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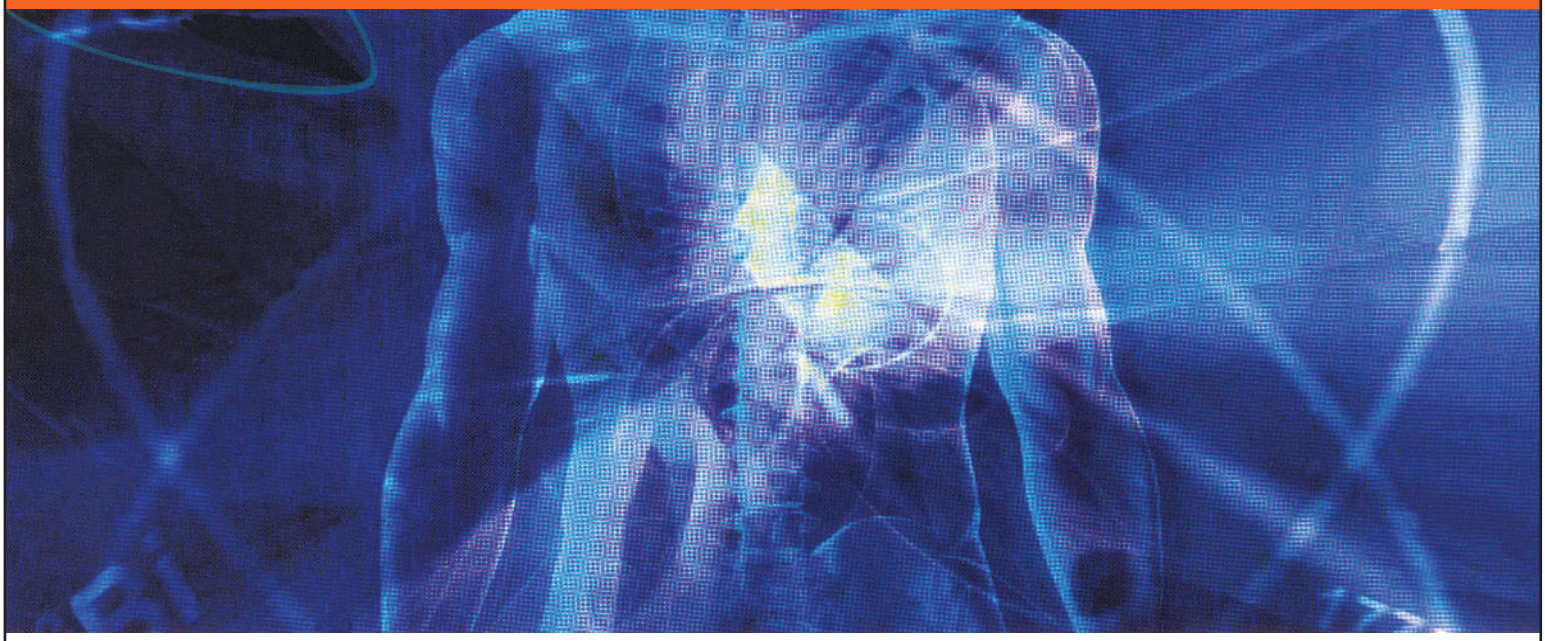

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EDITORIAL

Global Threat – Zika Virus

Syed Ijaz Hussain

Zika virus is an emerging mosquito-borne virus that was first identified in Zika forest of Uganda in 1947[1] in rhesus monkeys through a monitoring network of sylvatic yellow fever. It was subsequently identified in humans in 1952 in Uganda and the United Republic of Tanzania[2]. Outbreaks of Zika virus (Figure 1a) disease have been recorded in Africa, America, Asia and Pacific.It belongs to the family of Flavi virus[3]and its vector is Aedes mosquitoes[4] (which usually bite during the morning and late afternoon/evening hours) (Figure 1b). The reservoir is yet unknown.

