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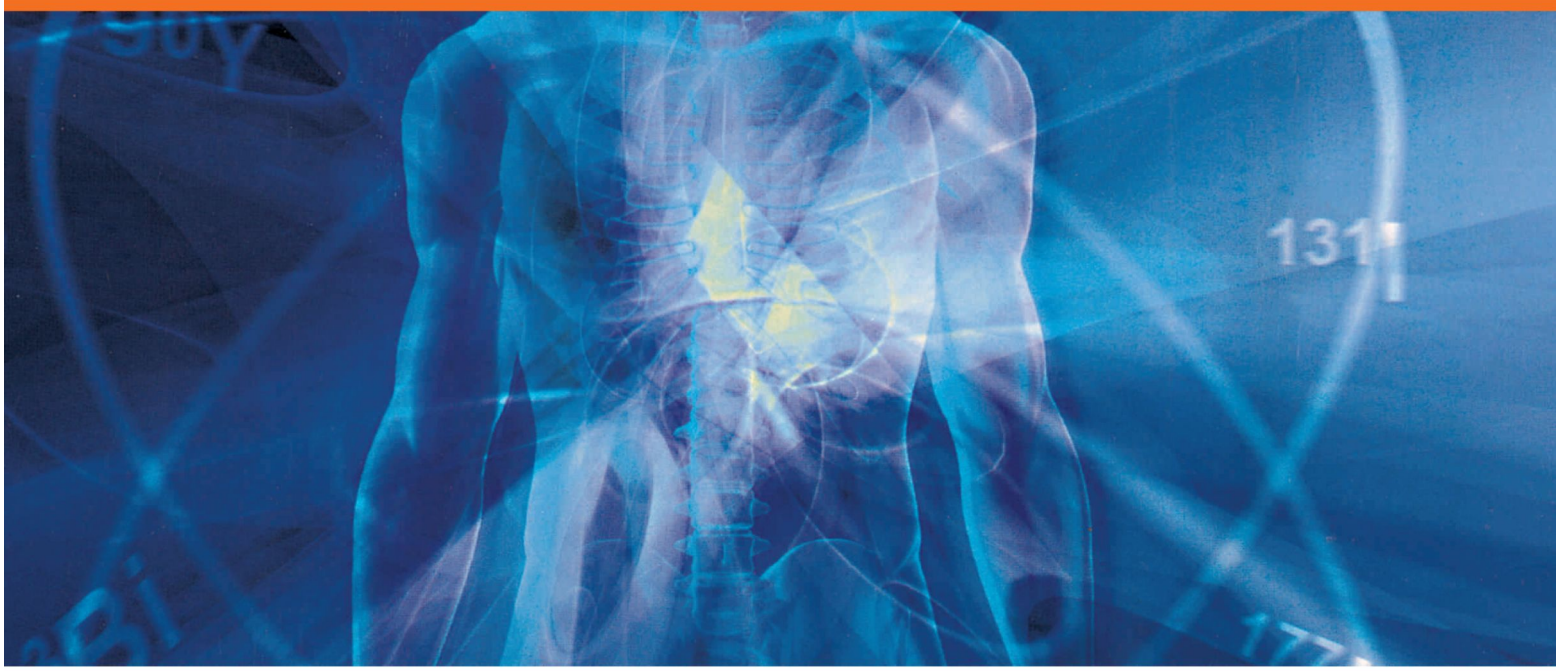

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CONTENTS

EDITORIAL

Grooming Future Doctors With Research Based Medical Curriculum

Muhammad Irfanullah Siddiqui

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, which may be causative factors of disease and tried to report them to the relevant authorities, in order to design, control policy, to eliminate or minimize the factors responsible for morbidity and mortality but no ear was given to their effort as their results were not based on scientific study, by no fault of them. It was the system of training which had no systematic and scientific approach to record the disease related factors objectively. There were many intelligent physicians who wanted to analyze the risk factors but their work went unappreciated and unpublished because of lack of scientific approach. Many of work done had no proper study design to answer the relevant questions. Some work was lost because of inappropriate sampling 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.

✉ **Professor Muhammad IrfanullahSiddiqui**
Department of Community Medicine and Pilgrim Services
Faculty of Medicine. Umm Al-Qura University
Al Abidia, Makkah Mukarramah
Post Box 7607.
Saudi Arabia
Received: November15, 2013 Accepted: December 10, 2013

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 fromtraditional 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 modelwas adapted byBaqai Medical University, Hamdard Medical & Dental College, and Karachi Medical & Dental College etc and was followed byBahria 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 startedright from first year of MBBS at BUMDCwith 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 thesupervision 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.

REFERENCES:

1. Collar AC. Importance of research in medical education. HawaiJournal of Medicine & Public Health 2012;71(2):53-6
2. Iliyas M, Khan IA, Malik GQ,Siddiqui MI,Hansotia MF, Thaver IH, et al. Public Health and Community Medicine. 8th ed. Time publisher Karachi. 2013:16
3. Colliver JA. Effectiveness of problem-based learning curriculum: Research and theory. Acad Med 2000;75:154-64
4. Dehaven M, Gimple NE, Dallo FJ, Billmeier TM. Reaching the underserved through community based participatory research and service learning description and evaluation of a unique medical students training program. Journal of Public Health Management and Practice 2011;17:363-8
5. EDITORIAL. Evidence based medicine: what it is and what it isn't. BMJ. 1996; 312:71
6. Rios E, Simpson MC. Jr. Curriculum Enhancement in medical education: teaching cultural competence and women's health for a changing society. Journal of the American Medical Women's Association 1998;53:114-20
7. Editorial. Integrated Curriculum. J Pak Med Assoc. 2001;51:59-60
8. http://www.ehow.com/facts_7502293_primary-research-project.html [Accessed November 5, 2013]
9. Oliveira NA, Luz MR, Saraiva RM, Alves LA. Students view of research training programmes in medical schools. Medical Education 2011;45:748-55

10. http://www.pmdc.org.pk/LinkClick.aspx?fileticket=EKfBIOSDTkE%3d&tabid=292&mid=849[Accessed November 5, 2013]
11. Fisher WR. Medical student's research: a programme of self education. J Med Educ. 1981;56(11):904-8

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 upto14 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 thatIncidence of CSA has been increasing, with mostly acquaintances beingthe 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 victims1. The variation in percentage is dependent on the definition of CSA being used [1].World health organization estimated that globally nearly 40 million children upto14 years of age, suffer from various types of abuse and neglect and hence, requiremedical attention and social care [2].The most distressing is child sexual abuse [3]. In one estimate during 1993, there were approximately 300,000 children who were reported to besexually abused in the USA [4]. However, it is interesting to note thatin 2003, the National Child Abuse and Neglect Data System estimated thatthere were 78,188 victims of sexual abuse in the U.S. [5].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 [6]. In UK, during 2009, one in twenty children, between 11 to 17 years (4.8%) were sexually assaulted [7].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 [8].

Pakistan's population is160,943,000 2, 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 50. Pakistan is ranked 135 on human development Index rank in 2003 out of 177 countries[9].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 focused stewardship to be directed towards child protection [10].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.Thisfurther prevents the projection of CSA and the issue remains neglected [11].This societal attitude deters people from acknowledging the very existence of the problem[12,13].

Pakistan's high population growth rate and rapid urbanization have promoted child labor, resulting ina greater numberchildren working and living in the slums. These children are vulnerable to all forms of abuse including sexual exploitation, school dropouts and illiteracy [14]. The study shows that need for basics such as food,clothing, accommodation and money compels young boys into commercial sex. Moon [8] also argues that CSA is increasing in South Asia due to sex trade.A study done in Pakistan estimated that mostboys,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 theextreme poverty and a lack of parental protection and supervision [14].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[15,16]. 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 [17] concluded that major depression in adults is an extension of child hood depression and is reported amongst 65% of abused children. Khalid [16] studied 100 psychiatric patients and found that a staggering number of thirty three had a history of CSA. The same local study [16] 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
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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% [17].

National Clearinghouse on Family Violence (1997)[18] 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 onthe Rights of the Child (CRC) and its two discretionary protocols, including the Optional Protocol onthe Sale of Children, Child Prostitution and Child Pornography.Pakistan has adopted theStockholm 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[19].Pakistan has a National Plan of Action for Children and regularly reports to the UNconvention 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 [20]argues thatenforcement of the existent laws is weak,as they say that the very laws that criminalizeprostitutionfail to decipher between adults andchildren. This caveat in the law impliesthat children who are forced into prostitution are unfortunately treated as adults as per the country's legal systemand are therefore, punished rather than rehabilitated, if they are convicted.Pakistan's legal system alsoplaces the onus of guilt and responsibility on the sexually abused rather than on thosewho force or persuade the children into prostitution[21].

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 snow ball 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[22,23,24,25,26].

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 childfriendly Juvenile Justice System Ordinance in 2000[13].

Efforts foraddressing 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 ongathering baseline data about the burden of CSA in the country and (3) interventional agencies working towards improving the situation holistically[27,28,29,30] 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 forauthentic baseline data, a surveillance data base and hence the evaluation of the actual prevalence of CSAwhich would assist in determining the targeted intervention.[31,32]

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 visits various organizations that employ child labour and to inspect the children who are working there. They look forany 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.[33,34] 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 thechildren who are caught up in criminal litigation.[35,36]

Burden and distribution of child sexual abuse in Pakistan

1n 1999, alarge 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 thechild was bringing home [20].

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 [21]. It is a criminal offence under the PakistanPenal Code of 1860 to 'exploit a girl under the age of 18 yearsfor purposes of prostitution, making the offence is punishable by 10 years imprisonment or fineor both'.During the provincial interviews conducted by the United Nations in 2001 with 233 sexually abused and sexuallyexploited children, 74 boys and 32 percent girls were identified as victims of sexualabuse. 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 whenthe abuse first began. First time abuse was most commonly reported among the 14 year old children[37,38]

Many reported cases wereunder 10 yearsof 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 [22.39]

There was an estimated 50 percent increment in cases of CSA in Pakistan between the years 2002 and 200622. 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 dailyand this increased to four children per day in 2006.[40]

Although the reported data do show an increasing pattern in CSA, there seems to be hude under reporting.More than eighty percent of the CSA cases go unreported[23,24]. 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[24].During five year period, 1,115 girls and 550 boys were gang raped. The report noted thatabout 210 victims were murdered after gang rape and 272 after rape or sodomy andmolestation 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 groupbetween 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 Baluchistan. During the period, the number of reported cases showed a decline in Baluchistan and the NWFP.This is thought to be under reporting[11,12,13]. During 2006 till 2009, there were nearly 8,000 reported CSA cases (Table 1)

When comparing the literacy level of the exploited childrenit was noted that31% were uneducated 1983.6% were educated below grade 5 level.Younger and less educated children were more prone to be victimized. Interestingly, other studies [10,11,25] have discussed 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 andreasons 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.[41]

(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 [26].

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.[42]

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 todevelop and execute comprehensive strategy to protect and help the childvictims 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.[43] 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.[44] 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. (fig I).

Table 1:

Comparative table of prevalence of child sexual abuse in 2006, 2007, 2008, 2009.

Year	2006	2007	2008	2009
Number of Cases	2447	2321	1838	968
Pattern of reporting	 Decreasing(due to under reporting)			

Source of Data: Sahil- Nongovernmental organization in Pakistan. Sahil: (2007). Cruel Numbers 2007: Statistics on Child sexual Abuse cases.Sahil:(2008). Cruel Numbers 2008: Statistics on Child sexual Abuse cases.Sahil: (2009). Cruel Numbers January to June 2009: Statistics on Child sexual Abuse cases.

