1000 to 2.7 per 1000 ventilator days. A reduction of 4.3/1000 (70.5%) ventilator days.
Resor reported a decrease in VAP rate from 6.6 to 2.7/1000. The percentage of reduction observed was 59.1%. Allan observed a decrease of VAP rate from 3.8 to 1.67 case per thousand (a 56% decrease in VAP rate). More recent studies also showed a decrease of more than 50 % in the VAP rate after successful implementation of VAP care bundle strategy. It was estimated that each VAP case was responsible for 10 hospital days with a mean cost of $ 40000. A decrease of 5.7 per thousand days will save a sum of $ 228000 and for 3011 days it will be $ 686508. There was a strong negative correlation between proportion of implementation of VAP care bundle and VAP rate (r= -0.534 p value=0.037 for one tailed test). The main limitation of the study was a lack of control group for the purpose of comparison and for establishment of causality.

CONCLUSION:
The implementation of VAP care bundle has significant negative correlation with the VAP rate. Adopting VAP care bundle approach may help in reducing the morbidity and mortality in the ventilated patients. However a clinical trial with appropriate control should be conducted in order to establish causal relationship between the compliance rate of VAP care bundle and VAP rate.

Table 1

<table>
<thead>
<tr>
<th>No.</th>
<th>Age (years)</th>
<th>Gender</th>
<th>Associated Co-morbid Diseases</th>
<th>Microorganisms (sputum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41</td>
<td>F</td>
<td>Metastatic Breast cancer, DM and Acute Renal Failure</td>
<td>Acinetobacterbaumannii</td>
</tr>
<tr>
<td>2</td>
<td>37</td>
<td>M</td>
<td>Morbid Obesity, hyperlipidemia, DM and HTN</td>
<td>Staph. Aureus</td>
</tr>
<tr>
<td>3</td>
<td>67</td>
<td>F</td>
<td>Pulmonary hypertension and Atrial Fibrillation</td>
<td>Acinetobacterbaumannii</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
<td>M</td>
<td>Frontal Craniotomy, DM and HTN</td>
<td>Enterobacter cloacae</td>
</tr>
<tr>
<td>5</td>
<td>70</td>
<td>F</td>
<td>Obesity, DM, HTN and CABG</td>
<td>Pseudomonas aeruginosa</td>
</tr>
<tr>
<td>6</td>
<td>68</td>
<td>M</td>
<td>HTN, DM and old CVA</td>
<td>Pseudomonas aeruginosa</td>
</tr>
<tr>
<td>7</td>
<td>69</td>
<td>M</td>
<td>DM, HTN, Congestive Heart Failure and hyperlipidemia</td>
<td>Pseudomonas aeruginosa Acinetobacterbaumannii</td>
</tr>
<tr>
<td>8</td>
<td>95</td>
<td>M</td>
<td>HTN, DM, heart failure and old CVA</td>
<td>Acinetobacter species &amp; E. coli</td>
</tr>
<tr>
<td>9</td>
<td>63</td>
<td>M</td>
<td>Non-Hodgkin lymphoma &amp; respiratory failure</td>
<td>Acinetobacterbaumannii</td>
</tr>
<tr>
<td>10</td>
<td>70</td>
<td>F</td>
<td>DM, HTN, Respiratory Failure &amp;exertional angina</td>
<td>Pseudomonas aeruginosa &amp; Acinetobacterbaumannii</td>
</tr>
<tr>
<td>11</td>
<td>65</td>
<td>M</td>
<td>DM, HTN and Congestive Heart Failure</td>
<td>Pseudomonas aeruginosa &amp; candida albicans</td>
</tr>
<tr>
<td>12</td>
<td>87</td>
<td>M</td>
<td>CHF, Dementia and Parkinsonism</td>
<td>Acinetobacter species, Staph. aureus &amp; E. coli</td>
</tr>
<tr>
<td>13</td>
<td>90</td>
<td>M</td>
<td>Right lower lobe pneumonia, DM and Chronic Renal Failure</td>
<td>Klebsiella pneumonia</td>
</tr>
<tr>
<td>14</td>
<td>16</td>
<td>M</td>
<td>Cerebral Palsy and Pulmonary TB</td>
<td>Klebsiella pneumonia &amp; Pseudomonas aeruginosa</td>
</tr>
<tr>
<td>15</td>
<td>60</td>
<td>M</td>
<td>DM, HTN, CVA and DKA</td>
<td>Acinetobacter species, Proteus maribilis &amp; E. coli</td>
</tr>
<tr>
<td>16</td>
<td>63</td>
<td>M</td>
<td>DM, HTN and Pulmonary Embolism</td>
<td>Klebsiella pneumonia</td>
</tr>
<tr>
<td>17</td>
<td>70</td>
<td>F</td>
<td>CRF, COPD and old Pulmonary TB</td>
<td>Klebsiella pneumonia &amp; Pseudomonas aeruginosa</td>
</tr>
<tr>
<td>18</td>
<td>62</td>
<td>F</td>
<td>Glioblastoma and Atrial Fibrillation</td>
<td>E. coli</td>
</tr>
</tbody>
</table>

Demography, associated co-morbid diseases and microorganisms for study population

Gender: M=males; F=females
Table 2
VAP Care Bundle Implementation Report
February 2010 - January 2011

<table>
<thead>
<tr>
<th>Month</th>
<th>No. of observation</th>
<th>No. of implementation of VAP care bundle</th>
<th>Percent of implementation of VAP care bundle</th>
<th>VAP rate/1000 ventilator days</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>244</td>
<td>42</td>
<td>17.36</td>
<td>8.85</td>
</tr>
<tr>
<td>March</td>
<td>161</td>
<td>51</td>
<td>31.68</td>
<td>5.00</td>
</tr>
<tr>
<td>April</td>
<td>239</td>
<td>58</td>
<td>24.27</td>
<td>7.14</td>
</tr>
<tr>
<td>May</td>
<td>315</td>
<td>108</td>
<td>34.29</td>
<td>2.82</td>
</tr>
<tr>
<td>June</td>
<td>327</td>
<td>107</td>
<td>32.72</td>
<td>8.67</td>
</tr>
<tr>
<td>July</td>
<td>220</td>
<td>103</td>
<td>46.82</td>
<td>4.07</td>
</tr>
<tr>
<td>August</td>
<td>278</td>
<td>260</td>
<td>93.53</td>
<td>3.26</td>
</tr>
<tr>
<td>September</td>
<td>179</td>
<td>130</td>
<td>72.63</td>
<td>7.22</td>
</tr>
<tr>
<td>October</td>
<td>343</td>
<td>315</td>
<td>91.84</td>
<td>5.99</td>
</tr>
<tr>
<td>November</td>
<td>245</td>
<td>245</td>
<td>100.00</td>
<td>4.10</td>
</tr>
<tr>
<td>December</td>
<td>255</td>
<td>255</td>
<td>100.00</td>
<td>4.10</td>
</tr>
<tr>
<td>January</td>
<td>205</td>
<td>205</td>
<td>100.00</td>
<td>3.15</td>
</tr>
</tbody>
</table>

Fig 1:

[Graph showing compliance of VAP care bundle and VAP rates in the ICU from February 2010 to January 2011]
REFERENCES:


INTRODUCTION:

Patients with End Stage Renal Disease undergo hemodialysis through AV fistula on regular basis, which is a preferred access site. Thereby, its dysfunction, mainly inflow and outflow stenosis, is not uncommon as well. Earlier, quite a number of studies had been done which assessed the accuracy of various arteriovenous detection tools separately, in comparison with the gold standard i.e. angiography. Heye conducted a study in which he assessed the diagnostic value of Doppler ultrasound in evaluation of arteriovenous fistula stenosis detection when compared with DSA (Digital Subtraction Angiography). Another study assessed the accuracy of Doppler ultrasound in detection of inflow stenosis when compared with angiography. This study showed that Doppler ultrasound has 91% sensitivity in inflow stenosis detection. To highlight the importance of physical examination in arteriovenous fistula detection, a study showed that it had 85% sensitivity in inflow stenosis detection and 92% sensitivity in detection of outflow stenosis when compared with angiography. In all these studies the diagnostic tools; physical examination, Doppler ultrasound and MDCT angiography had been compared individually with the gold standard, Angiography.

The aim of our study was to compare physical examination, MDCTA and Doppler ultrasound in detection of arteriovenous fistula (AVF) stenosis.

MATERIALS AND METHODS:

We conducted a pilot study in hemodialysis department of PNS Shifa with prospective diagnostic cohort design on 15 patients, referred for evaluation of arteriovenous fistula dysfunction. Physical examination of arteriovenous fistula was done followed by Doppler ultrasound and MDCT angiography. The results of each patient was recorded and sealed. Data analyzed by Cohen’s Kappa, which determined the level of agreement between the diagnosis made by physical examination, MDCT angiography and Doppler ultrasound.

RESULTS:

There was significant agreement in AVF stenosis detection made by physical examination and MDCT angiography (K: 0.865 for inflow stenosis and K: 0.602 for outflow stenosis). Whereas moderate level of agreement was observed between physical examination and Doppler ultrasound (K: 0.471 for inflow stenosis, K: 0.444 for outflow stenosis). Fair agreement existed between MDCTA and Doppler ultrasound in outflow stenosis detection.