Figure: 1a[4]

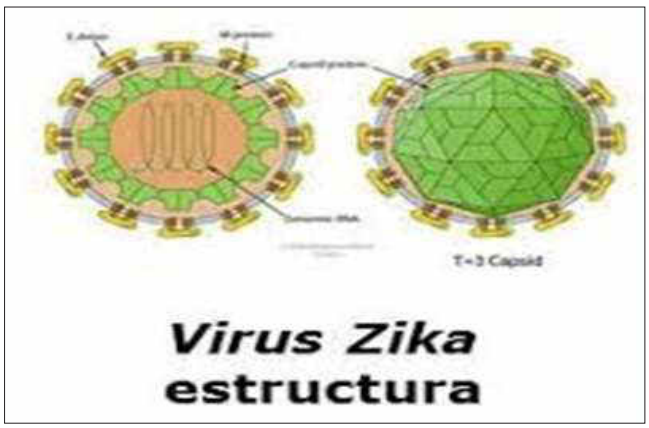

Figure: 1b[4]

The incubation period (the time from exposure to symptoms)is not clear, but is likely to be few days. The symptoms are similar to other arbovirus infections such as dengue[5], which include fever, skin rashes, conjunctivitis, muscle and joint pain, malaise, and headache. These symptoms are usually mild and last for 2-7 days. The virus is transmitted to people through the bite of an infected mosquito from theAedes genus, mainly Aedesaegypti in tropical regions. This is the same mosquito that transmits dengue, chikungunya[6] and yellow fever. Zika virus disease outbreaks were reported for the first time from the Pacific in 2009 and 2013[7] (Yap and French Polynesia, respectively), and in 2015 from America (Brazil and Colombia) and Africa (Cape Verde). In the month of January and February 2016, more than 13 countries including America, Brazil and France reported sporadic spread indicating rapid geographic expansion of this virus. In Colombia it has been reported that 2000 pregnant women are also suffering from this viral disease. The diagnosis is mainly done on the basis of clinical assessment and recent history (e.g. residence or travel to an area where Zika virus is known to be present).Isolation of virus on PCR[8] and other body fluids such as urine and saliva.[9] There is no definite treatment of people suffering from this viral disease and no vaccination is available till to date.The only management is that the patient should be encouraged to take rest, drink plenty of water and to relieve pain and fever by taking analgesic and antipyretic drugs accordingly. During large outbreaks in French Polynesia and Brazil in 2013 and 2014[10]respectively, national health authorities reported potential neurological and auto-immune complications of this virus disease. Recently in Brazil, local health authorities have observed an increase in Guillain-Barré syndrome which coincided with this virus infection in the general public, as well as an increase in babies born with microcephaly in northeast Brazil. Agencies investigating the Zika outbreaks are finding an increasing body of evidence about the link between Zika virus and microcephaly (Figure 2a, 2b). However, more investigation is needed to better understand the relationship between microcephaly in babies and to this virus. Other potential causes are also being investigated.

Figure: 2a[4]

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Figure: 2b[4]

People should be instructed to adhere to the following preventive measures;

1. Rely on reducing mosquitoes through source reduction (removal and modification of breeding sites) and contact between mosquitoes and people.
2. Use insect repellent, wearing clothes (preferably light-coloured) that cover as much of the body as possible; using physical barriers such as screens, closed doors and windows; and sleeping under mosquito nets.
3. Empty, clean or cover containers that can hold water such as buckets, flower pots, so that places where mosquitoes can breed are removed.
4. Give special attention and help to those who may not be able to protect themselves adequately, such as young children, the sick or elderly.
5. During outbreaks, health authorities advise spraying of insecticides to be carried out. Insecticides recommended by the WHO Pesticide Evaluation Scheme may also be used as larvicides to treat relatively large water containers.
6. Travellers should take the basic precautions described above to protect themselves from mosquito bites.

   WHO is supporting countries to control this viral disease by:

   Defining and prioritizing research regarding this disease by convening experts and partners.

   Enhancing surveillance of this virus and potential complications.

   Strengthening capacity in risk communication to help countries meet their commitments under the International Health Regulations.

   Providing training on clinical management, diagnosis and vector control through a number of WHO Collaborating Centres.

   Strengthening the capacity of laboratories to detect the virus.

   Supporting health authorities to implement vector control strategies aimed at reducing Aedes mosquito populations such as providing larvicide to treat standing water sites that cannot be treated in other ways, such as cleaning, emptying, and covering them.

   Preparing recommendations for clinical care and follow-up of people contracted with this virus, in collaboration with experts and other health agencies.[10]

   Measure should be taken through electronic and print media to disseminate information and provide awareness regarding this deleterious virus as prevention is the only armour which we can employ at present to fight against the attack of this virus.