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

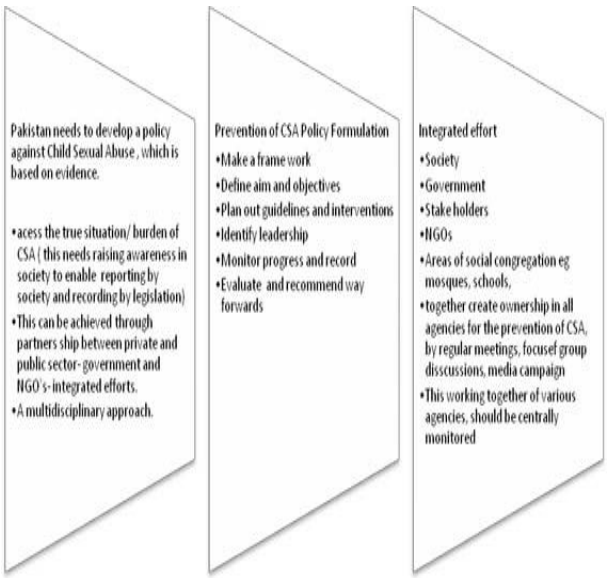
Table 2
Types of relationship between Abusers and Victims.

Abuser	2007	2008	2009
Acquaintance	3667	2986	1672
Strangers	900	650	435
Relatives	133	71	46
Incest	39	53	8

Source:

Sahil- Non governmental organization in Pakistan.Sahil: (2007). Cruel Numbers 2007: Statistics on Child sexual Abuse cases.Sahil:(2008). Cruel Numbers 2008: Statistics on Child sexual Abuse cases.Sahil: (2009). Cruel Numbers January to June 2009: Statistics on Child sexual Abuse cases.

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



REFERENCES:

1. Johnson.C.F.Child sexual abuse.The Lancet 2004;364 (9432): 462 - 70. doi:10.1016/S0140-6736(04)16771-8
2. WHO, Report of the consultation on child abuse prevention. Geneva, World Health Organization1999.
3. Child sexual abuse: A silent health emergency Report of the Regional Director. Executive Summary 2004. AFR/RC54/15 Rev. 1.18
4. Sedlak AJ, Broadhurst DD. Third National Incidence Study of Child Abuse and Neglect (contract no. 105-91-1800). Washington, DC: National Center on Child Abuse and Neglect 1996.
5. U.S. Department of Health and Human Services, Administration on Children, Youth and Families. Child maltreatment 2003. Washington, DC: U.S. Government Printing Office 2005
6. Child cruelty in the UK 2011. An NSPCC study into childhood abuse and neglect over the past 30 years. Avaliable from: http://www.nspcc.org.uk/news-and-views/our-news/nspcc-news/11-02-15-report-launch/overview-report_wdf80875.pdf.[Cited on June 2011]
7. Moon,B K. Children and the Millineum Development Goals. Progress towards a world fit for children. United Nations. New York. USA 2007
8. Human development report. Government of Pakistan. Pakistan 2005.
9. Heiberg, T, Kamath R, Kates,C, Das C. Stepping up Child Protection. An assessment of Child Protection Systems from all countries in South Asia, including reflections from South Asia. Save the children. Nepal.
10. Sahil. Cruel Numbers 2007: Statistics on Child sexual Abuse cases 2007.
11. Sahil. Cruel Numbers 2008: Statistics on Child sexual Abuse cases 2008
12. Sahil. Cruel Numbers January to June 2009: Statistics on Child sexual Abuse cases. 2009.
13. Mohammad T., Zafar N., Raguvanshi A. Situational analysis report on prostitution of boys in Pakistan. Pakistan Pediatrics Association. ECPAT International. Thailand 2006.
14. Gadit A. Depression amongst abused Children. J Coll Phys Surg Pak 1998; 8: 174-6
15. Solberg K. E. Protecting Pakistan's children. Lancet 2009; 374(96 84), 106-7.
16. Khalid N. The Characteristics of Childhood Sexual Abuse among psychiatric patients in Karachi-Pakistan. J Pak Psych Society 2003; 1: 8-13
17. Bolen R.M.Child Sexual Abuse: It's scope and our failure. New York, USA: Plenum Publishers 2001.
18. National Clearing house on Family Violence. Public health agency of Canada (1997).
19. Muhammad T.Child protection in Pakistan. International Journal of Child Health and Human Development 2009; 2(3): 225-8
20. Confronting Reality. A Situational Analysis of Child Sexual Exploitation and Abuse in Pakistan -The Mass Murderer of Lahore, PPA-SC Sweden 2000
21. United Nations Economic and Social Commission for Asia and the Pacific. Sexually abused and sexually exploited children and youth in Pakistan, New York, USA 2001
22. Mazhar. A. Child abuse cases on the rise: report. (2008). Dawn Newspaper. Based on a press release.260 Reported Cases of Child Sexual Abuse in Pakistan During First Five Months of 2004. June01,2004. : Non Governmental OrgnizationMadadgaar. Pakistan .Available from: 2011.http://www.dawn.com/2008/04/18/top12.htm.[Cited on june 2011]
23. Zia Awan. Chief of Lawyers for Human Rights and Legal Aid (LHRLA). Child abuse 'growing' in Pakistan . BBC News Karachi. 18 January, 2008. Pakistan
24. Pakistan: Child abuse cases on the rise: report. 18th April, 2008. DAWN Newspaper. Islamabad. Pakistan.
25. Malik F. Determinants of Child Abuse in Pakistani Families: Parental Acceptance-Rejection and Demographic Variables. International Journal of Business and Social Science 2010;(1):83-9
26. Prochaska JO,DiClemente, CC. The transtheoretical approach. In: Norcross, JC; Goldfried MR. (eds.) Handbook of psychotherapy integration. 2nd ed. New York: Oxford University Press2005 p. 147-71. ISBN 0195165799.
27. Finkelhor D, Browne A. The traumatic Impact of child sexual abuse: A conceptualization. American journal of orthopsychiatry 2010; 55(4): 78-83
28. Steinberg AM, Pynoos R. S, Goenjian A. K, Sossanabadi H,Sherr, L. Are researchers bound by child abuse reporting laws? Child Abuse and Neglect 1999; 23 (8): 771-7.
29. Straus M A. Measuring intrafamily conflict and violence: the Conflict Tactics Scales (CTS). Journal of Marriage and the Family 1979; 41(1):75-88.

30. Straus M A. Symmetry and mutuality in perpetration of clinical-level partner violence: Empirical evidence and implications for prevention and treatment. Aggression and Violent Behavior 2011;16: 279-88.
31. Straus M A, Mathur A. Social change and the trends in approval of corporal punishment by parents from 1968 to 1994 in Frehsee1996
32. Sullivan P, Knutson J. Maltreatment and disabilities: a population based epidemiological study. Child Abuse and Neglect 2000;8(10) :1257-73
33. Tucker Halpern C, Spriggs A L, Martin S L, Kupper, LL. Patterns of intimate partner violence victimization from adolescence to young adulthood in a nationally representative sample. Journal of Adolescent Health 2009; 45 (5): 508-16.
34. Turner H A, Finkelhor D, Ormrod R. The effect of lifetime victimization on the mental health of children and adolescents. Social Science and Medicine 2006;62 (1) :13-27.
35. Turner H A, Finkelhor D, Ormrod R. Poly-victimization in a national sample of children and youth. American Journal of Preventative Medicine 2010;38 (3): 323-30
36. United Nations International Children's Emergency Fund (UNICEF). A league table of child maltreatment deaths in rich nations, Innocenti Report Card Issue 5 September. Florence: Innocenti Research Centre www.unicef-icdc.org 2003
37. United Nations International Children's Emergency Fund (UNICEF). Child poverty in perspective: an overview of child wellbeing in rich countries. Florence: Innocenti Research Centre. www.unicef-icdc.org 2007
38. Walker A, Flatley J, Kershaw C, Moon D. Crime in England and Wales 2008-9, volume 1: findings from the British Crime Survey and police recorded crime. London: Home Office 2009
39. Williamson E, Goodenough T, Kent J, Ashcroft R. Conducting research with children: the limits of confidentiality and child protection protocols. Children and Society 2005: 19 (5) 397-409.
40. World Health Organization. Preventing child maltreatment: a guide to taking action and generating evidence. Geneva: WHO/ISPCAN 2006
41. World Health Organization. Consent and confidentiality: increasing adolescents' access to health services for HIV and sexual and reproductive health.WHO project: ICP HIV 500. Regional office for south-east Asia, New Delhi 2007
42. Zhang J, Yu K F. What's the relative risk? A method of correcting the odds ratios in cohort studies of common outcomes. Journal of the American Medical Association 1998; 280 (19): 1690-1.
43. Tourigny M, Herbert M, Jolly J, Cyr M, Baril K. Prevalence and co occurrence of violence against children in the Quebec population. Australian and New Zealand Journal of Public Health 2008; 32 (4): 331-5.
44. Trocmé N, Tonmyr, L. Canadian incidence study of reported child abuse and neglect - 2003: major findings. Minister of Public Works and Government Services, Canada 2005.

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[1, 2, 3]. It has serious implication as it continues to pose potentially fatal complication of ventilation care4.It results in load on health resources associated with increase morbidity and mortality.[5,6,7,8,9] 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%9 and 90% of all HAIs in mechanically ventilated patients are attributed to VAP.10 Increase prevalence of VAP is associated with the following risk factors identified by various studies. Most common microorganisms include Streptococcus pneumoniae, Haemophilusinfluenzae, and Moraxella catarrhalis. Late-onset VAP occurs 5 or more days after intubation. Staphylococcus aureus, Acinetobacterbaumannii, Pseudomonas aeruginosa, Klebsiellapneumoniae, and Enterobacter are some of the most prevalent microorganisms reported for late-onset VAP.

Common risk factors for VAP include; supine position, endotracheal, nasogastric and enteral feeding tubes, sedation, impaired mental status, poor oral hygiene, gastric alkalization, inadequate hand washing, period of mechanical ventilation, prolonged antibiotic use, preexisting comorbidities, invasive procedure, hospital environment and contact with other.[11]

✉ **Dr. Mohammad A. Garout**
Assistant Professor
Chairman of Community Medicine Department
Umm Al-Qura University,
Al Abidia, Makkah Mukarramah, Saudi Arabia.
E-mail: dr.m.garout@gmail.com
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There were various strategies applied for the prevention of VAP but no single strategy was effective in reducing VAP significantly. Hence a number of strategies identified to be implemented. Grap and Munro 1997 demonstrated that a supine position instead of elevation of head of bed (HOB) increased the chances of VAP.[12]

Evidence based guidelines for the prevention of VAP have been developed in North America by CDC.[13] This ventilator care bundle included four elements;

1.Elevation of head of bed to 30-450
2.Daily 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.Various studies have been conducted in the western countries to evaluate the compliance and effectiveness of VAP care bundle [14,15,16,17] but only one such study conducted in this part of world, having different, geopolitical, social and health environment at the time of initiating of project[18]. This study was designed in order to evaluate the effectiveness and compliance of VAP care bundle in local setting at Erfan&Bagedo General hospital, Jeddah, KSA and to compare the VAP rate with compliance rate.

MATERIALS AND METHODS:

This is 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, which is a long term chronic care hospital consisting of 22 ICU beds with patient/Nurse ratio as 2-3 to 1. All the patients who were kept on ventilator for more than 24 hours were included in the study. Following steps were taken to ensure the reliability and validity

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 HII 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 suctions.
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[19].

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 Acinetobacterbaumanniiand 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%). Allan[2] 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 Bukhari 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

Table 1

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

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

Gender: M=male; F= female

days.[20]Resor reported a decrease in VAP rate from 6.6 to 2.7/1000. The percentage of reduction observed was 59.1%.[21] Allan observed a decrease of VAP rate from 3.8 to 1.67 case per thousand (a 56% decrease in VAP rate).[2] More recent studies also showed a decrease of more than 50 % in the VAP rate after successful implementation of VAP care bundle strategy [22,23,24,25,26]. It was estimated that each VAP case was responsible for 10 hospital days with a mean cost of $ 40000. 15 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.