CONCLUSION:

Physical examination is accurate and equivalent in AVF stenosis detection when compared with MDCT angiography and superior in stenosis detection when compared with Doppler ultrasound in our hospital. Doppler ultrasound is inferior to MDCTA in diagnosis of outflow stenosis.

Key words: Arteriovenous fistula, Stenosis, Physical examination, MDCTA, Doppler ultrasound
pulse, absent/decreased thrill and abnormal augmentation test. While diagnostic criteria for outflow stenosis included presence of water hammer pulse and a positive arm elevation test.5,6 In our study physical examination was done on AVF which had been in use for over 6 months. Physical examination criterion for both inflow stenosis and outflow stenosis was derived from the guidelines of National Kidney Foundation and Beathard GA7,8 examination. Doppler ultrasound was conducted with a portable system (Mindray Diagnostic Ultrasound system with color Doppler facility, with a frequency of 6-14MHz) criterion for stenosis was >50 %. For MDCTA9 (16 slice Spiral MDCT, Toshiba Aquillion), contrast was administered in a peripheral vein in contra-lateral arm. Stenosis of 50% or more was considered significant. Images were viewed and reported by consultant radiologist.

The patients who had been referred for evaluation of AVF dysfunction had physical examination of their fistula done by the nephrology team, comprising of consultant Nephrologist and resident in nephrology, followed by Doppler ultrasound and then MDCT angiography, all at the same day before a scheduled hemodialysis session. The results of each investigator were recorded separately and sealed in envelope, and were evaluated by the principle investigator. Study endpoints were demonstrating that Physical examination, MDCTA and Doppler ultrasound are comparable to each other in detection of AVF stenosis.

Statistical Analysis:
Study variables were Dichotomous i.e. presence or absence of lesion, were analyzed using Cohen’s Kappa value, which determined the level of agreement beyond chance between the diagnosis made by physical examination and that by MDCTA and Doppler ultrasound. Kvalue: 0.0-1.0 interpretation: zero indicates no agreement beyond chance, whereas 1.0 denotes perfect agreement beyond chance. 0.0-0.2 to 0.2-0.4 implies fair agreement, 0.4-0.6 implies moderate agreement and >0.6 indicates significant agreement. Data was recorded in Microsoft Office 2007 using SPSS20.

RESULTS:
20 patients were found eligible for the study as per inclusion criteria. However, 5 declined to enter into the study. Rest of the 15 patients completed the study. No patient had any reaction to the contrast (low osmolar, nonionic) given. Data of 15 patients with AVF dysfunction; who had undergone physical examination, Doppler ultrasound and MDCTA; was analyzed. Demographic characteristics of the study cases are shown in (Table 1). Out of 15, 9 fistulas were located in upper arm and 6 in forearm. The data analysis revealed that 4 out of 15 showed normal physical examination and MDCTA and Doppler ultrasound did not reveal any abnormality in those 4 cases as well. On the other hand 11 patients showed gross abnormalities on physical examination and 9 out of 11 had the same abnormality on MDCTA. On comparison with Doppler ultrasound, 6 out of 11 detected the same lesion, while it did not detect 5 cases as were detected by both physical examination and MDCTA(Table 1) Cohen’s Kappa value calculated for detection of inflow stenosis between physical examination and MDCTA was K: 0.865 which showed significant level of agreement between both. Kappa value for inflow stenosis, between physical examination and Doppler ultrasound was K: 0.471, which showed moderate level of agreement. The Kappa value for outflow stenosis, between physical examination and MDCTA was K: 0.602 and that for comparison between physical examination and doppler ultrasound was K: 0.444. This showed that Doppler ultrasound was inferior in both inflow and outflow stenosis detection when compared with physical examination. Level of agreement was also calculated between MDCTA and doppler ultrasound which showed k: 0.545 for inflow stenosis and k: 0.375 for outflow stenosis, which was moderate and fair level of agreement, respectively. (Table 2). Analysis of the forearm and upper arm fistulas showed no difference in level of agreement between these 3 modalities.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Demographic characteristics of the study cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cases</td>
<td>15</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
</tr>
<tr>
<td>Causes of ESRD</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>4</td>
</tr>
<tr>
<td>Diabetic nephropathy</td>
<td>5</td>
</tr>
<tr>
<td>Glomerulonephritis</td>
<td>3</td>
</tr>
<tr>
<td>Obstructive uropathy</td>
<td>3</td>
</tr>
<tr>
<td>Type of Fistula</td>
<td></td>
</tr>
<tr>
<td>Forearm</td>
<td>6</td>
</tr>
<tr>
<td>Arm</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Parameter</th>
<th>Inflow Stenosis</th>
<th>Outflow Stenosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical exam./MDCTA</td>
<td>K:0.865</td>
<td>K:0.602</td>
<td></td>
</tr>
<tr>
<td>Physical exam./Doppler u/s</td>
<td>K:0.471</td>
<td>K:0.444</td>
<td></td>
</tr>
<tr>
<td>MDCTA/Doppler u/s</td>
<td>K:0.545</td>
<td>K:0.375</td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION:
AVF stenosis and its detection had been an important area of discussion and research in interventional nephrology and radiology.\textsuperscript{10,11} Quite a number of studies have been conducted to emphasize on variety of diagnostic tools in detection of stenosis.\textsuperscript{12,13} A study determined the accuracy of Doppler ultrasound in detection of AVF stenosis when compared with angiography.\textsuperscript{14} In this study they used portable Doppler ultrasound (sonosite, St.Paul,MN) results showed increased sensitivity and specificity of Doppler ultrasound in detection of lesion (91% and 98%, respectively) but it did not mention the technical specification of the Doppler ultrasound. However, our study showed that ColorDoppler (6-14 MHz) was inferior to MDCTA in detecting outflow stenosis. Studies have\textsuperscript{15,16,17} highlighted the accuracy of physical examination in detection of AVF stenosis when compared with angiography, the gold standard. In one of the studies the examination was done by a resident who was given training in examination of the fistula. Studies\textsuperscript{18,19,20} have showed significant agreement and therefore high accuracy of physical examination when compared to MDCTA in stenosis detection. However, in our study the clinical examination was done by a consultant Nephrologist. A study compared accuracy of 64MDCTA Scanner (somatom sensation 64, Siemens medical solutions) with digital subtraction angiography. This study revealed that 64 MDCTA had 90.2% sensitivity in stenosis detection.\textsuperscript{21} Our study compared 3 modalities i.e. physical examination, Doppler ultrasound and MDCTA in detection of AVF stenosis and results thereby inferred that physical examination was equivalent, non inferior to MDCTA and superior to Doppler ultrasound in detection of the lesion. For outflow stenosis Doppler ultrasound was inferior to both physical examination and MDCTA\textsuperscript{22,23,24,25}. This study has some limitations like the small sample size and that the physical examinations were done by a consultant Nephrologist, with a considerable experience in the test.

In future, further studies in this context should be done on a larger sample of patients and by multiple examiners of different level of training, to further authenticate results of this study and comparison of different Doppler ultrasound machines to establish technical specifications as the cause of inferiority or superiority in AVF stenosis detection.

CONCLUSION:
Physical examination is an important tool in AVF stenosis detection and is found to be superior to Doppler ultrasound in lesion detection especially outflow stenosis. MDCTA can be considered as an alternative to conventional angiography in armed forces class A hospitals for detecting AV fistula stenosis in order to decide transfer of the patient to tertiary care center for definitive management i.e. angioplasty or stenting.

ACKNOWLEDGEMENTS:
The authors extend their thanks to Dr. Taimur and Dr. Asma Tariq for conducting doppler ultrasound of arteriovenous fistulae and reporting them as well.

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20. Leypoldt JK. Diagnostic methods for vascular access: access flow measurements contributions to Nephrology 2002; 137: 31-37


ORIGINAL ARTICLE

An Audit Of Maternal Mortality At Jinnah Postgraduate Medical Centre Karachi

Razia Korejo1, Haleema Yasmin2, Shazia Naseeb3

ABSTRACT:
Objective: To evaluate the maternal deaths and causes in a tertiary care hospital.

Materials and Methods: This is an observational analytic study of one year from January 2012 - December 2012, carried out at the department of Obstetrics and Gynaecology Unit 1, Jinnah Post Graduate Medical Centre Karachi. A prospective analysis of one year data comprised of total obstetric admissions, total no of deliveries, live births and number of maternal deaths was done.

Results: During the period of one year the total number of deaths certified in the department was 55. During the same year the total number of obstetric admissions and total number of deliveries were 7784 and 6980 respectively. Fifty three (96.4%) maternal deaths were amongst non-booked patients. Direct causes were responsible for 70.9% of deaths. Hemorrhage was the direct leading cause and was responsible for 22 (40.2%), deaths. Eclampsia was responsible for 9 (16.4%) deaths. It was the leading cause among women having their first baby. Ruptured uterus was seen in 3 (5.4%) Patients. Three (5.4%) patients died as a result of complications of unsafe abortion. Anemia was the leading indirect cause of death responsible for 14.5% of cases followed by hepatic failure in 6 (10.9%) cases. Two patients died as a result of cardiac disease.