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REVIEW ARTICLE

Increasing Burden of Abdominal Obesity in Females and its Aftermaths

Khola Noreen[1], Nadia Khalid[2],Imran Shaikh[3]

ABSTRACT:
Obesity is now recognized as one of the major public health issues all over the world. In Pakistan, it is a "silent epidemic" striking significantly because we are still struggling with health and economic burdens of malnutrition, infectious diseases and high infant mortality rates. In epidemiological studies age, sex and ethnic background all have to be taken into consideration, particularly when determining the health risk with obesity.Females are more vulnerable to be affected by obesity related health issues. Body Mass Index (BMI) is a surrogate measure of assessing obesity in terms of height and weight. It does not give any insight into regional body fat distribution. BMI is not a reliable measurement of body composition in individuals particularly in females having high body fat, rather more specifically it is excess abdominal fatness, quantified by waist circumference measurement, which is a better considered measure for assessing abdominal obesity in females.
Keywords: Abdominal obesity, Body mass index, Waist circumference, Over weight

INTRODUCTION:

Obesity is now recognized as one of the major public health issues all over the world. WHO called urgent action to halt global obesity epidemic which is now labeled as "GLOBESITY".Overweight and obesity is defined as abnormal excessive accumulation of fat within the body that impairs the body functions.[1]South Asian countries are currently affected by obesity epidemic which is a leading cause of various chronic non communicable diseases , their associated mortality and loss of life due to premature deaths.[2]The prevalence of overweight and obesity in Pakistan taking Asian-specific cut off levels reported approximately25%of adult population as overweight and about 10.3% as obese.[3] Amongst various methods available for assessment of obesity,body mass index (BMI) is the most commonly used method of assessment of overweight and obesity because of its general application and feasibility.[4]

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However, it tends to underestimate the prevalence of both conditions. BMI calculates obesity level in terms of height and weight of an individual and does not differentiate between body fat content, muscles and bone mass.[5] It may lead to misclassification of level of obesity as it is not necessary that overweight person has increased body fat as excessive weight. It can be due to increase muscle mass as in athletes or it can be due to increase body fat. It is just a mathematical calculation and not a direct estimation of adiposity.[6]It is an index for weight excess, rather than body fat composition.[7] Racial and ethnic disparities exist in distribution of body fat among different populations and ethnic subgroups.[8] There is different relationship between BMI and body fat distribution among different population and these disparities being more pronounced among women.[9] In Europeans,BMI of 30kg/m^2 corresponds to 25% of body fat in males and 30% of body fat in females[10],while in South Asians of same gender, age and BMI have increased body fat percent and less muscle mass along with increased risk of cardio metabolic disorders. Evidence has supported the fact that these changes are more pronounced in females as compared to males.[11, 12] The disparities associated gender and ethnicity with regards to obesity assessment should be kept in consideration and instead of uniform BMI cut off population specific assessment of obesity indices based on distribution of body fat should be purposed.[13] Keeping in view BMI related error in measurement of obesity and its associated health risks, researchers are considering for some better tool for measuring the obesity. Since obesity has now become a serious public health issue, accurate level of estimation of obesity has become extremely important because of major health issues associated with excessive body fat. In the past two decades, visceral or abdominal obesity, as reflected anthropometrically by an increased waist circumference, has also emerged as an important predictor of risk of obesity-related diseases. Moreover, as discussed in a review[5]addressing anthropometric indices recommended waist circumference over other indices, as it is simpler to measure and interpret and correlates well with visceral fat measured by computed tomography.Yet, waist