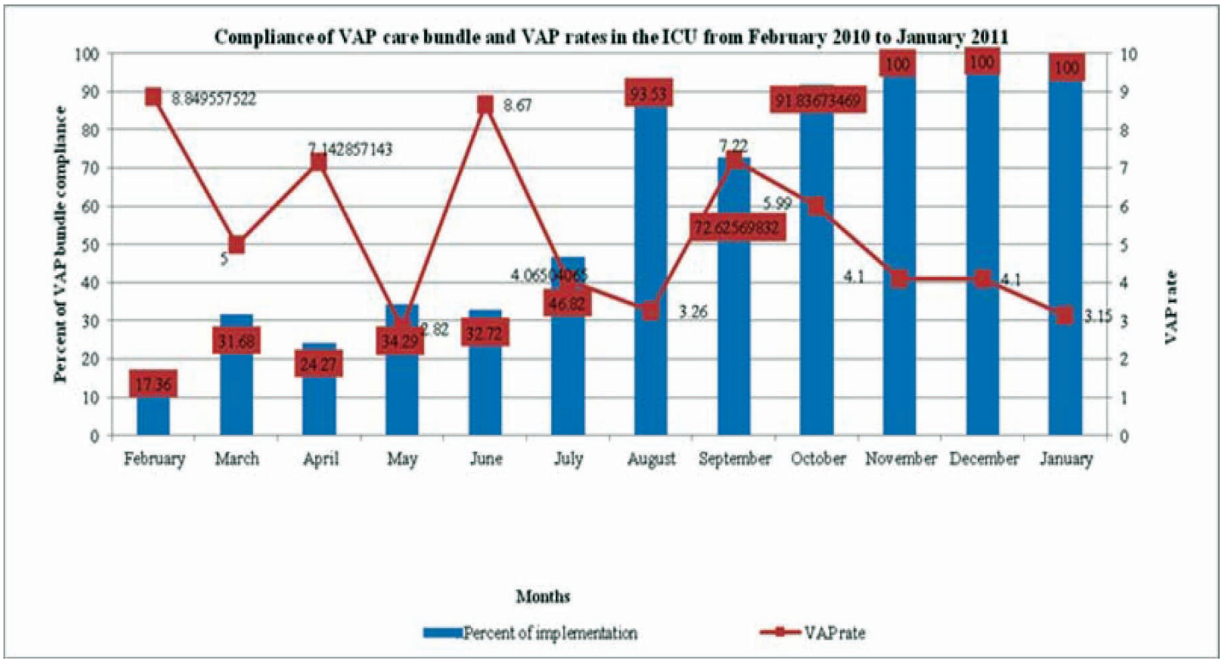
CONCLUSION:

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 2
VAP Care Bundle Implementation Report
February 2010 - January 2011

Month	No. of observation	No. of implementation of VAP care bundle	Percent of implementation of VAP care bundle	VAP rate/1000 ventilator days
February	244	42	17.36	8.85
March	161	51	31.68	5.00
April	239	58	24.27	7.14
May	315	108	34.29	2.82
June	327	107	32.72	8.67
July	220	103	46.82	4.07
August	278	260	93.53	3.26
September	179	130	72.63	7.22
October	343	315	91.84	5.99
November	245	245	100.00	4.10
December	255	255	100.00	4.10
January	205	205	100.0	3.15

Fig 1:



REFERENCES:

1. Ruffel A, Adamcova A. Ventilator-associated pneumonia: prevention is better than cure. Nursing in critical care 2008; 13(1):44-53.
2. Allan JW, Christine CR, Carol AS, Nicholas NR, Martin JB. Epidemiology of Venticular-Associated Pneumonia in a long term acute care hospital. Infection control and hospital epidemiology 2009;30(4):319-24.
3. Zack J, Garrison T, Trovillion E, Clinkscale D, Coopersmith C, Fraser V et al.Effect of an education program aimed at reducing the occurrence of ventilator associated pneumonia. Critical Care Medicine 2002; 30: 2407-12
4. Centers for Disease Control and Prevention (CDC). Guidelines for the Prevention of Nosocomial Pneumonia. MMWR Recomm Rep 1997; 46(RR-1):1-79.
5. Safdar N, Dezfulian C, Collard HR. Clinical and economic consequences of ventilator-associated pneumonia: a systematic review. Crit Care Med 2005; 33:2184-93.
6. Bercault N, Boulain T. Mortality rate attributable to ventilator associated nosocomial pneumonia in an adult intensive care unit: a prospective case-control study. Crit Care Med 2001;29: 2303-9.
7. Leroy O, Sanders V, Girardie P, Devos P, Yazdanpanah Y, Georges H, et al. Mortality due to ventilator-associated pneumonia: impact of medical versus surgical ICU admittance status. J Crit Care 2001; 16: 90-7.
8. Sheng WH, Wang JT, Lu DC, Chie WC, Chen YC, Chang SC. Comparative impact of hospital-acquired infections on medical costs, length of hospital stay and outcome between community hospitals and medical centres. J Hosp Infect 2005;59: 205-14.
9. Samantha W. Implementing a ventilator care bundle in an adult intensive care unit. Nursing in critical care 2008; 13(4):203-7.
10. Chulay M. VAP prevention: The latest guidelines. RN 2005;68(3): 52-7.
11. Pruitt B, Jacobs M. Best practice interventions: How can you prevent ventilator-associated pneumonia? Nursing 2006, 36(2), 36-42.
12. Grap MJ, Munro CL. Ventilator-associated pneumonia: Clinical significance and implications for nursing. Heart and Lung: The Journal of Acute and Critical Care 1997; 26:419-29.
13. Tablan AC, Anderson LJ, Besser R, Bridges C, Hajjeh R. Guidelines for preventing healthcare-associated pneumonia, 2003: Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. Morbidity and Mortality Weekly Report. 2004, 53 (No. RR-3):1-36. Available at www.cdc.gov/mmwr/PDF/RR/RR5303.pdf (accessed 28 February 2012).
14. Dodek P, Keenan S, Cook D, Heyland D. Evidence-based clinical practice guideline for the prevention of ventilator-associated pneumonia. Annals of Internal Medicine 2004;141:305-13.
15. Fulbrook P, Mooney S. Care bundles in critical care: a practical approach to evidence-based practice. Nursing in Critical Care 2003;8:249-55.
16. Sinuff T, Muscedere J, Cook D, Dodek P, Heyland D; Canadian Critical Care Trials Group. Ventilator-associated pneumonia: improving outcomes through guideline implementation. J Crit Care. 2008;23(1):118-25.
17. Rello J, Lode H, Cornaglia G,Masterton R. A European care bundle for prevention of ventilator-associated pneumonia Intensive Care Med 2010;36:773-80.
18. Bukhari SZ, Hussain WM, Banjar AA, Fatani MI, Karima TM, Ashshi AM. Application of ventilator care bundle and its impact on ventilator associated pneumoniaincidence rate in the adult intensive care unit. Saudi Med J.2012; 33(3):278-83.
19. http://www.cdc.gov/nhsn/PDFs/dataStat/NHSN-Report_2010-Data-Summary.pdf.
20. Youngquist P, Carroll M. Farber M, Macy D, Madrid P, Ronning J et al. Implementing a ventilator bundle in a community hospital. The Joint Commission Journal on Quality and Patient Safety2007;33(4), 219-25.
21. Resar R., Pronovost P., Haraden C., Simmonds T., Rainey T, Nolan T. Using a bundle approach to improve ventilator care processes and reduce ventilator associated pneumonia. Journal on Quality and Patient Safety, 2005; 31(5), 243-48.
22. Dorothy B, Amanda Z, Charles O'D, Julie S, Cathy K, Robert B et al. Adherence to Ventilator-Associated Pneumonia Bundle and Incidence of Ventilator-Associated Pneumonia in the Surgical Intensive Care Unit. Arch Surg. 2010; 145(5):465-70.
23. Abbott C.A, Dremsa T, Stewart D.W, Mark D.D, Swift C.C. Adoption of a ventilator-associated pneumonia clinical practice guideline. Worldviews on Evidence-Based Nursing:2006;4(3), 139-52.
24. Raquel A.C, Alexandre R.M, Marcelino S.D, Cláudia V.S, Oscar F, Henrique S et al. A program for sustained improvement in preventing ventilator associated pneumonia in an intensive care setting. BMC Infectious Diseases 2012; 12:234-9.
25. Humberto G, Clara MP, Victor D R. Effectiveness of a multidimensional approach for the prevention of ventilator-associated pneumonia in an adult intensive care unit in Cuba: Findings of the International Nosocomial Infection Control Consortium (INICC). Journal of Infection and Public Health 2013, 6: 98-107.
26. Pathmawathi S, Kee L.C, Suresh V.G, Marzida M., Kwan H. Impact of education on ventilator-associated pneumonia in the intensive care unit. Singapore Med J 2013; 54(5): 281-4.

ORIGINAL ARTICLE

Physical Examination Of Arteriovenous Fistula: A Basic Approach In AV Fistula Stenosis Detection

Aisha Bibi[1], Sohail Sabir[2], Irfanul Haq[3]

ABSTRACT:

Objectives: To determine the accuracy and equivalence of 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 withprospective diagnostic cohort design on 15 patients, referred for evaluation of arteriovenous fistuladysfunction. Physical examination of arteriovenous fistula was done followed by Doppler ultrasound and MDCTangiography.The results of each patient was recorded and sealed. Data analyzed byCohen's Kappa, which determined the level of agreement between the diagnosis made by Physical examination, MDCTangiography and Doppler ultrasound.

Results: There was significant agreement in AVF stenosis detection made by physical examination and MDCTangiography (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 MDCTangiography 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

INTRODUCTION:

Patients with End Stage Renal Disease undergo hemodialysis through AV fistula on regular basis, which is a preferred access site[1]. Thereby, its dysfunction, mainly inflow and outflow stenosis is not uncommon as well. Earlier, quite a number of studies[2,3] had been done which assessed the accuracy of various arteriovenous detection tools separately, in comparison with the gold standard i.e. angiography.Heye[4] conducted a study in which he assessed the diagnostic value of 64MDCTangiography 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[5]. To highlight the importance of physical examination in arteriovenous fistula detection, a study a showed that it had 85% sensitivity in inflow stenosis detection and 92% sensitivity in detectionof outflow stenosis when compared with angiography[6].In all these studies the diagnostic tools; physicalexamination, doppler ultrasound and MDCT angiography; had been compared individuallywith the gold standard, Angiography.

The aim of our study was to compare physical examination withMDCTA and Doppler ultrasound in detection of AVF stenosis, to highlight equivalence and significance of these modalities in stenosis detection. Angiography, an invasive procedure, is a facility not available in most of the armed forces tertiary class A hospitals, like in our setup, so early detection of arteriovenous fistula lesion by the diagnostic modalities discussed above leads to prompt referral of the patients to the interventional facilities. In this study we have also calculated the level of agreement between Doppler ultrasound and MDCT angiography, thereby analyzing the accuracy of the Doppler ultrasound which is in use in most of the hospitals.