Conclusion: Maternal mortality still remains very high in the tertiary care centers, mainly due to high percentage of referred cases from the periphery brought in moribund condition.

Key words: Maternal Mortality, Audit, Safe Motherhood, Millennium Development Goal.

INTRODUCTION:
Maternal death is defined by "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental causes. In 2005, the global estimate for MMR was 402 maternal deaths per 100,000 live-births, with 99% of the burden borne by developing nations. Sub-Saharan Africa accounts for 50% of all maternal deaths globally. Of those, 70-80% is due to direct obstetric causes (complications of pregnancy, labor, delivery or the postpartum period) demonstrates the global distribution of the causes of maternal death. Indirect causes of maternal death account for women who die from any other disease during the maternal period (pregnancy and up to 42 days postpartum or postabortion). Indirect causes represent a varying spectrum of the burden of maternal deaths, from an average of approximately 4% in Latin America up to 13% in Asia and 17% in Africa. Overall disparities in maternal mortality between developed and developing countries are vast and unjustified, clearly illustrating the gap in access to quality healthcare services. In an analysis of 34 worldwide databases by a researcher the ranges found in the proportion of deaths attributable to a specific maternal cause across the region are good evidence of widespread social inequality: for example, taking the primary cause of global maternal deaths - postpartum hemorrhage (PPH) it is said that, in Africa alone, the percentage contribution of PPH to total maternal deaths varied between 13.3 and 43.6%. Even within individual low-resource countries, inequities in the risk of maternal death are prevalent. The result is not just reflected by the approximately 500,000 maternal deaths each year; it also leaves 10-20 million women affected by various degrees of illness related to pregnancy and childbirth.

In the mid- to late-19th century, the first phase of maternal mortality decline was observed in northwestern Europe (Sweden, Norway, Denmark and the Netherlands) and several decades later in Britain and the USA. Based on data from Sweden from between 1870 and 1900, the first phase of this reduction is attributed to the effectiveness of skilled attendance at childbirth. A second phase of maternal mortality decline was seen between the 1930s and the 1960s, and was a result of many advances in medicine, including cesarean section, penicillin, blood transfusion, institutional delivery and antenatal care. Maternal mortality decline in the USA and the Netherlands observed in the 1990s was also attributed to changes in population age-structure and parity.

Maternal mortality has a serious impact, not only on the family, but the community and the nation. Surviving children are at a 17-fold increased risk of death during the first 6 months. In spite of several initiatives, there has been no substantial reduction in maternal mortality in all developing countries, which contribute to approximately 98% of all maternal deaths. One of the Millennium Development Goals is to improve maternal health. Maternal death was chosen as the outcome measure with which to judge progress. The target is to reduce maternal mortality by 75% between 1990 and 2015. Periodic study and analysis of maternal mortality are therefore important to monitor progress. The present study was carried out to analyze maternal deaths in a tertiary care hospital.
MATERIALS AND METHODS:
Jinnah Postgraduate Medical Centre being the busiest and the premier referral hospital of the city, has 135 beds in the Obstetrics and Gynaecology Department with the annual admissions exceeding 16000 and approximately 14000 deliveries taking place every year. Booked cases are 20% and majority are referred cases, with some patients traveling over distances of 100 to 500km from province of Baluchistan and periphery of Sindh. An analysis of all maternal deaths in obstetric unit 1 of Jinnah postgraduate medical centre (JPMC), over a period of one year was done. Relevant data of number of obstetric admissions, number of deliveries, total number of maternal deaths and their characteristics have been obtained from the records of the department. Information was collected about women's booking status, age, parity, socio economic status and reasons for delay in reaching the hospital. Women who received antenatal care at least three times in this hospital were classified as booked while those referred from other institutions were classified as unbooked. The Causes of mortality were classified as in the international statistical classification of diseases and related health problems (ICD10). More than one factor may have led to death but the apparently dominating condition was listed as the cause of death. This was based on clinical judgment, as post mortem examinations were not done.

RESULTS:
During one year period total numbers of deaths certified in the department were 55, during the same year the total number of obstetric admissions and total numbers of deliveries were 7784 and 6980 respectively. The demographic profile of all maternal deaths is given in (Table 1). Majority (96.4%) of maternal deaths were seen in non booked patients only two patients died who were booked at JPMC. More than half of the maternal deaths (50.9%) belong to 21 - 30 years of age and 41.9% of them were multipara. Majority of the patients 30 (54.5%) patients died in immediate post partum period as shown in (Table -1).

Direct causes were responsible for 70.7% of deaths. Hemorrhage was the direct leading cause and was responsible for 22 (40.2%) deaths, nearly 60% of the patients died of post partum hemorrhage and they delivered outside the hospital either at their homes or at some small private maternity clinics. Eclampsia was responsible for 9 (16.4%) deaths. It was the leading cause among all women having their first baby. Ruptured uterus was seen in 3 (5.4%) patients. Three (5.4%) patients died as a result of complications of unsafe abortion. Anemia was the leading indirect cause of death responsible for 14.5% of cases followed by hepatic failure in 6 (10.9%) cases. Two patients died as result of cardiac diseases as shown in (Table 2).

Table 1
Demographic Profile Of Maternal Deaths

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Maternal Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Maternal Deaths</td>
<td>n = 55</td>
</tr>
<tr>
<td>Booked</td>
<td>2 (3.6%)</td>
</tr>
<tr>
<td>Un-booked</td>
<td>53 (96.4%)</td>
</tr>
<tr>
<td>Age in years</td>
<td></td>
</tr>
<tr>
<td>15 - 20</td>
<td>7 (12.7%)</td>
</tr>
<tr>
<td>21 - 30</td>
<td>28 (50.9%)</td>
</tr>
<tr>
<td>31- 40</td>
<td>18 (32.8%)</td>
</tr>
<tr>
<td>&gt; 40</td>
<td>2 (3.6%)</td>
</tr>
<tr>
<td>PARITY</td>
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</tr>
<tr>
<td>0 + 0</td>
<td>19 (34.5%)</td>
</tr>
<tr>
<td>1 - 4</td>
<td>23 (41.9%)</td>
</tr>
<tr>
<td>5 &amp; more</td>
<td>13 (23.6%)</td>
</tr>
</tbody>
</table>

| Delivery Status             |                 |
| Abortion                    | 5 (9.0%)        |
| Un-delivered                | 20 (36.5%)      |
| Delivered                   | 30 (54.5%)      |

Table 2
Cause of deaths

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Haemorrhage</td>
</tr>
<tr>
<td>Eclampsia</td>
</tr>
<tr>
<td>Ruptured uterus</td>
</tr>
<tr>
<td>Abortion</td>
</tr>
<tr>
<td>Embolism</td>
</tr>
<tr>
<td>Anemia</td>
</tr>
<tr>
<td>Hepatic failure</td>
</tr>
<tr>
<td>Cardiac disease</td>
</tr>
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</table>

DISCUSSION:
In Pakistan each year over 5 million women become pregnant. Of these 0.7 million (15% of all pregnant women) are likely to experience some obstetrical and medical complications. An estimated 30,000 women die each year due to pregnancy related causes. Reduction of maternal mortality is an important Millennium Development Goal of special concern in low income countries like Pakistan. Direct causes of maternal mortality are still the leading causes in this institution, similar to other developing countries and the other teaching institutions of this country. Ruptured uterus were collectively responsible for 56.6% of maternal deaths in this institution during the study period. This is again probably due to late referral of complicated cases to the hospital. In the present analysis obstetrics hemorrhage is the leading cause of maternal deaths. Majority of these deaths were due to post partum hemorrhage and they delivered outside the hospital either at their home or at some small private maternity clinics. These women were brought moribund, in irreversible hypovolaemic shock and succumbed despite availability of specialist doctors and blood transfusion facilities.
Although obstetric hemorrhage was managed immediately and appropriately but they could not saved. Hemorrhage is the commonest cause of death globally with an estimated 166,000 deaths from hemorrhage each year an estimated half occur in sub-Saharan African and more then a third in South Asia.13, 14, 15

Deaths from eclampsia constituted 16.4% of deaths. This is also comparable with other studies of developing countries and the other teaching institution of this country 13,14,15,16,17 women who died due to complication of unsafe abortion 5.4% This reconfirms the fact that even in a metropolitan city like Karachi where access to family planning clinics is not an issue, women do not use contraception but opt for abortion to terminate an unwanted and unplanned pregnancy, usually under unsafe conditions 7, 16, 17, 18 Ruptured uterus due to obstructed labour resulted in 5.4% of deaths. Similar observations were made by other authors.19, 20, 21

Deaths from severe anemia resulting in anemic failure are still high, accounting for 14.5% of deaths. Reason for this is the high prevalence of anemia in the population especially in pregnant women. This is also comparable with other studies from within and outside the country 22, 23, 24 Pre-existing anemia worsens as pregnancy advances leading to congestive heart failure and death. Anemia also contributed to deaths due to hemorrhage and infection. The majority of patients who died of hemorrhage had pre-existent anemia some of them quite severe. Similarly all the patients who died of infection had lowered resistance because of anemia. Yet another factor is the lack of antenatal care. Most of the women in this country as yet do not realize the significance of antenatal care and therefore seek no advice and have no treatment during pregnancy.24, 25

CONCLUSION:
Maternal mortality still remains very high in tertiary care centers, mainly due to high percentage of referred cases from periphery in moribund conditions. Ensuring appropriate provision of emergency obstetric care at peripheral first referral level hospitals can reduce the number of seriously ill patients at the tertiary care hospitals. Medical causes of maternal deaths are largely dependent on the various social factors, such as socioeconomic status, literacy, high parity and health status of women, and should be addressed properly.