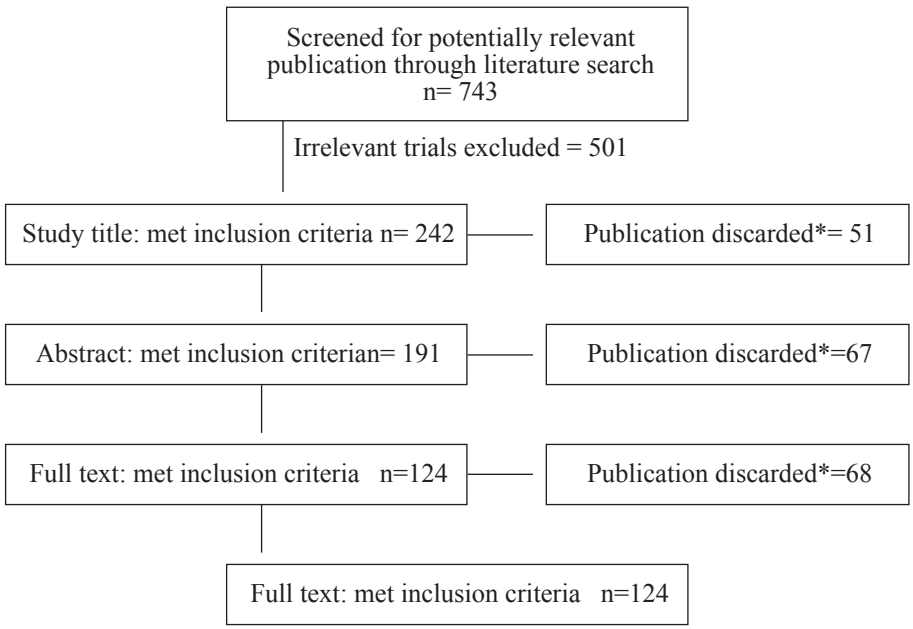
circumference is also highly correlated with BMI and thus reflects general, and abdominal, obesity.[14]

MATERIALS AND METHODS:

Articles were identified by using multiple electronic databases like Pub Med /MEDLINE /EMBASE Science direct, Google.com and Google scholar from the year 2001 to February 2016. Literature search was done by using key words, terminologies and phrases of obesity, overweight, abdominal obesity, waist circumference, body mass index, anthropometric indices.This review was done according to Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). **Inclusion Criteria: (**1) Studies published in a peer-reviewed journal(2) Studies using measured or self-reported body mass index (BMI), waist circumference (WC) waist hip ratio (WHR), body fat and Triceps Skin fold thickness (TSF)(3) Studies that must have examined the association between abdominal fat and its associated health hazards particularly in females(4) Study that can be case report, case series, abstract,original article or systematic review or meta-analysis(5) Study that must have been published within the last 15 years. **Exclusion Criteria:** Studies that used categorizations of measures of obesity indices including Body Mass Index (BMI), waist circumference (WC) or waist hip ratio (WHR) different from the WHO or another internationally comparable classification.

Figure 1

Flow of study identification, inclusion and exclusion



***** Papers which have not used standard (WHO criteria) categories of BMI classification, obesity indices and other measures of body fat composition. Papers not from peer reviewed journals and not fulfilling the eligibility criteria.

LITERATURE REVIEW:

Obesity is an epidemic of the 21st century and major causative factor for many other metabolic disorders. According to a global estimate by the World Health Organization (WHO), in 2005 there were about 1.6 billion overweight persons aged 15 years and above and among them at least 400 million adults were obese. World Health Organization uses BMI calculated as kg/m^2, and it defines obesity as BMI above 30 and overweight, as BMI s above 25. The Indo-Asian specific definition of obesity is set as, BMI above 27 and overweight, BMI above 23.The revision of definition of obesity taking in account the racial differences has resulted in increaseprevalence. According to that approximately1.7 billion people are classified as overweight. The WHO further projects that by 2020, approximately 2-3 billion adults will be overweight and more than 700 million will be obese.[15]World Health Organization (WHO) estimated that globally obesity prevalence has doubled since 1980; with over all increased prevalence in females as compared to males.Between 1980 and 2013, obesity prevalence in males have increased from 28.8 to 36.9%, while in females have increased from 29.8% to 38%.[16] Obesity prevalence is unacceptably high among Asian women.[17]Obesity in this age group not only predispose them to various reproductive health issues but also increases the risk of chronic health issues in later years.[18]National Nutrition survey of Pakistan 2011 reported that 19.4% of women of reproductive age were overweight and 9.5% of women of reproductive age were obese (15.7% from urban areas compared to 6.5% from rural areas). [19] There is dearth of literature in this regard in our part of world. Moreover, there is limited data available regarding screening modalities for obesity diagnosis and its associated health risks.[20]

Why abdominal obesity?