✉ **Dr. Aisha Bibi**
FCPS Part2 Resident,
Nephrology Department PNS Shifa Karachi
Email: dr_aisha _1983@@hotmail.com
Dr. Sohail Sabir
Consultant Nephrologist
HOD Nephrology PNS Shifa Karachi
Dr. IrfanulHaq
Senior Consultant Radiologist
HOD Radiology PNS Shifa Karachi
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MATERIALS AND METHODS:

Weconducted a pilot study after approval of departmental committee using prospective diagnostic cohort design. Patients were eligible if they had ESRD and were undergoing long-term hemodialysis through a failing AVF. We calculated the sample size needed to test the primary non inferiority hypothesis using methods of Blackwelder.The total number of patientscalculated was 20, which was required for significance threshold of P=0.05 and 80%statistical power.Patients were selected from hemodialysis department, PNS Shifa, whowere on maintenance dialysis for over 6 months and were referred on account of arteriovenous fistula dysfunction (Hemodynamically significant stenosis is defined as a >50% reduction of normal vessel diameter (graft or draining venous system) accompanied by a hemodynamic, functional, or clinical abnormality, such as: elevated static or dynamic pressures, decreased blood flow, elevated access recirculation, a swollen extremity, or unexplained reduction in Kt/V)[7],11arteriovenous fistula of 6months or more maturity,patient'sability to provide written and informed consent. Exclusion criteria included newly formed AVF; contraindication to use of contrast medium,patientswith infection around fistula site at the time of referral and unwillingness of the patients to undergo the examinations.

Diagnostic criteria for inflow stenosis included weak

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 GA[7,8] 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 MDCTA[9] (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 Dichotomousi.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 examinationand MDCTA was K: 0.865which showed significant level of agreement betweenboth. Kappa value for inflow stenosis, between physical examinationand Doppler ultrasound was K: 0.471, whichshowed moderate level of agreement. The Kappa value for outflowstenosis, between physical examination and MDCTA was K: 0.602 and that for comparison between physical examination anddoppler 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. (Table2).Analysis of the forearm and upper arm fistulas showed no difference in level of agreement between these 3 modalities.

TABLE 1
Demographic characteristics of the study cases

No. of cases	15
Gender	
Male	10
Female	5
Causes of ESRD	
Hypertension	4
Diabetic nephropathy	5
Glomerulonephritis	3
Obstructive uropathy	3
Type of Fistula	
Forearm	6
Arm	9

TABLE 2

Parameter	Inflow Stenosis	Outflow Stenosis
Physical exam./MDCTA	K:0.865	K:0.602
Physical exam./Doppler u/s	K:0.471	K:0.444
MDCTA/Doppler u/s	K:0.545	K:0.375

DISCUSSION:

AVF stenosis and its detection had been an important area of discussion and research in interventional nephrology and radiology.[10,11] Quite a number of studies have been conducted toemphasize on variety of diagnostic toolsin detection of stenosis.[12,13]. A study determined the accuracy of Doppler ultrasound in detectionof AVF stenosis when compared with angiography[14]. In this study they used portable Doppler ultrasound (sonosite, St.Paul.MN) results showed increased sensitivity and specificity of Doppler ultrasoundin detection of lesion (91% and 98%, respectively) but it did not mentioned 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[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[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[21].Our study compared 3 modalities i.e. physical examination, Dopplerultrasound 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[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.

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REFERENCES:

1. Salman L, Ladino M, Alex M, Dhamija R, Merrill D, Lenz O, et al. Accuracy of ultrasound in the detection of inflow stenosis of arteriovenous fistulae: results of a prospective study. Seminars in Dialysis-2010; 23(1):117-21
2. Ko SF, Huang CC, Ng SH. MDCT angiography for evaluation of the complete vascular tree of hemodialysis fistula. AJR 2005;185:1268-74
3. National Kidney Foundation: K-DOQI clinical practice guidelines for vascular access: Update 2000.Am J Kidney Dis 2001; 37(1):S137-S81
4. Heye S, Maleux G, Claes K, Kuypers D, Oyen R.:Stenosisdetection in nativehemodialysis fistulas with MDCT angiography. AJR 2009, 192:1079-84
5. Choi JR, Kim YS,Won YD ,Son YS ,Song WJ,Song HC ,et al. Accuracy of physical examination in the detection of arteriovenous fistula dysfunction. Korean J Nephrol 2006; 25:797-802
6. Beathard GA: Physical Examination of the dialysis vascular access.Semin Dial 2001;11:231-6
7. Beathard GA:Physical Examination: Theforgotten tool In:A Multidisciplinary Approach for Heamodialysis Access, editors: Gray R,Sands J, New York, Lippincott Williams &Wilkins,2002 pp11-118
8. Schwab SJ, Raymond JR, Saeed M, Newman GE, Dennis PA, Bollinger RR. Prevention of hemodialysis fistula thrombosis.Early detection of venous stenoses. Kidney Int 1989; 36: 707-11
9. Finlay DE, Longley DG, Foshager MC, Letourneau JG. Duplex and color Doppler sonography of hemodialysis arteriovenous fistulas and grafts.Radiographics1993;13:983-9http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8210602&dopt=Abstract
10. Collins DM, Lambert MB, Middleton JP, Proctor RK, Davidson CJ, Newman GEet al.Fistula dysfunction: Effect on rapid hemodialysis. Kidney Int1992;41:1292-6

11. D-Marchi S,Felleti E,Giacomello R,Stel G,Cecchin E,Sepiachi G et al. Risk factors for vasculardisease and arteriovenous fistula dysfunction in hemodialysis patients.J Am Soc Nephrol1996;7(8):1169-77
12. Coantrao L,Faria B, Pestana M. Physical examination of dysfunctional AV fistula by non inter ventionalists: A skill worth teaching.Nephrol Dial Transplant 2012;27(5):1993-6
13. Goldblum SE, Ulrich JA, Goldman RS, Reed WP, Avasthi S. Comparison of 4% chloro hexidine gluconate in a detergent base (Hibiclens) & povidine-iodine (Betadine) for skin preparation of hemodialysis patients and personnel. Am J Kidney Dis 1983;2: 548-52
14. Nicoletti G, Boghossian V, Borland R.Hygienic hand disinfection: A comparative study with chlorhexidine detergents and soap. J Hospital Infect 1990; 15:323-37
15. Larson EL, Morton HE. In: Alcohols: Disinfectant, Sterilization, and Preservation. Editors Melvern, PA, Lee and Sebiger, 4th edition. 1991 pp 191-203
16. Hartigan MF, Thomas-Hawkins C. Circulatory Access for Hemodialysis In: Lancaster LE ANNA Core Curriculum for Nephrology Nursing 3rd edition. Editors Pitman, NJ, Anthony J. Jannetti, 1995, pp 259-80
17. Hartigan MF. Vascular access and nephrology nursing practice: Existing views and rationales for change.AdvRen Replace Ther1994;1:155-62
18. Tonelli M, Jhangri GS, Hirsch DJ, Marryatt J, Mossop P, Wile C,et al.Best threshold for diagnosis of stenosis or thrombosis within six months of access flow measurement in arterio venoua fistula Nephrol1995;6(7):1109-14
19. Doelman C, Duijm LE, Liem YS, Froger CL, Tielbeek AV, Donkers-van Rossum AB et al.Stenosis detection in failing hemodialysis access fistulas and grafts: comparison of color Doppler ultrasonography, contrast-enhanced magnetic resonance angiography, and digital subtraction angiography. Nephrol 1996; 7(9) 1258-63
20. Leypoldt JK. Diagnostic methods for vascular access: access flow measurements contributions to Nephrology 2002;137: 31-37
21. Besarab A, Sullivan K L, Ross R, Moritz M J. The utility of intra-access pressure monitoring in detecting and correcting venous outlet stenoses prior to thrombosis Kidney International,1995; 47(5):1364-73
22. Sullivan KL,Besarab A. Hemodynamic screening and early percutaneousintervention reduce hemodialysis access thrombosis and increase graft longevity, Journal ofVascular and Interventional Radiology 1997; 8(2):163-70
23. Besarab A, Frinak S,ShermanR A. Simplified measurement of intra-access pressure: Journal of the American Society of Nephrology 1998; 9(2): 284-9
24. Tessitore N, Bedogna V, Melilli E. In search of an optimal bedside screening program for arteriovenous fistula stenosis. Clinical Journal of American Society of Nephrology 2011;6(4):819-26
25. Fowler PR, Steinberg AW, Wlodarczyk JH, Nanra RS, Hibberd AD. Use of the fistula assessment monitor to detect stenoses in access fistulae. Am J Kidney Dis 1991;17:303-6

ORIGINAL ARTICLE

An Audit Of Maternal Mortality At Jinnah Postgraduate Medical Centre Karachi

Razia Korejo[1], HaleemaYasmin[2], Shazia Naseeb[3]

ABSTRACT:

Objective: To evaluate the maternal deaths andits 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 birthsand 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 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 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 42days 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 100,000live-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 42days postpartum or postabortion). Indirect causes represent a varying spectrum of the burden of maternal deaths, from an average of approximately4% 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 10-20million women affected by various degrees of illness related to pregnancy and childbirth[1] 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[2]

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.[3, 4] 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[5, 6] Periodical 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.

✉ **Dr Razia Korejo**
Professor
Obstetrics and Gynecology BUMDC, Karachi
Dr Haleema Yasmin
Assistant Professor
Obstetrics and Gynaecology Unit 1 JPMC-Karachi.
Dr Shazia Naseeb
Assistant Professor
Obstetrics and Gynaecology Unit 1 JPMC-Karachi.
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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 majorityare referred cases, with the some patients traveling over distances of 100 to 500km from province of Baluchistan and periphery of Sindh. An analysisof 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)[5].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 were7784and 6980respectively. 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. Hemorrhagewas 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%) deathsit 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 dieses as shown in (Table 2).

Table 1
Demographic Profile Of Maternal Deaths

Parameters	**Maternal Deaths**
No. of Maternal Deaths	**n = 55**
Booked	2 (3.6%)
Un-booked	53 (96.4%)
Age in years	
15 - 20	7 (12.7%)
21 - 30	28 (50.9%)
31- 40	18 (32.8%)
> 40	2 (3.6%)
PARITY	
0 + 0	19 (34.5%)
1 - 4	23 (41.9%)
5 & more	13 (23.6%)
Delivery Status	
Abortion	5 (9.0%)
Un-delivered	20 (36.5%)
Delivered	30 (54.5%)

Table: 2
Cause of deaths

n = 55	
Haemorrhage	22 (40.2%)
Eclampsia	9 (16.4%)
Ruptured uterus	3 (5.4%)
Abortion	3 (5.4%)
Embolism	2 (3.6%)
Anemia	8 (14.5%)
Hepatic failure	6 (10.9%)
Cardiac disease	2 (3.6%)

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. [7, 8] 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 [9, 10, 11,12.] Hemorrhage and Eclampsia 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:

1. Ronsmans C, Graham WJ. Maternal survival 1: Maternal mortality: Who, when, where, and why. Lancet 2006; 368:1189-1200.
2. Maternal mortality in 2000 estimates developed by WHO, UNICEIF and UNFPA, department of reproductive health and research, Geneva, Switzerland, World Health Organization, 2004.
3. United Nations General Assembly. United Nations Millennium Declaration. A/RES/55/2, 1-9-2000. Un General Assembly, 55th session, agenda item 60(b).
4. Government of Pakistan, Ministry of Population Welfare. National Institute of Population Studies. Population growth and its implications. Islamabad: NIPS; 2005.
5. World Health Organization. International Statistical Classification of Disease and Related Health Problem. Tenth Revision. Geneva. WHO 1992.
6. Jafarey S, Kamal I, Qureshi AF, Fikree F. Safe motherhood in Pakistan. Int J Gynaecol Obstet. 2008; 102:179-85.
7. Government of Pakistan, National Institute of Population Studies. Pakistan demographic and health survey 2006 - 2007. Preliminary report, Islamabad: NIPS; 2007.
8. Ashok V, Santosh M, Anupa S. A study of maternal mortality. J ObstetGynae India 2008;58:226-9,
9. Jafarey SN. Maternal mortality in Pakistan - complication of available data. J Pak Med Assoc 2002; 52:539-44.
10. Bhattacharyya SK, Majhi AK, Seal SL, Mukhopadhyay S, Kamilya G, Mukherji J. Maternal mortality in India: A 20 years study from a large referral medical college hospital, West Bengal. J Obstetric Gynaecology 2008; 34:499-503
11. Nkwocha GC, Anya SE, Anya AE. Obstetric mortality in a Nigerian General Hospital. Nigeria J Med 2006; 15:75-6.
12. Bhattacharyya SK, Majhi AK, Seal SL, Mukhopadhyay S, Kamilya G, Mukherji J. Maternal mortality in India: A 20 years study from a large referral medical college hospital, West Bengal. J Obstetric Gynecology 2008; 34:499-503.
13. Haggaz AA, Radi EA, Adam I. High maternal mortality in Darfur, Sudan. Int J Gynaecol Obstet. 2007; 98:252-68.
14. Bedi N, Kambo I, Dhilion BS. Maternal deaths in India: preventable tragedies. (An JCMR Task Force Study). J Obstet.Gynaecol India 2001; 51:86-92.
15. El-Kady A A, Saleh S. Gadella, S. Fortney J. Bayoumi H. Obstetric deaths in Menoufia Governorate, Egypt British Journal of Obstetrics and Gynecology, 1996 (1) : 9-14
16. Fikree FF. Safe motherhood in Pakistan: past failures and present challenges. JPak Med Assoc 2002; 52:538.
17. Aziz Z. Maternal Mortality non-booked patients in a teaching institution in Southern region of Pakistan. Pak Med Review 1968;3(8): 54-62,
18. National Institute of Population Studies. Population growth and its implications. Islamabad: national Institute of Population Studies, 2005 pp 63.