REFERENCES:


INTRODUCTION:
Premenstrual syndrome refers to distressing physical, psychological and behavioural symptoms not caused by organic disease, which regularly occurs during the luteal phase of menstrual cycle and significantly regresses or disappears during the remainder of the cycle. Premenstrual syndromes (PMS) are quite prevalent among women of reproductive age. Even though the etiology of PMS is still unknown, several treatment modalities have been shown to be effective. Diagnosis of premenstrual syndrome is made when the symptoms occur before the onset of menstrual periods and subside a few days after they start. These symptoms may be physical or psychological, and they vary in severity from mild, moderate to severe. Depending on the severity of the symptoms, it could be unbearable and leads to disruption of work and social life of women who are afflicted by it. Despite the prevalence of the disorder, the availability of treatment and media exposure, many lay people and professionals are still unaware of its impact on the individual, her family and environment. Premenstrual impairment may be more severe at home, influencing marital relationships and homemaking, as compared to social and out-of-home occupational impairment. A lot of premenstrual complaints have been reported in patients with PMS. Only a handful of these symptoms are consistently assessed and identified in studies, most commonly irritability, tension, depression, bloating, mastalgia, and headache. Premenstrual syndrome is often classified under the generic term Premenstrual Syndrome which is listed in the International Statistical Classification of diseases and Related Health Problems, 10th revision (ICD-10). The DSM-IV research criteria for this disorder help to identify and classify women who experience severe psychological symptoms during the premenstrual phase. DSM-IV defines the premenstrual syndrome (PMS) as a separate entity: premenstrual symptoms must occur in the last week before the start of menstrual cycle and remit within a few days of the onset of menses; they must also be severe enough to interfere with work, family and social relationships; at least 4 symptoms (including at least one of the major dysphoric symptom out of a list of 11) must be present. Despite its official status recognized globally as a medical disorder, it is rarely discussed in Pakistan and is surrounded by stigma which leads to lot of misconceptions. Our research was not confined to any specific age group. It has been estimated from retrospective community surveys that nearly 90% of women have experienced at least one premenstrual syndrome (PMS) as defined by ICD-10 criteria. It is notable that the majority of women suffering from premenstrual syndrome PMS (55%) in this study, never used any treatment or medication to relieve their symptoms. This is the cultural influence that Pakistani women accept to believe that these symptoms are part of being a woman rather than complain about it, there are more pains to bear as a woman. Education about body physiology and counselling for Pakistani women, especially the less privileged one, is recommended to educate the people about Premenstrual syndrome, and to reduce its incidence and improve the quality of life in the affected females.

Research has been done on PMS in many countries but very few studies have been reported on the experience of Pakistani women. This study has been conducted to find out the prevalence of premenstrual syndrome (PMS)
MATERIALS AND METHODS:
The study was conducted in various cities of Pakistan that is Islamabad, Quetta, Karachi, Multan, Hyderabad at different hospitals, universities, colleges and shopping malls. It took 6 months i.e. from 1st August 2010 to 31st January 2011 to collect and analyze the data. The team asked the participants to fill out self-administered closed ended questionnaire designed using the validated criterion of DSM IV. All women of reproductive age who gave verbal consent were included in the study. Women who were pregnant, lactating, wanted new pregnancy, taking contraceptive pills or injections and with cycles more than 35 days in length were excluded from the study. Women with medical disorder such as thyroid disease, irregular menstrual cycle and psychiatric disorders were also excluded. Symptoms studied were physical, psychological and behavioral. Each woman enrolled in this study was followed for two consecutive cycles. The ratings were prospectively completed for 2 menstrual cycles. The days of the period and the days on which the symptoms caused any dysfunction were studied separately. Last week of the luteal phase i.e. the week before onset of menstruation was compared with first week of follicular phase, beginning on day 2 of the same cycle. Numbers of the symptoms present were noted on each day of luteal phase starting from day 14 of the same cycle, assuming total cycle length to be 28 days. It was also asked in the questionnaire if symptoms were relieved with onset of menstruation.

Study Tool:
The questionnaire for study was designed on DSM IV criteria according to which there are 11 premenstrual syndrome symptoms based on occurrence and severity, labeled to diagnose PMS. If 4 of them are positive, than a female is suffering from PMS. DSM-IV criteria was used by the American Psychiatric Association to diagnose premenstrual syndrome which is called premenstrual dysphoric disorder. This is characterized by the presence of at least five symptoms (one of which must be affective) that occur in the late luteal phase, are not a luteal exacerbation of an existing psychiatric condition, that significantly interferes with social activities or relationships with others. Symptoms are depressed mood, anxiety and tension, fluctuating moods, anger and irritability, decreased interest, poor concentration, lethargy and fatigue, change in appetite, feeling overwhelmed and out of control. Physical symptoms include breast tenderness and weight gain.

Sample Size: The sample size was 382, calculated by using standard statistical formula.

RESULTS:
Out of 382 women included in the study, 143 were married and 239 were single (Fig 1a). Women belonged to a diverse economic strata and ethnic backgrounds. The prevalence of premenstrual syndrome was 55%. The common symptoms occurring in PMS were depression, tension and irritability, labile mood, bloating, swollen breast, increased appetite, sleeping disturbances and headache.

Prevalence of depression was 147 (fig 1b). Prevalence of tension and irritability was 204 (fig 2a). Labile mood was 261 (fig 2b), bloating and body aches was 306 (fig 2c). Headache was present in 277 (fig 2d). Swollen breast was 69, sleep disturbance i.e. insomnia was 158 and increased appetite was 132 and headache was 277 (fig 3).
Blue colour shows positive results

Fig 2. Tension and irritability, labile mood, body aches, and headache.

Fig 3. Swollen breast, sleep disturbance (insomnia), and increased appetite.
DISCUSSION:
It has been estimated that as many as 80% of women of reproductive age may be suffering from some symptoms of Premenstrual syndrome. Premenstrual syndrome, a common cyclic disorder of young and middle-aged women, is characterized by emotional and physical symptoms that consistently occur during the luteal phase of the menstrual cycle. Premenstrual syndrome is a diagnosis of exclusion; therefore, alternative explanations for symptoms must be considered before either diagnosis is made. The disorders can manifest with a wide variety of symptoms, including depression, mood liability, abdominal pain, breast tenderness, headache, and fatigue. However, mood symptoms—anxiety, irritability, and mood liability were the most stable symptoms in this group of women with PMS.

Although the etiology of these disorders remains uncertain, research suggests that altered regulation of neurohormones and neurotransmitters is involved. The three classes of endogenous opioid peptides are endorphins, enkephalins and dynorphins. Beta-endorphin is the major representative of endogenous opioid peptides. Previous studies have suggested the symptoms of Premenstrual syndrome may be due to noradrenergic rebound following beta-endorphin decline. Women with PMS should be instructed about lifestyle changes, including healthy diet, sodium and caffeine restriction, exercise, and stress reduction. Supportive strategies, such as use of a symptom diary, may be helpful in diagnosing and managing the disorders. In women with moderate symptoms, treatment includes both medication and lifestyle modifications. Dietary supplements, such as calcium and evening primrose oil, may offer modest benefit. Many researchers suggest that a variety of nutrients may have an important function in the phase related mood and behavioural disturbances of the premenstrual syndrome. Different studies suggest, at least a little of these micronutrients, mainly calcium and vitamin D, supporting cyclic fluctuations throughout the menstrual cycle that may explain some features of premenstrual syndrome (PMS).

Ovarian hormones have an influence on calcium, magnesium and vitamin D metabolism. Estrogen regulates the calcium metabolism, intestinal calcium absorption and parathyroid hormone secretion, causing fluctuations during menstrual cycle. The similarity between the findings of premenstrual syndromelike depression, anxiety and behavioural changes and hypocalcemia is significant. Clinical trials suggest that blood calcium and vitamin D levels are lower in women with premenstrual syndrome and that calcium supplementation has reduced the severity of symptoms. This put forwards that PMS represents the clinical appearance of a calcium deficiency state which is revealed by the rise of ovarian steroid hormone concentrations during the menstrual cycle. So the possibility of suffering from premenstrual syndrome is lower in women who consume more dairy products in daily life.

Selective serotonin reuptake inhibitors such as fluoxetine and sertraline are the most effective pharmacologic agents. Serotonin deficiency is proposed because patients who are most influenced by PMS have decreased level of serotonin. Selective serotonin reuptake inhibitors (SSRIs), the medications that increase the level of circulating serotonin are reported to relieve the symptoms of premenstrual syndrome. Serotonin is predominantly involved in the depressive symptoms, expression of irritability, anger, specific food cravings, specifically found in the premenstrual syndrome. Along with their different effects, estrogens increase the density of serotonin receptors enhancing the sensitivity to serotonin agonists.