Abdominal obesity or central obesity is the accumulation of abdominal fat resulting in an increase in waist size. There is abnormal deposition of fat in abdominal areas with resultant health consequences such as cardiovascular diseases, type 2 diabetes and cancers. It is recognized as a major health issue among the adults both in developed and developing countries.[21] In general, women tend to have higher rates of abdominal obesity than men, which become more prominent with ageing especially after the menopause.[22]Furthermore, South Asian women in particular experience a severe form of abdominal obesity at normal BMI leading to devastating consequences.[23]

Waist circumference is measured by standard WHO STEPS Protocol. The WHO STEPS is a standardized instrument that allows the collection, analysis and dissemination of data regarding risk factor surveillance for non communicable disease in standardized manner. As per this protocol waist circumference is measured by placing measuring tape approximately at mid of upper border of iliac crest and lower margin of last palpable rib.[24]

According to Asian cut offs waist circumference of < 80 cm for females and < 90cm for males is considered as normal.[25] According to data of National Action Plan –Non Communicable diseases (NAP-NCD) First Round of Surveillance, 34.2% males and 60% females in the urban areas and 35.7% males and 55.5% females in the rural areas are reported to have central obesity.[26] This is a grave trend since central obesity is a more important risk factor for chronic non communicable diseases than overall adiposity as measured by BMI in studies on the Pakistani population.[27]In females, gynecoid type of obesity is more common among which fat is deposited at hips, thigh and buttocks.[28]Waist circumference is considered as better tool for abdominal fat assessment specially for the gynecoid type of obesity.[29]Moreover, evidence has supported the fact that it is the the best anthropometric index in predicting a chronic disease risk and related health conditions.[30]

Abdominal Obesity and reproductive abnormalities:

Reproductive abnormalities are relatively common in women with abdominal obesity, of which the most common abnormality encountered is polycystic ovarian syndrome (PCOS). South Asian women are more vulnerable to this disease that manifests at a younger age when compared with their counterparts in the West.[31] They are also found to have higher fasting insulin concentrations and lower insulin sensitivity than Caucasian women.[32]Polycystic ovarian syndrome (PCOS) is closely associated with abdominal obesity in South Asian women who also have more severe symptoms associated than white Europeans.[33] Obese women are particularly vulnerable to adverse effects of pregnancy including 3 to 10 times the risk of pre-eclampsia, gestational diabetes mellitus, difficulties in labour and delivery, higher rates of caesarean delivery and other peri-natal morbidity and mortality.[34] Obesity has a significant adverse impact on reproductive outcome. It influences not only the chances of conception but also the response to infertility treatment and increases the risk of miscarriage and pregnancy complications.[35] When fertility is a problem, the primary goal of treatment is to normalize serum androgens and restore reproductive function, which can be achieved by reducing insulin resistance through a decrease in weight and abdominal fat.[36, 37]Studies of weight loss through lifestyle modification have indicated that improvements in fertility rate, hormonal profiles, menstrual regularity, ovulation, and conception occur with modest weight loss (5% of initial body weight) along with parallel improvement in anthropometric indices.[38, 39]

Cancers: After the heart disease cancer is ranked as second leading cause of death in developing countries.[40]Current estimates of association of obesity with risk of cancer has documented that 5% of all cancers among postmenopausal women are attributable to being overweight and that 4% to obesity.[41] Evidence has shown the association of obesity with cancer.[42]Increase amount of adipose tissue in obese females lead to release of several hormones like factors adipokines which are pro inflammatory in nature and promotes the cancer development. Common obesity related malignancy include cancer of breast, endometrial, colon and esophageal, kidney.[43,44]Obesity is one of the modifiable risk factor that predispose females to development of cancer Throughout the life span there is particular time period referred as "windows of susceptibility" during which various contributing factors can predispose female body towards the development of cancer among all these factors obesity has significant influence in cancer predisposition.[45]In Pakistan, the data for cancer prevalence in females is in accordance with the trend found worldwide that is breast cancer was reported to be the most prevalent canceramong females specially those having BMI beyond normal limits.[46]Obese females are most vulnerable and have poor prognosis.[47]The most probable underlying mechanism involved in the development of breast cancer due to obesity is hormonal changes such as elevated estrogen levels. Another possible mechanism may be insulin resistance and leading to increase level of circulating insulin that may lead to stimulation of cancers cells.[48, 49]