19. Bhutta S, Jafarey SN, Midhet F. Maternal and child health in Pakistan: challenges and opportunities. Zulfiqar A. Bhutta, editor. Karachi: Oxford University Press, 2004:7.
20. Jha P, Gajalakshmi V, Gupta PC, Kumar R, Mony P, Dhingra N. Prospective study of one million deaths in India: rationale, design and validation. PLoS Med 2006; 3:18.
21. Aqeel F, Zulfiqar T, Khan R. Profile of maternal mortality in Pakistan as reported by Lady Health workers (LHWs). Islamabad: LHWs Program, Misnistry of Health, Government of Pakistan, 2004.
22. Pakistan Planning Commission. National nutrition survey. Islamabad: Planning Commission, Government of Pakistan, 2004 pp34 .
23. Jafarey SN, Korejo R. Mothers brought dead:an enquiry into causes of delay. SocSci Med 1993;36:371-2.
24. Siddiqui IR, Rizvi T, Jafarey SN. Situation analysis of emergency obstetric care (EOC) in four districts of Sindh. J Coll Physicians Surg Pak 1999;9:187-9.
25. Fikree FF, Midhet F, Sadruddin S, Berendes HW. Maternal mortality in different Pakistani sites:ratios, clinical causes and determinants. Acta Obstet Gynecol Scand 1997;76:637-45.

ORIGINAL ARTICLE

Prevalance of Premenstrual Syndrome Among Women of Pakistan

Saeedullah Channa[1], Shadman Nasreen[2], Hina Waheed[3], Amber Yasmin[4]

ABSTRACT:

Objectives: To find out the prevalence of Premenstrual Syndrome amongst women of Pakistan

Materials and Methods: A cross sectional self reported survey was conducted from 1st August 2011 till 31st January 2012 by collecting data from different cities that is Islamabad , Quetta , Karachi , Multan , Hyderabad. 382 participants from various hospitals, universities, colleges, shopping malls filled up a self administered closed ended questionnaire designed on DSM IV.11 premenstrual syndrome symptoms based on occurrence and severity were used for diagnosis. If 4 of them were positive then a female was labeled to be suffering from Premenstrual Syndrome (PMS)

Results: The prevalence of premenstrual syndrome was 191(55%). The ascending order of prevalence of symptoms occurring in PMS was depression, tension, labile mood, bloating, swollen breast and headache.

Conclusion: Premenstrual syndrome is a common problem in women of reproductive age group. There is a need for simple diagnostic methods for early detection. Social media and physicians should provide education to reduce its prevalence and improve the quality of life in the affected females

Key words: Premenstrual Syndrome, Prevalence, Pakistan, depression, DSM criterion IV

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.[1,2,3,4] 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 ofpremenstrual 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[5,6,7]. Premenstrual impairment may be more severe at home, influencing marital relationships and homemaking, as compared to social and out-of-home occupational impairment.[8] 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.[9,10,11,12]

✉ **Dr Saeedullah Channa**
Lecturer, Department of CHS
BUMDC, Karachi
Dr. Shadman Nasreen
Lecturer,Department of CHS
BUMDC, Karachi
Hina Waheed
4th Year MBBS Student
BUMDC, Karachi
Amber Yasmin
4th Year MBBS Student
BUMDC, Karachi
Received: January 5, 2014
Revised: January 30,2014
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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.[13,14,15] 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 statusrecognized globallyas a medical disorder,[16] it is rarely discussed in Pakistan and is surrounded by stigma which leads to lot of misconceptions.[17] 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 syndromePMS (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.[18]

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)

in Pakistani women[19].

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 outa 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 women enrolled in this study was followed for two consecutive cycles. The ratings were prospectively completed for 2 menstural 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-IVcriteria 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 commonsymptoms occurring in PMS weredepression, 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 was69, sleep disturbance i.e. insomnia was 158 and increased appetite was 132 and headache was 277 ((fig 3).

Fig 1a.Ratio of single vs. married women

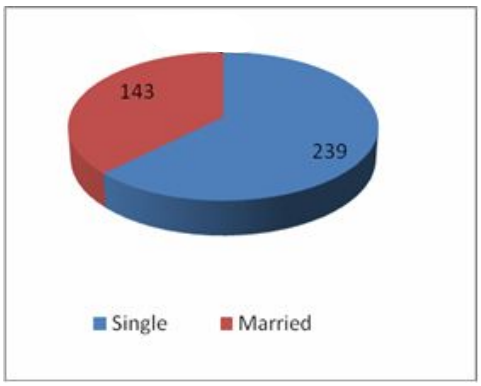


Fig 1b.Depression

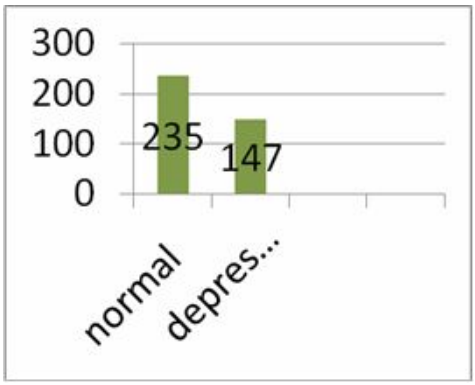
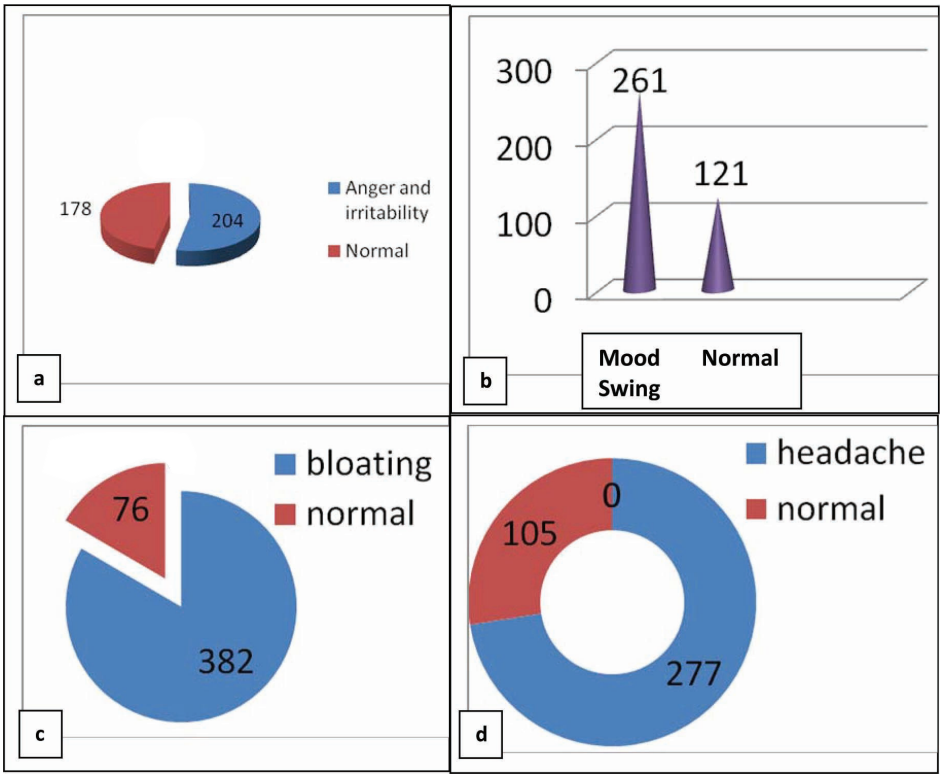
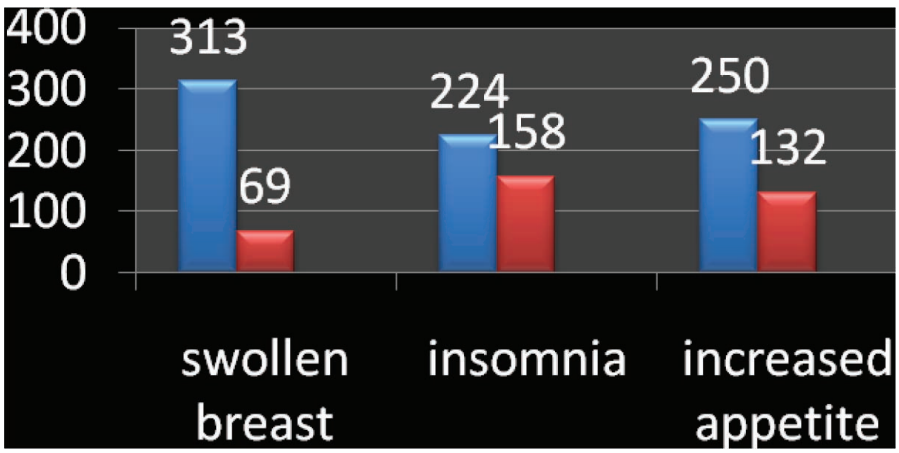


Fig 2.



a) Tension and irritability b) Labile mood c) Body aches d) Headache

Fig 3. Swollen breast, sleep disturbance (insomnia) and increased appetite



Blue colour shows positive results

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 anddynorphins. 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[20,21,22,23,24]. 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 pre-menstrual syndrome (PMS).[25]

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. andhypocalcemia is significant. Clinical trials suggest that blood calcium and vitamin D levels are lesser 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.[26,27.]

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 [28,29]. 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 [30]. 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.