Prostaglandin inhibitors and diuretics may provide some relief of symptoms. Usually the women with premenstrual syndrome have an exaggerated response to normal hormonal changes. Rapidly shifting levels of estrogen and progesterone promote pronounced emotional, behavioral and physical responses, although their hormonal levels are similar to women without premenstrual syndrome. Only weak evidence supports the effectiveness of gonadotropin-releasing hormone agonists, androgenic agents, estrogen, progesterone, or other psycho-tropics, and side effects limit their use. The Premenstrual syndrome was considered for a long time resembling a somatic disease, but currently the psychiatric symptoms severity justifies most often the medical cares. In order to discriminate some isolated and mild complaints, of a disabling disorder, the standardized prospective auto-assessment is the most applicable method. Ultimately, intermittent prescription of serotonin re-uptake inhibitors appears to be an effective treatment. As not a single drug has been proven valuable in the treatment of premenstrual syndrome, consequently, its management includes education, reassurance and drug therapy. There is a need to build up methods to conduct the trials in rural and urban areas to find out the exact prevalence of the disease. There is a need to recognize the syndrome and develop perception regarding its assessment, diagnosis and treatment among the physicians.

CONCLUSION:
Premenstrual syndrome is a common cyclic disorder of young and middle-aged women that is poorly recognized and inadequately treated. Physical and emotional symptoms are quite common in the luteal phase of the Pakistani women and have a significant impact on their daily life activities. Doctors should adopt comprehensive measures to reduce its prevalence and improve the quality of life in the affected population.
AKNOWLEDGEMENT:
We are thankful to Dr. Sabeena Jalal Khan, Department of Community Health Sciences for her supervision.

REFERENCES:
1. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)
2. ICD-10 (World Health Organization (WHO), 1992
25. Jacobs S.J. Micronutrients and the premenstrual
INTRODUCTION:
Gestational diabetes is the type of diabetes that occurs in pregnancy. According to WHO criteria, females with pregnancy beyond first trimester having FBS equals to or more than 5.5 mmol/l(100mg/dl) and post prandial glucose levels greater than 7 mmol/l (126mg/dl) are diagnosed as having gestational diabetes mellitus (GDM). 

Pregnancy is a potentially glucose intolerant condition and in all pregnancies insulin sensitivity decreases as the pregnancy advances predisposing the females to develop GDM.

The prevalence of GDM is on the verge of rising, from 1995 to 2005, it is documented to have increased by 45% overall, that is from 3.0 to 4.4% worldwide. Women in South Asia are documented to be at the highest risk to develop GDM.

It is seen in approximately 3-9% of pregnancies

Placenta plays an important role in fetal nutrition and growth as it is concern with supply of oxygen, nutrients, immunoglobins and also releases multiple hormones for the continuation of pregnancy. It is a connecting unit between mother and the fetus thus provides the information regarding infants prenatal experiences. 

Human placenta has a complex vascular system that allows exchange of different materials with fetal and maternal blood. The successful development, growth and maturity of feto-placental vessels are important for normal fetal growth and survival.

As glucose in the blood can cross placenta, the fetus gets exposed to hyperglycemic blood coming from the diabetic mother through umbilical cord. By the end of 12th week of gestation, fetal pancreas takes over the function of production and release of insulin. Insulin is a very important metabolic hormone. It is necessary for proper entry and utilization of glucose in the cell. As large amount of glucose enter the fetal blood, excessive production of insulin occurs from fetal pancreas. Thus large amount of glucose gets stored in the form of glycogen in the cell, resulting in macrosomic babies and multiple complications. Hyper-insulinemia in utero affects fetus as well as placenta.

Thus any metabolic change as in Gestational Diabetes Mellitus in maternal blood can affect placental morphology and functioning. It is said that early diagnosis and prompt treatment of GDM females is very important so as to avoid multiple obstetric complications and adverse maternal and fetal outcomes such as cesarean section due to macrosomic babies, fetal distress,congenital abnormalities, respiratory distress syndrome, hyperbilirubinemia, polycythemia, and at times unexplained term intrauterine death and still births. This study was carried out to observe the gross morphology of placentas and feto-maternal outcome in patients having gestational diabetes mellitus receiving oral and or parenteral therapy along with diet control and exercise.

MATERIALS AND METHODS:
This descriptive pilot study was carried out in June-July 2010, at Lyari General Hospital and Mamji Hospital, Karachi following approval by IRB and ERB of DowUniversity of Health Sciences, Karachi as a part to fulfill the requirement of MPhil. Verbal informed consent was taken and after delivery 20 placentae were collected from the GDM patients who received oral and
or parenteral treatment with diet control and exercise during pregnancy. The placentae were preserved in 10% formalin within 30-40 minutes of delivery. Placental gross findings were documented on a predesigned data form including name, age, weight and height of the patient, weight, size consistency of placental tissue, attachment, size and color of the cord, membranes complete or incomplete, retroplacental hemorrhages and any other gross abnormality in the placental tissue. Fetal and maternal outcome were observed by determinants as fetal health and weight and mode of delivery respectively. Data was evaluated by using SPSS version 16.

RESULTS:
Mean patients age was 32.45±4.51 years, mean patient weight was 80.62±5.83 grams. Fasting and random blood sugar level were 115±35.1 mg/dl and 252±65.97 mg/dl respectively. (Table 1) Mean placental size was 18.3±3.22 cm and 14.2±2.14 cm in two dimensions with mean placental width of 2.4±0.94 cm. Mean placental weight was 680±122.9 grams, mean cord length was 19.55±7.22 cm and mean cord width 1.17±0.51 cm (Table 2a) Out of 20 placentae, 13 placentae were disc shaped, 19 placentae were soft in consistency, 8 were blue in color, 7 had central insertion of umbilical cord, 14 had complete membranes and 16 had other gross pathologies such as hemorrhages, fibrinoid necrosis etc. (Table 2b) Weight of the baby was 3.4±0.38 kg. There was 1 intrauterine death and out of 20 patients 13 had cesarean deliveries. (Table 3).

DISCUSSION:
Gestational diabetes is any degree of glucose intolerance that occurs in pregnant females after 1st trimester of pregnancy. Gestational diabetes is said to produce changes in placenta as placental tissues are liable to change with maternal metabolic issues. In our results, patients mean age and weight were 32.45±4.51 years and 80.62±5.83 kg respectively. Debelle took the similar gestational diabetics patients for her study

**TABLE 1**
MATERNAL CHARACTERISTICS
N=20
<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Mean± SD</th>
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<tbody>
<tr>
<td>Patient age (years)</td>
<td>32.45±4.51</td>
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<tr>
<td>Patient weight (kg)</td>
<td>80.62±5.83</td>
</tr>
<tr>
<td>FBS at the time of enrollment</td>
<td>115±35.1</td>
</tr>
<tr>
<td>RBS at the time of enrollment</td>
<td>252±65.97</td>
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**TABLE 2a**
GROSS EXAMINATION OF DIABETIC PLACENTA
N=20
<table>
<thead>
<tr>
<th>Placental Variables</th>
<th>Mean ±SD</th>
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<tbody>
<tr>
<td>Placental size1(cm)</td>
<td>18.3±3.22</td>
</tr>
<tr>
<td>Placental size2(cm)</td>
<td>14.2±2.14</td>
</tr>
<tr>
<td>Placental width(cm)</td>
<td>2.4±0.94</td>
</tr>
<tr>
<td>Placental weight(gm)</td>
<td>680±122.9</td>
</tr>
<tr>
<td>Cord length(cm)</td>
<td>19.55±7.22</td>
</tr>
<tr>
<td>Cord width(cm)</td>
<td>1.17±0.51</td>
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</table>

**TABLE 2b**
GROSS EXAMINATION OF DIABETIC PLACENTA
N=20
<table>
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<th>Placental Variables</th>
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<tr>
<td>Non-disc like</td>
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<td>Placental consistency</td>
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<td>peripheral</td>
<td>13</td>
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<td>Membranes</td>
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<td>Complete</td>
<td>14</td>
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<tr>
<td>Incomplete</td>
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<tr>
<td>Gross deformity:</td>
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<tr>
<td>Present</td>
<td>16</td>
</tr>
<tr>
<td>Absent</td>
<td>4</td>
</tr>
</tbody>
</table>

**TABLE 3**
FETAL AND MATERNAL OUTCOME
N=20
| Weight of the baby (kg):         | 3.43±0.38 |
| Condition of the baby            |           |
| Alive baby                       | 19        |
| IUD                              | 1         |
| Still births                     | 0         |
| Mode of delivery                 |           |
| Normal vaginal                   | 5         |
| Assisted deliveries              | 2         |
| Cesarean section                 | 13        |
Our results have shown that placental size and weight in GDM females 18.3×14.2 cm and 694 gms respectively. Kucuk had stated the same in his research that placental weight and size was 18 cm and weight 694 grams in GDM females and this is coinciding to our results. These results also coincide with the work of Ashfaq and Akhter with similar diabetic placentae weight, central thickness and diameter and the results of both these studies are in favor of our findings. Yalter has documented that in normal pregnancy, the average placental size is 22 cm (9 inch) and weight is 2-2.5 cm (0.8-1 inch). It typically weighs approximately 500 grams (1 lb). It has a pale, dark reddish or maroon color. It is connected to the fetus by an umbilical cord of approximately 55-60 cm (22-24 inch) in length that contains two arteries and one vein. Placentae in our study had weight much higher than described by Yalter indicating that they were not normal. Umbilical cord length and thickness depends on the amount of wharton jelly present and the vessels luminal diameter. The results described by Predanicare in concurrence with our findings of placental cords size and thickness. Verma has discussed about major gross examination of placentae including membrane completeness, placental shape, consistency, cord insertion, cord color and gross pathologies such as fibrinoid necrosis and hemorrhages and the results are similar to ours. Villous fibrinoid necrosis is an established old coagulative infarcted tissue with fibrin deposition which probably is derived from plasma and has leaked out of necrotic villi. Villous necrosis was present in 16 (80%) GDM placentae. It has been noticed that massive fibrin deposition can lead to fetal growth restriction and fetal death. Tewari stated the similar figures (80%) regarding fibrinoid necrosis in diabetic placentae.