Cardiovascular disorders: Evidence has reported that for cardiovascular risk stratification and evaluation of various metabolic disorders it is recommended to measure both BMI and WC together.[50]Previous researches have reported the WC to be modestly stronger predictors of cardiovascular disease risk than BMI.[51, 52] Women are more prone to the health hazards associated with overweight and obesity as compared to their males. Risk associated with obesity is proportional to degree of waist circumference. Women with waist circumference >80 cm have three times more mortality rate as compared to women with < 80 cm. Obesity increases the level of triglycerides and lower the level of HDL promotes the narrowing of small arterioles which lead to coronary artery disease, and associated health risk.[53]

Obesity and mental health: Despite of overall increase

in obesity throughout the world, obese people are still facing low acceptance and negative attitude.[54]Females are more vulnerable group to be effected by negative attitudes and disapproval from friends and relatives, they have to face social constrains like criticism, taunting remarks from strangers and discrimination from their normal weight peers.[55]They are also stigmatized and bullied for their physical appearance.Paradoxically such people eat more due to stress and guilt and vicious circle of eating and weight gain continue. Research have proved that on various psychological assessment scales, obese people score very less ranging from sadness, weeping tendencies and severe depression, anxiety, mood swings, insomnia, eating disorders including bulimia and anorexia nervosa.[56]

Prevention: Obesity has now become a global epidemic, yet significant reduction in mortality associated with this disease is possible, with millions of lives can be saved and uncountable disabilities can be reduced through primary prevention of risk factors, early diagnosis and prompt treatment.In an era of over consumption of food and obesity, healthy food habits are essential in keeping away a huge variety of chronic diseases. The portion size in pre-packaged, ready-to-eat and restaurant foods is increasing. Many people cannot accurately estimate portion size, and this leads to an underestimation of intake. Life style intervention involving modification in diet and physical activity can be successful in achieving weight loss in severely obese females. There is dire need to create public health awareness by organizing awareness lectures in order to make general public sensitize about deleterious effects of obesity, targeting the important demographical groups, like women, adolescent and children.Young generation should be addressed to make them aware about benefits of healthy life style and importance of primary prevention in development of chronic diseases.Education programs should be arranged in educational institution.The environments in which people live are complex and their individual and combined elements have a marked effect on people's behaviors and dietary intakes. Individuals interact in a variety of micro-environments or settings such as schools, workplaces, homes, restaurants and fast food outlets. These in turn are influenced by the broader macro-environments or sectors such as the food industry, all levels of government, and society's attitudes and beliefs.

There is dire need of integration of all concerned stake holders including health, public, private, health, education to integrate in order to make effective strategies to halt this problem.Fiscal food policies should be implemented by Government**.** Food prices have a marked influence on food buying behavior and consequently nutrient intakes.Governments should promote the healthy eating behavior by controlling the prices of natural food products. Nutrition 'signposting' programs should be implemented.Nutrition 'signposts' are signals (such as logos) at point of choice which indicate to the consumer that a food meets certain nutrition standards. Full nutrition information panels should be on food products. Nutrition information panels appear to facilitate the food choices of those who are trying to reduce their fat intake, greater impact among women, higher educated people and those with established beliefs and knowledge about diet–disease relationships.

In Pakistan, it is a "silent epidemic," striking significantlybecause we are still struggling with the health and economic burdens of malnutrition, stunting, infectious disease, and high childhood mortality rates. One paradox of this so-called "nutrition transition" is that even as obesity rates rise, underweight persists, sometimes within the same household. We are currently facing a dual burden-the infectious diseases that accompany malnutrition and, increasingly, the debilitating chronic diseases linked to obesity and Western lifestyles. Given the huge costs of obesity, prevention is key. Slowing the increases in obesity and turning around the epidemic will take large-scale, multifaceted efforts, within individuals and across the nation, to improve people's food choices and increase physical activity. Pakistan needs to develop a national strategy to control obesity in its population by implementing the recommendations of the WHO global strategy on diet, physical activity and health.The implementation program should integrate all stakeholders like health department, print and electronic media, nongovernmental organizations, and private sector.Community based primary prevention programs and clinical trial with more resources and man power should be introduced with aim of achieving maximum benefit with cost effectiveness.