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REFERENCES:

1. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)
2. ICD-10 (World Health Organization (WHO), 1992
3. Dickerson LM, Mazyck PJ, Hunter MH .Premenstrual syndrome.. Am Fam Physician. 2003 Apr 15;67(8):1743-52.
4. Rapkin AJ, MikacichJA.Premenstrual dysphoric disorder and severe premenstrual syndrome in adolescents.Paediatr Drugs. 2013;15(3):191-202. doi: 10.1007/s40272-013-0018-4.
5. Tabassum S, Afridi B, Aman Z, Tabassum W, Durrani R.Premenstrual syndrome: Frequency and severity in young college girls. J Pak Med Assoc 2005;55:546-9.
6. Qiao M, Zhang H, Liu H, Luo S, Wang T, Zhang J et al. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in a population-based sample in China. Eur J ObstetGynecolReprod Biol. 2012 May;162(1):83-6. doi: 10.1016/j. ejogrb. 2012.01.017.
7. Dennerstein L, Lehert P, Heinemann K. Global study of women's experiences of premenstrual symptoms and their effects on daily life.Menopause Int. 2011;17(3):88-95. doi: 10.1258/mi.2011.011027.
8. Cirillo PC, Passos RB, Bevilaqua MC, López JR, Nardi AE .Bipolar disorder and Premenstrual Syndrome or Premenstrual Dysphoric Disorder comorbidity: a systematic review. Rev Bras Psiquiatr. 2012 Dec;34(4):467-79
9. Raja SN, Ferhan M, Stanton WR, McGee R. Prevalence and correlates of the premenstrual syndrome in adolescence. J Am Acad Child Adolesc Psychiatry 1992;31:783-9.
10. McHichi AK, Tahiri SM, Moussaoui D, Kadri N. Assessment of premenstrual dysphoric disorder symptoms: population of women in Casablanca. Encephale. 2002;28:525-30.
11. Choi D, Lee DY, Lehert P, Lee IS, Kim SH, Dennerstein L. J. The impact of premenstrual symptoms on activities of daily life in Korean women. PsychosomObstetGynaecol. 2010;31(1):10-15. doi: 10.3109/01674820903573920.
12. Buttner MM, Mott SL, Pearlstein T, Stuart S, Zlotnick C, O'Hara MW.Examination of premenstrual symptoms as a risk factor for depression in postpartum women. Arch Women Ment Health. 2013 ;16(3):219-25. doi: 10.1007/s00737-012-0323-x.
13. Hamaideh SH, Al-Ashram SA, Al-Modallal H. Premenstrual syndrome and premenstrual dysphoric disorder among Jordanian women. J PsychiatrMent Health Nurs. 2014;21(1):60-8. doi: 10.1111/jpm.12047.
14. Hoyer J, Burmann I, Kieseler ML, Vollrath F, Hellrung L, Arelin K et al. Menstrual cycle phase modulates emotional conflict processing in women with and without premenstrual syndrome (PMS)--a pilot study. J. PLOS One. 2013; 24:8(4):e597-80. doi: 10.1371/journal.pone.0059780.
15. Reed SC, Levin FR, Evans SM.Changes in mood, cognitive performance and appetite in the late luteal and follicular phases of the menstrual cycle in women with and without PMDD (premenstrual dysphoric disorder).. HormBehav. 2008;54(1):185-93. doi: 10.1016/j.yhbeh.2008.02.018.
16. Dennerstein L, Lehert P, Bäckström TC, Heinemann K.Premenstrual symptoms, severity, duration and typology: an international cross-sectional study. Menopause Int. 2009;15(3):120-6. doi: 10.1258/mi.2009.009030.
17. Akmal N, Akhtar N, Attique R,Raana G. Prevalence of pre-menstrual syndrome in young girls. Ann King Edward Med Coll. 2006 ; 12(2): 237-8.
18. Khakwani M, Zaidi HI, Tariq N. Adolescent age group; normal menstrual cycle and menstrual disorders. Professional Med J. 2006 ; 13(4): 543-9.
19. Shershah S, Morrison JJ, Jafarey S.Prevalence of premenstrual syndrome in Pakistani women.JPMA 2007;12(2):354-9
20. Helvacioglu A, Yeoman RR, Hazelton JM, Aksel S. Premenstrual syndrome and related hormonal changes. Long-acting gonadotropin releasing hormone agonist treatment. J Reprod Med. 1993;38(11):864-70
21. Giannini AJ, Melemis SM, Martin DM, Folts DJ. Symptoms of premenstrual syndrome as a function of beta-endorphin: two subtypes. ProgNeuropsychopharmacolBiol Psychiatry. 1994;18(2):321-7.
22. Meczekalski B, Warenik-Szymankiewicz A.Beta-endorphin--physiologic role and menstrual cycle disorders. Ginekol Pol. 1995;66(10):586-95
23. Taskin O, Gökdeniz R, Yalcinoglu A, Buhur A, Burak F, Atmaca R et al Placebo-controlled cross-over study of effects of tibolone on premenstrual symptoms and peripheral beta-endorphin concentrations in premenstrual syndrome.HumReprod. 1998 ;13(9):2402-5.
24. Straneva PA, Maixner W, Light KC, Pedersen CA, Costello NL, Girdler SS. Menstrual cycle, beta-endorphins, and pain sensitivity in premenstrual dysphoric disorder. Health Psychol. 2002;21(4):358-67.
25. Jacobs S.J. Micronutrients and the premenstrual

syndrome: the case for calcium. Am ColNutr. 2000;19(2):220-7.
26. Marjoribanks J, Brown J, O'Brien PM, Wyatt K.Selective serotonin reuptake inhibitors for premenstrual syndrome. Cochrane Database Syst Rev. 2013; 7;6:CD001396. doi: 10.1002/14651858.CD001396.
27. Brown J, O' Brien PM, Marjoribanks J, Wyatt K.Selective serotonin reuptake inhibitors for premenstrual syndrome. Cochrane Database Syst Rev. 2009; 15:(2):CD001396. doi: 10.1002/14651858.CD001396.pub2.Update in: Cochrane Database Syst Rev. 2013;6:CD001396.
28. Dickerson LM, Mazyck PJ, Hunter MH. Premenstrual syndrome. Am Fam Physician. 2003; 15:67(8):1743-52.
29. Bloch M, Schmidt PJ, RubinowDR .Premenstrual syndrome: evidence for symptom stability across cycle. Am J Psychiatry. 1997;154(12):1741-6.
30. Limosin F, Ades. Psychiatric and psychological aspects of premenstrual syndrome. J.Encephale. 2001;27(6):501-8.

ORIGINAL ARTICLE

Placental Morphology And Feto-Maternal Outcomes In Gestational Diabetes

Rabia Arshad[1], Nasim Karim[2], Fahad Azam[3]

ABSTRACT:

Objective: To observe the placental morphology and feto- maternal outcomes in patients having gestational diabetes mellitus.

Materials and Methods: In this descriptive pilot study placentae were collected from 20 patients having gestational diabetes. They received oral and or parenteral drugs along with diet control and exercise during pregnancy. After verbal informed consent of the patients, placentae were collected within 30-40 minutes of delivery and preserved in formalin. Gross examination was done including weight, size consistency of placental tissue, attachment, size and color of the cord, membranes complete or incomplete, retro-placental hemorrhages and any other gross abnormality in the placental tissue. Weight and health of the baby and mode of delivery were observed as determinants of fetal and maternal outcome.

Results: 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±0.51cm. 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. Weight of the baby was 3.4±0.38 kg. There was 1 intrauterine death and out of 20 patients 13 had cesarean deliveries.

Conclusion: Gross morphology of placenta exhibited deformities with adverse fetal and maternal outcomes in patients with gestational diabetes mellitus

Key words: Gestational Diabetes Mellitus, Placenta, Placental morphology, Fetal outcome, Maternal outcome

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).[1,2] Pregnancy is a potentially glucose intolerant condition and in all pregnancies insulin sensitivity decreases as the pregnancy advances predisposing the females to develop GDM.[3]

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.[4, 5] 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.[6] It is a connecting unit between mother and the fetus thus provides the information regarding infants prenatal experiences[7]. Human placenta has a complex vascular system that allows exchange of different materials with fetal and maternal blood.[8] The successful development, growth and maturity of feto-placental vessels are important for normal fetal growth and survival.[9]

✉ **Dr Rabia Arshad**
Lecturer Pharmacology Department
BUMDC- Karachi.
Email: rabs78@gmail.com
Dr Nasim Karim
Professor & Head Pharmacology Department
BUMDC- Karachi.
Dr Fahad Azam
Assistant Professor Pharmacology Department,
Shifa International Medical College, Islamabad.
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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[10]. 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. [11]

Thus any metabolic change as in Gestational Diabetes Mellitus in maternal blood can affect placental morphology and functioning.[12] 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 [13]. This study was carried out to observe thegross morphology of placentaand feto-maternal outcomein 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 M Phil.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 version16.

RESULTS:

Mean patients age was 32.45±4.51years, mean patient weight was 80.62±5.83grams. Fasting and random blood sugar level were 115±35.1 mg/dl and 252±65.97 mg/dl respectively. (Table 1) Mean placental sizewas 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±0.51cm (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).

TABLE 1
MATERNAL CHARACTERISTICS
N=20

VARABLES	Mean± SD
Patient age (years)	32.45±4.51
Patient weight (kg)	80.62±5.83
FBS at the time of enrollment	115±35.1
RBS at the time of enrollment	252±65.97

TABLE 2a
GROSS EXAMINATION OF DIABETIC PLACENTA
N=20

Placental Variables	Mean ±SD
Placental size1(cm)	18.30±3.22
Placental size2(cm)	14.2±2.14
Placental width(cm)	2.4±0.94
Placental weight(gm)	680±122.9
Cord length(cm)	19.55±7.22
Cord width(cm)	1.17±0.51

TABLE 2b
GROSS EXAMINATION OF DIABETIC PLACENTA
N=20

Placental Variables	Number
Placental shape	
Disc-like	13
Non-disc like	7
Placental consistency	
Soft	19
Hard	1
Cord color	
Blue	8
Pale	12
Cord insertion	
central	7
peripheral	13
Membranes	
Complete	14
Incomplete	6
Gross deformity:	
Present	16
Absent	4

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

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±5.83kg respectively. Debelle took the similar gestational diabetics patients for her study[14]

Our results have shown that placental size and weight in GDM females 18.3×14.2cm and 694gms 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[15]. These results also coincide with the work of Ashfaq[16] and Akhter[17] 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 pregnancyan average placental length is 22 cm (9 inch) and width 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.[18] 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 whartson jelly present and the vessels luminal diameter.The results described by Predanicare in concurrence with our findings of placental cords length and thickness.[19]

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 [20] 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[21,22]. Tewari stated the similar figures (80%) regarding fibrinoid necrosis in diabetic placentae[23]

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.[24]

When fetal outcomes were compared, it was seen that babies were good weight i.e3.43kgs which is similar to the fetal outcomes documented by Odar. The normal reference rang for a term baby at 97th percentile is 3.23kgs [25]. This shows that babies of our GDM females were heavier than documented facts. The reason behind thismight be the hyper-insulinemic state of the fetus affecting both the placental and fetal growth[26]. 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.[27]

In our study, cesarean section rate was high (65%). Goldman has stated the same with probable reason of increased fetal weight in GDM group.[28]

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 [29, 30]

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:

1. Territi K, Ekbald U, Vehlberg T, Ronnemaa T. Comparison of metformin and insulin in the treatment of gestational diabetes :A retrospective ;Case Control Study.Rev Diabet Stud 2008 ;5(2):95-101.
2. Serlin DC, Lash RW. Diagnosis and management of gestational diabetes. Am Fam Physician 2009 ;80(1):57-62.
3. Catalano PM, Kirvan JP, Mouzon SH,King J. Gestational diabetes and insulin resistance: Role in long and short term complications for mother and fetus. J Nutr 2003;133:1638 -78.
4. Hassan JA, Karim N, Sheikh Z. Metformin prevents macrosomia and neonatal morbidity in Gestational Diabetes.Pak J Med Sci 2012; 28(3):384-89.
5. Anna V, Von Der Ploeg HP, Cheung NW, Hulxley R, Bauman AE. Socio-demographic correlates of the increasing trends in prevalence of Gestational Diabetes Mellitus in a large population of women between 1995 and 2005. Diabetic Care 2008;31: 2288-93.
6. Alonso A, DelRey CG, Navarro A, Tolivia J, Gonzalez CG .Effects of gestational diabetes mellitus on proteins implicated in insulin signaling in human placenta.GynecolEndocrinol 2006 ;22(9):526-35.
7. Bernirchke K .The Placenta: How to examine it and what you can learn. ContempObst and Gynecol 1981;17:117-19.
8. Leach L, Taylor A, Sciota F. Vascular dysfunction in the diabetic placenta: cause and consequences. J Anat 2009 ;215:69-76
9. Fowden.A.L, Forhead A.J, Coan P.M, Burton G.J. The Placenta and Intrauterine Programming. Journal of Neuroendocrinology 2008; 20: 439-50.