Fetal hyper-insulinemia had direct and indirect effects on placental tissue probably producing excessive growth and increase in placental weight. Increased placental volume compensates the need of growing babies to an extent and after that state of hypoxia generates leading to adverse fetal and maternal outcomes, even at times unexplained termed intrauterine deaths. When fetal outcomes were compared, it was seen that babies were good weight i.e. 3.43 kg which is similar to the fetal outcomes documented by Odar. The normal reference range for a term baby at 97th percentile is 2.23 kg. This shows that babies of our GDM females were heavier than documented facts. The reason behind this might be the hyper-insulinemic state of the fetus affecting both the placental and fetal growth. Jansson described that probably excessive fetal growth is the result of increase in substrate availability which stimulates fetal insulin secretion and its growth. Finally in diabetic pregnancies, the defect lies in altered placental nutrient transport and metabolism.

In our study, cesarean section rate was high (65%). Goldman has stated the same with probable reason of increased fetal weight in GDM group. There was 1 intrauterine death out of 20 fetuses that is 5%. Excessive growth of fetus which increases the oxygen demands could be responsible for this outcome. It has been documented that placenta tries to compensate this to an extent but when the baby is grown enough and is near term, it cannot fulfill the requirements of fetus resulting in unexplained term intrauterine death in these patients. Gaunter has stated the same and his results are coinciding with our findings.

CONCLUSION:
Gross morphology of placenta exhibited multiple deformities with adverse fetal and maternal outcomes. Future studies regarding placental and feto-maternal outcome should be undertaken to evaluate and compare the specific effects of drug.

REFERENCES:
STUDENTS CORNER

Self-Medication Practice Among the General Community Of An Urban Squatter Settlement Near PNS Shifa Karachi
Amna Younus, Mehek Yousafzai, Rabia Zafar, Omer Zahoor, Anum Zahra, Somaeya Zubair, Urooj Fatima, Nadia Khalid

ABSTRACT:
Objective: To assess the frequency of self-medication amongst the residents of urban squatter settlement near PNS Shifa Karachi and to assess the factors leading to this practice.

Materials and Methods: This cross-sectional descriptive study was conducted in the city of Karachi. The subjects were the community in general. A total of 60 subjects were enrolled and were either interviewed face-to-face or were asked to fill out the questionnaire relating to their self-medication practice.

Results: Out of 60 subjects, 38 (63.3%) preferred the practice of self-medication. Minor ailment was the main reason for self-medication, 27 (45%) subjects responded headache as the most common reason and paracetamol was the most frequently used drug for self medication. It was used by 44 (73.3%) of the subjects.

Conclusion: The practice of self medication is high in the community and there is a need to develop awareness of self-medication practice in the public along with restrictions for the pharmacies providing drugs without prescriptions.

Key words: Self-medication, Community, urban squatter, frequency, Karachi.

INTRODUCTION:
In 1995, the WHO committee on national drug policies stated: "Self-medication is widely practiced in both developed and developing countries." Medications maybe approved as being safe for self-medication by the National Drug Regulatory Authority, after considering the socio-economical status of the community. Most of these medicines are normally used for the prevention or treatment of minor ailments or symptoms, which usually do not justify medical consultation and are classified as over the counter drugs (OTC). In some chronic or recurring illnesses, after initial diagnosis and prescription, self-medication is possible but the role of doctor’s advice is very important. The concept of self-health management includes behavior such as health maintenance, and illness prevention, self-diagnosis, self-treatment, symptom evaluation, and consultation with a variety of informal and formal health care practitioners. Most of the illnesses are handled by some form of self-treatment and are not brought to the attention of a health care professional.

Self-medication has been a natural tendency of human beings at all times. Wherever individual fells sick, they try to take something for relief. There is a historical background of self-medication that, people either apply or take something to feel better. They try everything; a plant, animal or mineral origin extract or mixtures to combat their sickness present in their environment. This is usually reasoned to be due to lack of education, lack of time, consultation fee, travelling time, minor illnesses etc. with this background this study was carried out to access the frequency of self medication in the community amongst the residents of urban squatter settlement in area of Karachi.

MATERIALS AND METHODS:
A cross-sectional descriptive study was conducted in Karachi after the departmental approval in August 2013 in urban squatter settlement adjacent to PNS Shifa DHA-II Karachi. A total of 60 subjects were chosen at random and consent was taken. One to one interview was done by utilizing a questionnaire to determine their practice of and to deduce reasons towards their use of self-medication. Any queries regarding the questionnaire and study were answered beforehand. Inclusion criteria for the study were consenting subjects between the ages of 20-40 years of either gender. The data obtained from the study was analyzed with SPSS version 15.

RESULTS:
Our study showed that among the 60 respondents (29 males, 31 females), the practice of self medication was high and minor ailments were the reason of self medication. Education level 10 subjects (16.8%) had some sort of education. Other levels of education were 5 (8.3%) primary education while 13 (21.7%) had no formal education. Minor ailments were the reason of self medication. Any queries regarding the questionnaire and study were answered beforehand. Inclusion criteria for the study were consenting subjects between the ages of 20-40 years of either gender. The data obtained from the study was analyzed with SPSS version 15.

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
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<td>1.7</td>
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Medical illness sufferers
26 (43.3%) respondents out of 60 were suffering from some kind of medical illness.

Measures taken for illness
There were measures taken by subjects for their respective illnesses. 29 subjects (48.3%) preferred to visit a physician, 27 (45%) self-medicated and 4 (6.7%) did not take any medication.

Medication taken without doctor's advice
In response to taking medication without doctor's advice within the past 2 months, 37 subjects (61.7%) responded as 'yes' i.e. they did take advice from the doctor and 23 (38.3%) responded as 'no.'

Preference of self-medication instead of doctor visit
38 (63.3%) subjects preferred taking self-medication over visiting a doctor.

Reasons for not consulting a doctor
30 subjects (50%) reasoned as not having a serious illness i.e. minor illness and that is why they did not consult the doctor (as shown in Fig-1). 16 subjects (26.7%) documents lack of time, 9 (15%) were drawn back by the cost of consultation. 4 (6.7%) preferred taking advice from a friend followed by only 1 subject (1.7%) withheld by the travelling time.

Sources used to get knowledge of a medicine
About 39 individuals (65%) get their knowledge from family/friends/neighbours. Pharmacist played a role for 14 (23.3%) and 4 (6.7) get their advice from traditional healers. 3 subjects (5%) responded as getting knowledge from other sources.

Common problems/symptoms leading to self-medication usage
Headache being the most common symptom 27 (45%), fever coming in next 10 (16.7%) and flu 7 (11.7%) (Fig-2). Followed by pain elsewhere and diarrhea with 6 subjects (10%) each. 3 subjects (5%) responded as allergy being their main symptom and 1 (1.7%) displayed depression as the cause.

Fig. 2: Common problems/symptoms leading to Self-medication

Drugs commonly used for self-medication
Paracetamol is the most commonly used drug by 44 respondents (73.3%), followed by other analgesics by 11 respondents (18.3%). Least common were antibiotics and sleeping pills by 2 individuals (3.3%) each. Only 1 individual (1.7%) responded for most common use of anti-allergic drugs (Fig-3).

Fig. 3: Drugs commonly used for Self-medication

Medication preference
38 (63.3%) preferred taking self-medication over visiting a doctor.

Reasons for not consulting a doctor
Minor ailment was the main reason for self-medication in 21 subjects (35%). This was followed by 19 respondents (31.7%) as lack of time for consultation, 6 (10%) as easy availability of drugs, 4 (6.7%) to avoid consultation charges. 3 subjects (5%) for each reason of being habitual and not having to notice any side effects to date. Prior experience of illness played a role for 2 respondents (3.3%). For urgent use and having prior knowledge of pharmacology, both reasons were responded by 1 subject (1.7%) each.
Number of tablets taken at a time
Most individuals take 1 or 2 tablets at a time i.e. 28 subjects (46.7%), 3 respondents (5%) took 3 tablets at a time, and 1 (1.7%) took more than 4 at one time.