CONCLUSION:

The evidence for the adverse effects of obesity on women's health is overwhelming and indisputable. Obesity, especially abdominal obesity, is central to the reproductive health problems and is strongly related to development of cardio-metabolic risk factors in women. Therefore, more attention should be paid to abdominal obesity both in clinical practice and in epidemiological studies. Moreover, the disparities associated gender and ethnicity with regards to obesity assessment should be kept in consideration and instead of uniform BMI cut off population specific assessment of obesityindices based on distribution of body fat should be purposed.

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ORIGINAL ARTICLE

Knowledge, Attitude and Practice Regarding Oral Hygiene among Private School Children

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ABSTRACT:
Objective: To evaluate the knowledge, attitude and behavior of private schools children regarding oral hygiene status of Gadap Town Karachi, Pakistan.
Materials and Methods: This descriptive cross sectional study was carried out in two private schools of Gadap town UC-2,Karachi Pakistan. A self-structured questionnaire related to KAP of oral hygiene was used and data was collected through questionnaire. This research was conducted in 290 school children aged 11-19 years who were examined and fullfilled the inclusion criteria. Questionnaire was designed and three house officers were trained for obtaining the data. The knowledge about oral hygiene and gingival index was determined and recorded from each student. Data was analyzed using SPSS vession 20
Results: There were 67.9% male and 32.1% female students. About 81.4% of students had the knowledge regarding oral health, 12.8% individuals had no knowledge and 5.9% students reported Idon't know about oral health. Students with knowledge of brushing of teeth twice daily was 81.7%, and without knowledge were13.1% and 5.2% individuals said I don't know.73.8% study participants had the knowledge of sweets / candy as harmful for oral health.
Conclusion: Private schools children of Gadap town Karachi Pakistan had knowledge of oral hygiene practices but oral hygiene instructions should be given to further improve the present status.
Keywords: Knowledge, Attitude, Practice, Oral hygiene status, Questionnaire, Gingival index

INTRODUCTION:

Oral diseasesqualify as a major community health problem, although these diseases can be prevented by a positive dental health behavior.[1]Most of the oral diseases in everyday are directly related to lifestyle .They can be considered an important public health issue due to its high prevalence and significant social impact.[2]Oral health knowledge is considered to be an essential pre requisite for health related behavior.[3] Oral health and general health share common risk factors like use of tobacco and the excessive consumption of sweets, chocolates, etc. The solutions to control oral diseases are to be found through shared approaches with integrated chronic disease prevention. Dental caries and periodontal diseases have historically been considered as most important global oral health burdens. At present, the distribution and severity of oral diseases vary in different parts of the world and within the same country.[4] In developed countries, dental caries and periodontal diseases affects 60-90% of school children and adults.[5]It is also a most prevalent oral disease in several Asian and American countries, while it appears to be less common and less severe in most African countries. However, it is expected that the incidence of dental caries will increase in the near future in many developing countries of Africa, particularly as a result of growing consumption of sugars and inadequate exposure to fluorides.[6]While in some industrialized countries there has been a positive reduction in tooth loss among adults in recent years, the proportion of edentulous persons amongst the elderly is still high in some countries. In most developing countries, access to oral health services is limited and teeth are often left untreated or are extracted because of pain and discomfort. Tooth loss and impaired oral function are therefore expected to grow as a public health problem in many developing countries. The tooth loss in adult life may also be due to poor periodontal health. Severe periodontitis which may result in tooth loss is found in 5-15% of most populations. In industrialized countries, studies show that tobacco use is a major risk factor for periodontal disease. With the

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growing consumption of tobacco in many developing countries the risk of periodontal disease and tooth loss, therefore, may increase. Periodontal disease and tooth loss are also related to general chronic diseases.[7] Dental health educators are frequently invited by different school establishments to deliver lectures on oral health, and to provide preventive services.School teachers traditionally have played a role in educating children about how to prevent oral diseases and promote oral health.[8] Health education programs in schools may be conducted by groups such as public health professionals, health educators, school nurses and teachers. The advantages of using school personnel are the potential for improved continuity of instruction and lowered cost of the service.

According to previous studies in Pakistan, the government spending on public sector education is only 12% of its federal budget. Overall there are 256,088 educational institutions in our country out of which 71% are in public sector. The total student enrollment is 37,462,884 out of which 25,213,894 students are enrolled in public institutes.[9,10]The purpose of this study was to evaluate the knowledge, attitude and practice regarding oral hygiene among two private schools children of Gadap town Karachi, Pakistan.