10. Nelson SM, Coan MP, Burton GJ, Lindsay RS. Placental structure in type 1 diabetes: relations to fetal insulin; leptin and IGF 1. Diabetes 2009; 58(11) : 2634-41
11. CowetRM. The infant of diabetic mother. Neo Review 2002; 3(9): 173-89
12. Madazal R ,Tuten A, Calary Z ,Uzun H ,Uludag S,Ocak V.Incidence of Placental Abnormalities, Maternal and Cord Plasma Malondialdehyde and Vascular Endothelial Growth FactorsLevels in Women with Gestational Diabetes Mellitus and Nondiabetic controls.GynecolObstet Invest 2008;65(4):227-32
13. Cambell IW ,Duncan C , Urquhart R , Evans M. Placental dysfunction and still birth in gestational diabetes mellitus.British J Diabetes and Vascular Diseases 2009 ;9(1):38-40
14. Debella D, Snell-Bergeon JK, Hartsfield CL,Bischoff JK, Hamman RF, McDuffie RS. Increasing prevalence of gestational diabetes mellitus over time andby birth cohort. Diabetes Care 2005;28 :579- 84.
15. Kucuk M, Doymaz F. Placental weight and placental weight ratio are increased in diet and exercise treatment in GDM subjects but not in subjects with abnormal value on 100 gm oral glucose tolerance test. Journal of diabetes and its complications 2009;23(1):25-31.
16. Taricco E, Radaelli T, Nobile de Santis MS, Cetin I: Fetal and placental weight in relation to maternal characteristics in gestational diabetes. Histological placental lesions in women with recurrent preterm delivery .Placenta 2003, 24:343- 47
17. Chau YS, Callaghan WM, Kim SY, Schmid CH, Lau J, England LJ et al.Maternal obesity and risk of gestational diabetes mellitus. Diabetes Care 2007; 30(3):2070-76.
18. Ashfaq M, Janjua Z M, Channa M A. Effect of gestational diabetes and maternal hypertension on gross morphology of placenta.J Ayub Med CollAbottabad 2005;17(1):44-7.
19. Akhter .F, AnjumanBanu. M ,Ferdaus R.Effect of Gestational Diabetes Mellitus on Gross Morphological Structure of Preterm placenta. Bangladesh Journal of Anatomy 2010; 8(1): 34-38
20. Yalter FJ. Placental size and shape with the examination of placenta. Am Fam Physician 1998; 579(5): 1045-54
21. Predanic M. Sonographic assessment of umbilical cords. Donald School journal of ultrasound in obstetrics and gynecology 2009 ; 3(2): 48-57
22. Verma R, Mishra S, Kaul JM.Cellular changes in the placenta in pregnancies complicated with diabetes. Int J Morphol 2010; 28(1):259-64
23. Katzman PJ, Genest DM. Maternal floor infarction and massive fibrin deposition: Histological definition, association with intrauterine fetal growth restriction and risk of recurrence. Pediatric Developmental Pathol 2002; 5(2):159-64
24. Bane AL, Gillan JE. Massive perivillousfibrinoid causing recurrent placental failure. BJOG 2003;110 :292-5
25. Tewari V, Tewari A, Bhardwaj N. Histological and histochemical changes in placenta of diabetic pregnant females and its comparision with normal placenta.Asian Pacific J Tropical Dis2011;1:1-4.
26. Boyd PA, Scott AK ,Keeling J W. Quantitative structural studies, on placentas from pregnancies complicated by diabetes mellitus.Br J ObstetGynaecol1986;93:31-5
27. Salomaon LJ, Bernard JP, Ville Y. Estimated fetal weight: reference rang at 20-36 weeks gestation and comparison with actual birth weight reference range. Ultrasound ObstetGynecol 2007; 29: 550-5
28. Odar E, Wandabwa J, Kiondo P. Maternal and fetal outcome of gestational diabetes mellitus in Mulago Hospital, Uganda. Afr Health Sci. 2004; 4(1): 9-14
29. Janson T, Certin I, Powell TL, Desoye G, Radaelli T, Ericsson A et al. Placental transport and metabolism in fetal overgrowth, A workshop report. Placenta 2006; 27(A): 109-13
30. Goldman M, Kitzmiller I, Abrams B, Cowan R, Laros, R jr. Obstetric Complications With GDM: Effects of Maternal Weight. Diabetes 1991; 40(2): 279-82. doi: 10.2337/diab.40.2.
31. Farooq MU, Ayaz A, Ali Bahool A, Ahmed I. Maternal and neonatal outcomes in gestational diabetes mellitus. Int J EndocrinolMetab 2007; 3:109-15
32. Günter HH, Tzialidou I, Scharf A, Wenzlaff P, Maul H, Hillemanns P. Intrauterine fetal death in pregnancies of women with preconceptional and gestational diabetes mellitus and of women without glucose tolerance disorders. Results of the perinatal registry of Lower Saxony, Germany. Z GeburtshilfeNeonatol. 2006 ; 210(6):193-9.

STUDENTS CORNER

Self-Medication Practice Among the General Community Of An Urban Squatter Settlement Near PNS Shifa Karachi

AmnaYounus, MehekYousafzai, Rabia Zafar,
Omer Zahoor, Anum Zahra, Somaeya Zubair, Urooj Fatima, Nadia Khalid

ABSTRACT:

Objective: To assess the frequencyof self-medication amongst the residents of urban squatter settlement near PNS Shifa Karachiand 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[1]. 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.[2] 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.[3] Most of the illnesses are handled by some form of self-treatment and are not brought to the attention of a health care professional.[4] Self-medication has been a natural tendency of human beings at all times. Wherever individualfells 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.[5] 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.

✉ **Dr.Nadia Khalid**
Faculty supervisor of student research
Lecturer CHS Department
Email: dr.nadiakhalid@hotmail.com
AmnaYounus, MehekYousafzai, RabiaZafar,
Omer Zahoor, Anum Zahra, Somaeya Zubair,
Urooj Fatima 4th year M.B.B.S students BUMDC

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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[6] 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 consentingsubjects 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 selfmedication Education level 10 subjects (16.8%) had some sort of primary education while 13 (21.7%) had no formal education. Other levels of education were 5 (8.3%) matriculates, 12 (20%) intermediates, 19 (31.7%) who had done bachelors and 1 (1.7%) who had a master degree (Table-1).

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
2nd grade	1	1.7	1.7	1.7
4th grade	1	1.7	1.7	3.3
5th grade	6	10.0	10.0	13.3
8th grade	1	1.7	1.7	15.0
9th grade	1	1.7	1.7	16.7
Bachelors	19	31.7	31.7	48.3
Illiterate	13	21.7	21.7	70.0
Intermediate	12	20.0	20.0	90.0
Masters	1	1.7	1.7	91.7
Matric	5	8.3	8.3	100.0
Total	60	100.0	100.0	

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.'

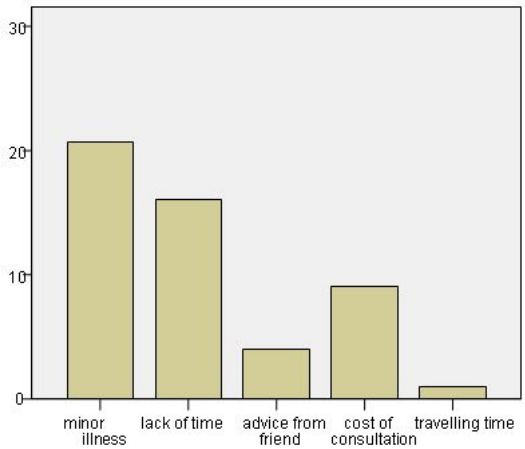
Preference of self-medication instead of doctor visit

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.

Fig-1:
Reasons for not consulting a Doctor



Reasons for Self-Medication

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.

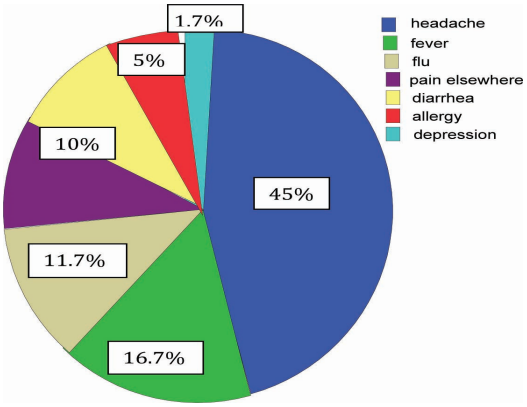
Sources used to get knowledge of a medicine

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.

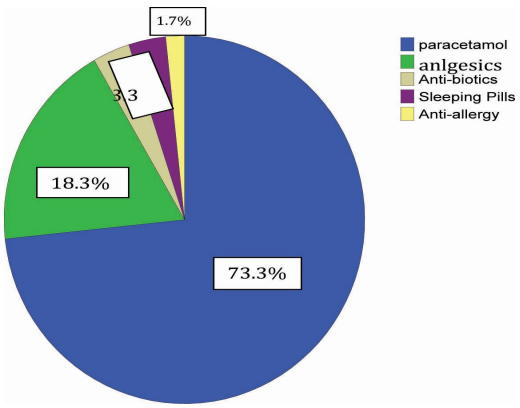
Fig. 2:
Common problems/ symptoms leading to Self-medication



Drugs commonly used for self-medication

Paracetamol is the most commonly used drug by 44 respondents (73.3%), followed by other analgesicsby 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



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 4at 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.[7] Self-medication is practiced universally and is higher in low and middle-income countries.[8] Its prevalence is 68% in European countries[9], 31% in India[10], 59% in Nepal[11], going as high as 92% among the adolescents of Kuwait.[12] 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.[8, 13,14] Similarly, a study conducted amongst the medical and non-medical university students in Karachi showed that the frequency of self-medication is 80%.[15]

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.[18] Cohen showed in his study that 62.5%of the population was compelled by relatives andfriends to take home remedies to relieve pulpalgiainstead of going to dentists.[19]

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.[20] 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[21], drug dependency and most of all masking the sign and symptoms of underlying disease hence, complicates the problem, creating drug resistance and delaying diagnosis. [22-26]

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:

1. Jain P, Sachan A, Singla R K, Agrawal P. Statistical Study on Self Medication Pattern in Haryana, India. Indoglobal Journal of Pharmaceutical Sciences.2012;2(1):21-35
2. Flanigan J. Three arguments against prescription requirements J Med Ethics2012; 38:579-86. doi:10.1136/medethics-2011-100240
3. Skliros E, Merkouris P, PapazafiropoulouA, Gikas A, Matzouranis G, Papafragos C et al. Self-medication with antibiotics in rural population in Greece: a cross-sectional multicenter study.BMC Family Practice 2010; 11:58-65
4. Filho L, Antonio I, Lima-Costa MF, Uchoa E. Bambui Project: a qualitative approach to self-medication. Cad SaudePublica 2004; 20: 1661-9.