Time gap given between doses
About 15 individuals (25%) give a gap of more than 6 hours, followed by 5 or 6 hours by 11 (18.3%) each. 7 subjects (11.7%) responded as giving a time gap of 4 hours, 5 (8.3%) as 3 hours, 4 (6.7%) as 2 or less than 1 hour each and 3 subjects (5%) as giving a gap of 1 hour.

Awareness of side effects of self-medication
Awareness of side effects due to self-medication, was documented by 26 individuals (43.3%) whereas, 8 (13.3%) responded as 'I don't know' and the 26 had no awareness whatsoever.

Experience of I/V drips without consultation
The result of this was equal i.e. 30 subjects (50%) had experienced I/V drips without consultation and the same number of individuals had not.

Relief from I/V drip experience without consultation
29 respondents (48.3%) showed that they did had relief when experiencing drips without consultation whereas, 31 (51.7%) had no relief.

DISCUSSION:
Self-medication can be defined as use of medicine without prescription by people on their own initiative. Self-medication is practiced universally and is higher in low and middle-income countries. Its prevalence is 68% in European countries, 31% in India, 59% in Nepal, going as high as 92% among the adolescents of Kuwait. In contrast, our study showed that 63.3% preferred taking medication on their own rather than visiting the doctor. In our study, about 78.3% individuals had some sort of education and yet, their practice in self-medication was comparatively high, showing there is a direct correlation between education and self-medication. It has been reported in studies that 76% of medical students in Karachi self-medicate. Similarly, a study conducted amongst the medical and non-medical university students in Karachi showed that the frequency of self-medication is 80%. A study that took place in Nepal reported that 59% respondents had taken some form of self-medication during the preceding six months. Correlating with our study in which 61.7% responded as self-medicating in the past 2 months, a very high percentage in deed. About half of the subjects reasoned as not having a serious illness leading to their practice of self-medication. This was followed by many other reasons such as; lack of time, cost of consultation, travelling time, free availability of drugs etc. Abay and Amelo in an Ethiopian study showed that the two major reasons for self-medication were prior experience and non-seriousness. A very high percentage i.e. 65% answered as getting advice from friends/ family and neighbours regarding their medication and some took medicine in a dosage more than normal because of some psychological disorders. Followed by 23.3% who got knowledge from the medical stores. A very small percentage of persons at medical stores actually give the appropriate medication when consulted. Cohen showed in his study that 62.5% of the population was compelled by relatives and friends to take home remedies to relieve pulpalgia instead of going to dentists. Most commonly self-medication was done for headaches (45%) and hence, analgesics such as paracetamol (73.3%) is the most widely used drug for self-medication. In Nepal, fever and headache were the most commonly reported symptoms along with Paracetamol and analgesics being the most commonly used drug and class of drugs respectively. A Nigerian study also revealed analgesics to be the highly used medication for self-treatment. Among university students of Karachi, headache (62.3%) once again proved to be the main symptom along with use of pain killers (65.7%). More than half of the respondents (56.7%) were not aware of the side effects that could result from self-medication. Self medication increases the chances of illicit use of drug, drug dependency and most of all masking the sign and symptoms of underlying disease hence, complicates the problem, creating drug resistance and delaying diagnosis.

CONCLUSION:
The frequency of self-medication practice among the general population is very high, predominantly within the educated persons. Measures must be taken to create widespread awareness of the effects of self-medication. Prescription drug should not be made available for over-the-counter use. Facilitation of healthcare to all can reduce this practice at a mass scale. Self-medication is a very risky problem that must not be ignored.

REFERENCES:
COMMENTARY

Fissure Sealants - Role in Dental Public Health in Context to Pakistan
Abid Mohsin1, Saman Hakeem2

ABSTRACT:
Literature reports that first molars are the first to be lost due to dental caries in children globally. They also experience greater decay in pits and fissures which are relatively inaccessible to regular oral hygiene aids. Many preventive strategies have been instituted for reducing dental caries in general among children. Pits and fissures caries are difficult to counter by fluoridation alone. The role of pits and fissures sealants in dental public health programs have become significant especially in children. Such programs have been targeted towards private practice globally in the past. In a country with deprived economic conditions, health care system and low literacy rate the success of such a program is unlikely. This article highlights the significance of caries prevention in general and the role of fissure sealants in dental public health programs in particular. Limitations of such programs and possible solutions to have a greater impact on prevention through sealants in a cost effective manner in context to local circumstances are also mentioned.

Keywords - pit and fissure sealants; child; dental caries

Patterns of tooth loss are quite consistent across the globe in all age groups, first molars being the first to be lost. The major reason of loss of first molar among children is dental caries. In developing countries like Pakistan, the caries prevalence among children is high, the molars being worst affected. Literature cites that occlusal surfaces in oral cavity are just 12.5% out of which 2/3rd of the caries experienced by children start from the pits and fissures of teeth. Moreover due to rapid urbanization and changing dietary patterns have led to greater decay in pits and fissures which are relatively inaccessible to oral hygiene aids. In rural regions of the country, the prevalence and DMFT may be low but untreated lesions are high. This may be attributed to lack of awareness and resources for treatment.

There is a dearth of literature regarding the preventive strategies for reducing dental caries in children. But, before instituting any strategy, the responsible factors for caries need to be identified for that population. Medications, poor oral hygiene skills/habits and poor dietary habits have been identified as general reasons in all age groups. Insufficient fluoridation and deep pits and fissures among children are the major causes together with the increase in fermentable carbohydrates in diet. Even otherwise fluoridation has least affect in pits and fissures of teeth. Globally fluoridation has been used on a large scale to counter dental caries with successful results. Oral health instructions, education and dietary counseling has also been utilized through private practice, school based and school linked programs. Other strategies comprising of bacterial count monitoring, antimicrobial agents and conservative restorative treatment have minimal role in public health programs. However, most of these strategies, especially fluoridation, affect the smooth surfaces to greater extent. As the morphology of pits and fissures becomes unfavorable for access, the role of fluoride or the oral hygiene aids becomes minimal. Dietary habits also influence the caries development more in these areas. Hence the use of sealants, appropriately called pits and fissures sealants, becomes a necessary component of caries prevention. Sealants conservatively occlude the pits and fissures cutting off access of fermentable carbohydrates to the bacteria in contrast to fluoridation and Hyatt’s technique of prophylactic odontomy. Hence, the bacteria become non cariogenic. Its efficacy for incipient lesions also necessitates its role as a complementary aid to fluoride use on a large scale.

Furthermore, sealants are highly efficacious in reducing caries development especially in children when they are not aware of oral hygiene methods. They are minimally invasive and no patient compliance is needed. The retention of sealants has been under debate but studies have shown that long term retention rates are high. The usual loss is in the first 6 months which is attributed to poor initial adherence to tooth surface. Once proper bonding of sealant is achieved the efficacy rises to 100 percent. So, following of proper procedural protocol by a skilled operator, it can be safely said that sealants are effective in reducing caries in children. This all stands true in a private setting. However, for a successful
public health program, an easy applicable procedure taking minimum time and cost is imperative. For bonding procedures, ready adherence to enamel and easy manageable cleaning of the tooth is crucial for the program to be highly effective. The type and position of the tooth, eruption status, age and behavior of the child, skill of the operator may hinder proper application in a limited time scale. Besides, vigilant recall/monitoring and proper maintenance are required for long term sealant efficacy.

Since many studies done in Pakistan have cited high caries prevalence among school children with significant low treatment ratio\textsuperscript{5,13} therefore, preventive strategies especially pits and fissure sealants need to be enforced on large scale accessible to the masses in a cost effective way specially in school children. Initially, the sealants dental public health programs were directed towards its application in private practices globally. But here in Pakistan, lack of awareness, low literacy rate and low socioeconomic status of the population with a deprived health care system and access to dental care services will significantly affect the success of such programs. Conversely, the economic conditions of Pakistan compromise implementation of large scale projects with most of the masses below poverty line. Furthermore, about 5.1 million of Pakistani children aged 5 to 9 don't attend school\textsuperscript{14} or are enrolled in ghost government schools of the country. Hence, school based or school linked programs are not enough to counter the pit and fissure caries problem.

Apart from the cost effectiveness debate of sealants in public health programs, its immediate and considerable impact on reducing occlusal caries in contrast to fluoridation substantiates its use as a necessary adjunct to fluoridation. It has greater impact in non fluoridated areas. Cost effectiveness can be increased by involving dental auxiliaries as the applicators of sealants on a large scale.\textsuperscript{15} Cost can also be minimized by proper selection of the recipient and selective application on the teeth. Looking at the scenario in Pakistan a separate community dental service should be started with sole responsibility toward prevention of oral diseases. The fissure sealing would be one of the programs in school going children to prevent dental caries. It is cost effective and the target population should be 6-12 years old children. There is no fluoridation program in Pakistan as such and sealant program becomes all the more necessary. Appropriately planned sealant programs at community level need to be instituted to reach children who otherwise are unlikely to receive sealants in schools. Even health care providers and community health workers apart from dental auxiliaries should be integrated in the health care system to impart awareness regarding caries prevention by sealants. Dental education programs through schools and community centers can also be incorporated for greater success.

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CASE REPORT
Sertoli-Leydig Cell - A Rare Male Hormone Producing Ovarian Tumor
Khalida Nasreen1, Rozina Mustafa2

ABSTRACT:
Sertoli-Leydig cell tumor (SLCT) of ovary is an unusual neoplasm that belongs to a group of sex-cord-stromal tumors of ovary. It accounts for less than 0.5% of all primary ovarian neoplasms. We report a case of primary intermediate ovarian Sertoli-Leydig cell tumor (SLCT) involving the left ovary in a 32-year-old nulliparous woman who presented with history of secondary amenorrhea for 8 months, hirsutism, and voice changes. Key words: Sertoli-leydig cell tumor, ovarian tumor, secondary amenorrhea.

INTRODUCTION:
Sertoli-Leydig cell tumor (SLCT) is a rare ovarian tumor that belongs to the group of sex-cord stromal tumors. These constitute less than 0.5% of ovarian tumors. Most tumors are seen during the second and third decades of life.1 These tumors are characterized by the presence of testicular structures that produce androgens. Hence, many patients have symptoms of virilization depending on the quantity of androgen production. The second characteristic feature of these tumors is the degree of differentiation of structures in them. The presence of these structures determines whether the tumors are benign or malignant.2 Most of these tumors are unilateral and diagnosed in stage I, so conservative surgery in a young patient is an appropriate treatment. There have also been case reports of successful laparoscopic management of the tumors. Adjuvant chemotherapy is considered for patients who have poor prognostic factors.3 We present the case report of a young woman with Sertoli-leydig cell tumor of intermediate type limited to only one ovary.

CASE REPORT:
A 32-year-old nulliparous woman presented in Gynaecology outpatient department, with complain of secondary amenorrhea of 8 months duration preceded by menstrual irregularity (Oligomenorrhea) for last 1 year. She had also noticed a change in her voice and hair growth on her face. She was married for the last 2.5 years and had history of primary infertility. She denied any history of anorexia, weight loss, increased libido, or breast recession. Her medical and family history was unremarkable.

Her general physical examination was normal. Her height was 5 feet 4 inches and weight was 66 kg. Perineal examination revealed mild clitoral hypertrophy. Vaginal examination revealed a firm and mobile mass of 6x6 cm in the left adnexa. Transvaginal ultrasound revealed a 5cm by 6cm solid cystic mass in the left ovary. The right ovary and the uterus were normal. Both adrenal glands were also normal. MRI confirmed the findings of ultrasound with no metastatic deposits. Her thyroid profile, S.FSH levels were normal but raised S.LH. A hormonal profile in blood indicated excessive androgenic activity in the form of elevated serum testosterone level (475.5 mg/dL; normal, 8.4-48.1 mg/dl), serum androstenedione (6.22 mg/dl; normal, 0.3-3.3mg/dl), serum free androgen index (56.6%; normal, 0.51-6.53%). However, levels of sex hormone binding globulin, dehydroepiandrosterone sulfate (DHEAS), CA 125, and alpha-fetoprotein (AFP) were normal. On the basis of these findings, a provisional diagnosis of androgen-producing ovarian tumor was made. Exploratory laparotomy was performed. Operative findings showed replacement of left ovary by a 5 x 6-cm solid cystic, grey-white, smooth-surface intact mass. No deposits were found in the abdominal cavity and para-aortic lymph nodes were not enlarged. The right ovary was normal. Left oophrectomy was done. Peritoneal washings were sent for cytological examination. An omental biopsy was also taken. However, lymph node dissection was not done. Patient had an uneventful recovery. The histopathology report showed an intermediate (borderline) type of sertoli-leydig cell tumor. Immunohistochemical staining showed that tumor was positive for inhibin and cytokeratin. Peritoneal washing did not reveal any abnormal cells. No chemotherapy was done. During 6 months of follow-up, she started having normal periods, with resolution of her virilization symptoms. Repeat testosterone levels on follow-up were within normal range.

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DISCUSSION:
Sertoli-Leydig cell tumors are rare of all ovarian tumors, as in one study of Pakistan only 7% of sex cord stromal tumors were SLCT. While they can be found in women of all age groups, they are most common in young women. Our patient presented at young age in contrast to two studies that reported a teenage girl and a postmenopausal woman. Virilization in females can occur based on ovarian or adrenal pathology. In terms of ovarian-based female virilization, Sertoli-Leydig cell ovarian tumors produce and release a male sex hormone which may cause the development of male physical characteristics including facial hair and a deep voice. Similar features were present in this case also.

In our patient, ovarian tumor was diagnosed on ultrasound. Hormone assessment was done due to development of male hormone symptoms. In the surgical treatment of SLCTs it is necessary to adopt common guidelines, and evenly define the steps that the patient should be submitted. Laparotomy was done in this patient; however there have also been case reports of successful laparoscopic management of these tumors. Different steps that are usually used for oncological ovarian cancer staging are not always performed. Conservative and fertility sparing surgery is commonly accepted, and even preferred due to the young age of patients as done in our patient and another study. The important prognostic factors in these tumors are their stage and degree of differentiation. In a review of 207 cases by Young and Scully in 1985 all well-differentiated tumors were benign, whereas 11% of tumors with intermediate differentiation, 59% of tumors with poor differentiation, and 19% of those with heterologous elements were malignant. In the present case report histopathology report showed intermediate differentiation which has a good prognosis. Of various immunohistochemical stains applied, Inhibin and cytokeratins were positive in the histopathology report of this patient SLCT, as same results were found in another study.

In this patient as tumor was of early stage and of intermediate type so chemotherapy was not recommended in contrast to a study wherein complete staging of the tumor and the presence of heterologous elements on histopathology favors for chemotherapy. The malignancy rate in tumors with heterologous elements is 15% to 20%. Adjutant chemotherapy in stage I is given to those patients who have poorly differentiated SLCT or SLCT with heterologous elements or a metastatic tumor of any histologic type. The BEP (Bleomycin, Etoposide, Cisplatin) regimen is a comparatively safe chemotherapeutic regimen because it does not affect the fertility status of the patient. During her 6 months follow up, patient had resumed normal menstrual cycles and her voice also became feminine as another study concluded that feminine characteristics return after surgery, but manifestations of masculinization disappear more slowly.

In conclusion, SLCT is a rare ovarian sex-cord tumor that usually occurs unilaterally. SLCT should always be considered in a young female patient who has symptoms of virilization and an ovarian mass on examination or investigation. Management depends on the histopathology of the tumor. Intermediate differentiated tumors need an individualized approach.

REFERENCES:
JBUMDC INSTRUCTION TO AUTHORS:

The Journal Of Bahria University Medical and Dental College abbreviated as JBUMDC is a peer reviewed biannual multidisciplinary biomedical journal of basic and clinical health 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) www.icmje.org, & PMDC guidelines for medical & Dental journals www.pmdc.gov.pk. The Journal will encompass manuscripts from all fields of biomedical sciences in the form of Editorial (Invited), Original Article, Review Article, Short Communication, Commentary, Case report and Letter to editor.

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1. Abstract
It should have no more than 150 words for unstructured abstracts or 250 words for structured abstracts. The abstract should state the purpose of the study (objective), basic procedures (materials & methods with study design, subjects/animals, place & duration of study, drug/chemical/equipment, procedure or protocol), main findings (results) and conclusion. It should emphasize new and important aspects of the study. Below the abstract provide, 3-10 key words that will assist indexers in cross-indexing the article and may be published with the abstract.

2. Introduction
State the purpose of the article and summarize the rationale for the study. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

3. Materials & Methods
Describe your selection of the observational or experimental subjects (patients or laboratory animals, including controls) clearly. Identify the age, sex, and other important characteristics of the subjects. Identify the methods, apparatus (give the manufacturer’s name and address in parentheses), and procedures in sufficient detail to allow other workers to reproduce the results. Identify precisely all drugs and chemicals used, including generic name(s), dose(s), and route(s) of administration. For randomized clinical trials provide information on all major study elements, including the protocol (study population, interventions or exposures, outcomes, and the rationale for statistical analysis), assignment of interventions (methods of randomization, concealment of allocation to treatment groups), and the method of masking (blinding). Authors submitting review manuscripts should include a section describing the methods used for locating, selecting, extracting, and synthesizing data. These methods should also be summarized in the abstract. All studies must be approved by the relevant Ethics Committee/Institution Review Board of the respective institutions.

4. Results
Present your results in logical sequence in the text, tables, and illustrations. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations. Describe appropriate indicators of measurement error or uncertainty such as confidence intervals, P values. Report complications of treatment & dropouts from a clinical trial. Specify any general-use computer programs employed for analysis.

5. Discussion & Conclusion
Emphasize the new and important aspects of the study and the conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or the Results section. Include in the Discussion section the implications of the findings and their limitations, including implications for future research. Relate the observations to other relevant studies. Link the conclusions with the goals of the study.

6. Acknowledgments
List all contributors who do not meet the criteria for authorship, such as a person who provided purely technical help, writing assistance, or a department chair who...
provided only general support. Financial and material support should also be acknowledged.

7. Authorship
Authorship credit is based only on 1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Conditions 1, 2, and 3 must all be met. Authors should provide a description of what each contributed.

8. Conflict of interest
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