5. Sallam S A, Khallafallah I N M, Ibrahim N K, Okasha A.O.Pharmaco-epidemiological study of self-medication in adults attending pharmacies in Alexandria, Egypt. East Mediterr Health J 2009; 15(3):683-91
6. Reetesh M, Papiya B, Sonam J.A study of self medication among the people, region, Madhya Pradesh India. Int Research J Pharmacy 2011;2(12):163-65
7. World Self Medication Industry. Responsible Self-Medication. Joint Statement by The International Pharmaceutical Federation and The World Self-MedicationIndustry accessed on 5 July 2011, URL: http://www.wsmi.org/pdf/fip.pdf
8. Zafar SN, Syed R, Waqar S, Zubairi AJ, Vaqar T, Shaikh M et al.Self-medication amongst university students of Karachi: prevalence, knowledge and attitudes. J Pak Med Assoc. 2008; 58: 214-7.
9. Bretagne JF, Richard Molyoivd B, Honnorat C, Caekaert A, Barthelemy P. Gastroesophageal reflux in the French general population: national survey of 8000 adults. Presse Med 2006; 35: 23-31.
10. Deshpande SG, Tiwari R. Self medication-a growing concern. Indian J Med Sci 1997; 51: 93-6.
11. Shankar PR, Partha P, Shenoy N. Self-medication and nondoctor prescription practices in Pokhara valley, Western Nepal: a questionnaire-based study. BMC FamPract 2002; 3: 17-25
12. Nalini G K. Self-Medication among Allopathic medical Doctors in Karnataka, India BJMP 2010;3(2):325-33
13. Banerjee I, Bhadury T. Self-medication practice among undergraduate medical students in a tertiary care medical college, West Bengal JPGM 2012; 58: 127-31
14. Abahussain E, Matowe LK, Nicholls PJ. Self-reported medication use among adolescents in Kuwait. Med PrincPract 2005; 14: 161-64.
15. Mumtaz Y, Jahangeer A, Mujtaba T, Zafar S, Adnan S. Self-medication among university students of Karachi. J LiaquatUni Med Health Sci 2011; 10: 102-05.
16. Abay SM, Amelo W. Assessment of Self-Medication Practices Among Medical, Pharmacy, and Health Science Students in Gondar University, Ethiopia. J Young Pharm. 2010; 2(3): 306-10.
17. Abid I, Yousaf A, Akhtar T, YousafN,Manzoor MA. Self-medication practice among dental patients of AFID: A cross sectional study. Pakistan Oral & Dental Journal 2012; 32(3): 513-7
18. Tomson G, Sterky G. Self-prescribing by way of pharmacies in three Asian developing countries. Lancet 1986; 2: 620-2.
19. Cohen LA, Bonito AJ, Akin DR, Manski RJ, Macek MD, Edwards RR et al . Toothache pain: Behavioral impact and selfcare strategies Spec Care Dentist. 2009; 29: 85-95.
20. Auta A, Omale S, Folorunsho TJ, David S, Banwat SB. Medicine Vendors: Self-medication practices and medicine knowledge.N Am J Med Sci. 2012;4(1): 24-8.
21. McCabe S E, Teterb C J, Boyda C J. Illicit use of prescription pain medication among college students. Drug and Alcohol Dependence. 2005; 77(1): 37-47
22. Ferris DG, Nyirjesy P, Sobel JD, Soper D, Pavletic A, Litaker MS. Over the counter antifungal drug misuse associated with patient diagnosed vulvovaginal candidiasis. Obstet Gynecol. 2002;99(3):419-25.
23. Bauchner H, Wise P. Antibiotics without prescription: bacterial or medical resistance? Lancet 2000; 355: 1480-84.
24. Calabresi P, Cupini LM. Medication-overuse headache: similarities with drug addiction. Trends PharmacolSci 2005; 26: 62-8.
25. French L, Horton J, Matousek M. Abnormal vaginal discharge: what does and does not work in treating underlying causes. J FamPract 2004; 53: 805-14.
26. Ashina S, Zeeberg P, Jensen RH, Ashina M. Medication overuse headacheUgeskrLaeger 2006; 168: 1015-9.

COMMENTARY

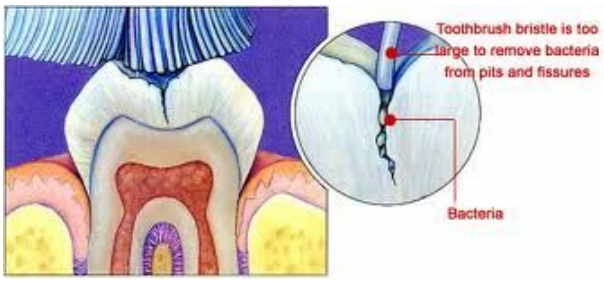
Fissure Sealants - Role in Dental Public Health in Context to Pakistan

Abid Mohsin[1], Saman Hakeem[2]

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 significantespecially 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 articlehighlights 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.[1] The major reason of loss of first molar among children is dental caries.[2] In developing countries like Pakistan, the caries prevalence among children is high,[3] 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.[4] 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.[5] This may be attributed to lack of awareness and resources for treatment.



Courtesy: www.deepdentalcare.com

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.[6] 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 fissure sealants, becomes a necessary component of caries prevention. Sealants conservatively occlude the pits and fissures[7] cutting off access of fermentable carbohydrates to the bacteria in contrast to fluoridation and Hyatt's[8] 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.[9]

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.[10] 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.[11] However, for a successful

✉ **Dr Abid Mohsin**
Assistant Professor
Community and Preventive Dentistry,
Bibi Aseefa Dental College, Larkana.
Email: abidmohsin@hotmail.com
Dr Saman Hakeem
Assistant Professor,
Prosthodontics,
Bahria University Medical and Dental College Karachi.
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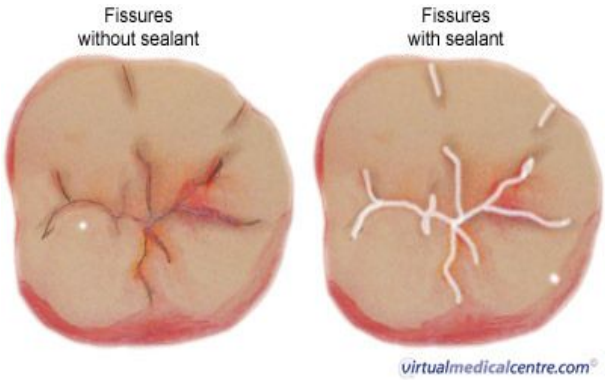
public health program, an easy applicable procedure taking minimum time and cost is imperative. For bonding procedures, ready adherence to enamel and easy manageable cleaning of the tooth is crucial for the program to be highly effective. The type and position of the tooth, eruption status, age and behavior of the child, skill of the operator may hinder proper application in a limited time scale.[12] 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,[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 schools[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.[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.

REFERENCES:

1. Slade GD, Gansky S, Spencer A. Two year incidence of tooth loss among South Australians aged 60+ years. Community Dent Oral Epidemiol 1997; 25:429-37.
2. Willis MS, Harris LE, Hergenrader PJ. On traditional dental extraction: case reports from Dinka and Nuer en route to restoration. Br Dent J 2004: 121-4.
3. Dawani N, Nisar N, Khan N, Syed S, Tanveer N. Prevalence and factors related to dental caries among preschool children of Saddar town, Karachi, Pakistan: a cross sectional survey. BMC Oral Health 2012;12: 59-67.
4. Ninawe N, AnandUllah N, Khandelwal V. A 1-year clinical evaluation of fissure sealants on permanent first molars. ContempClin Dent. 2012;3(1): 54-9.
5. Karim A, Wager B, Khan AA.Caries prevalence in Chikar, Kashmir, post-earthquake: implications for service provision. Int Dent J.2009;59(1):19-25.
6. Divaris K, Preisser JS, Slade GD. Surface-specific efficacy of fluoride varnish in caries prevention in the primary dentition: results of a community randomized clinical trial.Caries Res. 2013;47(1):78-87.
7. Hiiri A, Ahouvo-Saloranta A, Nordblad A, Mäkelä A. Pit and fissure sealants versus fluoride varnishes for preventing dental decay in children and adolescents. Cochrane Database Syst Rev. 2010.
8. Hyatt TP. Prophylactic odontomy. Dent Cosmos. 1923;65:234-41.
9. Burt BA, Eklund SA. Dentistry, dental practice and the community. 7th ed. USA Elsevier Saunders. 2011. Chap 27: pp 371
10. Seigel MD, Calderone JJ. Controversy over the supervision of dental hygienists; impact on a community based sealant program. J Public Health Dent. 1986;46:156-60.
11. Burt BA: Concepts of risk in dental public health. Community Dent Oral Epidemiol2005, 33:240-7.
12. Prabhakar A R, Sankriti A. Murthy, Sugandhan S.

Comparative evaluation of the length of resin tags, viscosity and micro leakage of pit and fissure sealants - an in vitro scanning electron microscope study. ContempClin Dent. 2011; 2(4): 324-30.
12. World Health Organization. Diet, nutrition and the prevention of chronic diseases. WHO technical report series. Geneva: WHO 2003.
www.unesco.org/new/en/education/.../efareport/reports/2012-skills
14. Kervanto-Seppälä S, Pietilä I, Meurman JH, Kerosuo E. Pit and fissure sealants in dental public health - application criteria and general policy in Finland. BMC Oral Health 2009, 9:5-15

CASE REPORT

Sertoli-Leydig Cell -A Rare Male Hormone Producing Ovarian Tumor

Khalida Nasreen[1], Rozina Mustafa[2]

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 inspection 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.

Fig: 1
Gross appearance of Sertoli-Leydig cell tumor

✉ **Dr Khalida Nasreen**
Professor and HOD,
Obstetrics and Gynecology
BUMDC, Karachi
Email:khalidaraoof@yahoo.com
Dr Rozina Mustafa
Associate Professor,
Obstetrics and Gynecology
BUMDC, Karachi
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DISCUSSION:

Sertoli-Leydig cell tumors are rare of all ovarian tumors, as in one study of Pakistan [4] 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.[5,6] 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[7]. 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; howeverthere have also been case reports of successful laparoscopic management of these tumors.[3] 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.[8] 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 1 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.[4]

In this patient as tumor was of early stage and of intermediate type so chemotherapy was not recommendedin contrast to a study [9] whereincomplete 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%. Adjuvant 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.[10]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. [9]

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. Intermediately differentiated tumors need an individualized approach.

REFERENCES:

1. Young RH, Scully RE. Ovarian Sertoli-Leydig cell tumours. A clinicopathological analysis of 207 cases. Am J SurgPathol. 1985;9:543-69.
2. Kaplan A, Lopez H, Jaffee I. A case of poorly differentiated Sertoli-Leydigtumour of the ovary. J PediatrAdolesc Gynecol. 2004;17:49-52.
3. Agarwal N, Roy KK, Manchanda R, Singh MK. Laproscopic management of Sertoli-Leydig cell tumours of the ovary. A report of two cases. J Reprod Med. 2001;46:493-6.
4. Haroon S, Zia A, Idrees R, Memon A, Fatima S, Kayani N. Clinicopathological spectrum of ovarian sex cord-stromal tumors; 20 years' retrospective study in a developing country. J Ovarian Res.2013;6(1):87. doi: 10.1186/1757-2215-6-87.
5. Böttcher B, Hinney B, Keyser J, Kühnle I, Schweyer S, Emons G. Sertoli-Leydig cell tumour in a 13-year-old girl. GynecolEndocrinol. 2011;27(2):107-9.
6. Singh P, Deleon F, Anderson R.Steroid cell ovarian neoplasm, not otherwise specified: a case report and review of the literature. Case Rep Obstet Gynecol. doi: 10.1155/2012/253152. Epub 2012 Oct 10.
7. Dugdale DC, Mason JR. Sertoli-Leydig cell tumor. MedlinePlus. 2008; http://www.nlm.nih.gov/medlineplus/ency/article/001172.htm.Accessed 3/25/2010.
8. Litta P, Saccardi C, Conte L, Codroma A, Angioni S, Mioni R.Sertoli-Leydig cell tumors: current status of surgical management: literature review and proposal of treatment. Gynecol Endocrinol. 2013;29(5):412-7.
9. Tandon R, Goel P, Kumar.A Rare Ovarian Tumor - Sertoli-Leydig Cell Tumor with Heterologous Element. MedGenMed 2007; 9(4): 44.
10. Sood AK, Gershenson DM. Management of early-stage ovarian cancer. In: Bristow RE, Karlan BY, editors. Surgery for Ovarian Cancer: Principles and Practice. London, UK: Taylor and Francis; 2005. pp. 57-86.

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