MATERIALS AND METHODS:

This descriptive cross sectional study was conducted for a period of six months from September 2014 to February 2015. A self administered close ended questionnaire to assess the oral hygiene related to knowledge, attitude and practices among studentsof two private schoolsin Gadap town UC-2 Karachi.There were 197 males and 93 females with age group of 11-19 years.This age group was chosen as the baseline data collected could be utilized for future planning of a school oral health programs. The students of the school represent population of children belonging to low socioeconomic status.

The questionnaire was filled by the team of dentist and trained house officers.The data for this study were collected by carrying out an interview among participants.The stratified simple random sampling technique was used.The questionnaire was divided into four parts. First part included questions on demographic characteristics of children that is age, gender and educational status. Second part of the questionnaire included questions to test the knowledge of children regarding oral hygiene, brushing frequency, sweets/ candies, smoking hazards, dental floss, and mouthwash etc. Third part comprised of questions related to their attitude towards increase brushing frequency, withdraw smoking habits, reduce sweets / candies intake etc. Fourth part consists of cleaning practices of teeth and frequency etc.A written consent was taken from school principals as well as the older children before the collection of data.The data was recorded and analyzed by using Statistical Package for Social Sciences (SPSS) version 20.

RESULTS:

The sample size of this study was 290.The sample comprised of males 67.9% and females 32.1 % (Table 1).The age range among the students was 11-19.Themean age of the study participants was 13.73.

About 81.4% of individuals had the knowledge regarding oral health, 12.8% individuals had no knowledge of oral health and 5.9% individuals don't had the knowledge of oral health. Those participants who had the knowledge of brushing of teeth twice daily were 81.7%, had no knowledge of brushing twice daily was 13.1% and 5.2% individuals don't had the knowledge of brushing teeth twice daily. 73.8% study participants had the knowledge of sweets / candies is harmful for oral health, 21.4% individuals had no knowledge regarding sweets / candies and 4.8% individuals did not know about the harmful effects of sweets / candies of your oral health. 88.6% individuals had the knowledge of chaliya or gutka was bad for oral health, 8.3% individuals had no knowledge regarding chaliya or gutka was bad for oral health and 3.1% individuals did not know the harmful effects of chaliya or gutka of your oral health. 76.2% individuals know about the smoking hazards. The 61.0% individuals had the knowledge of gums bleeding while brushing teeth, while 36.9% individuals had the knowledge of bad breath in mouth (Table 2a).

Regarding the attitude of oral hygiene status in school children 85.2% individuals had to improve oral hygiene through proper brushing. 77.6% know that the gum disease is bad for oral health so they have a plan to increase brushing frequency, 10.7% individuals did not knew that gum disease is bad for oral health and 11.7% individuals didnot knew about the gum disease so they did not increased their brushing frequency. The 78.6% individuals had a plan to reduce sweets and chocolate intake, 17.9% had no plan to reduce sweets and chocolate intake and 3.4% individual didn`t had a plan to reduce sweets and chocolate intake.The 80.7% individuals had to reduce gutka and chaliya habit, 13.4% individuals had no plan to reduce gutka and chaliya habit and 5.9% said that I don't have a plan to reduce gutka and chaliya habit that is harmful for oral health. The 72.8% individuals had a plan to withdraw smoking habit (Table 2b)

Frequency of once daily cleaning of teeth was 46.2% and frequency of twice daily cleaning of teeth was 52.4%. Those participants who clean teeth with tooth paste by finger was 4.8%, individuals cleaning teeth with toothpaste by brush was 87.9%, and 5.5% individuals used miswak for cleaning of teeth (Table 2c). 26.6% study participants used dental floss after the meal. The individuals who smoke one cigarette per day were 7.9%, for those who smoke two cigarette per day were 1.7%, who smoke three cigarette per day were 1.7% and the others are included as 88.6% .Frequency distribution of gingival index among school children was also evaluated (Table 3).

Table: 1
Frequency distribution of participants by age and gender

Age in years	Frequency	Percent
11	11	3.8
12	67	23.1
13	48	16.6
14	74	25.5
15	42	14.5
16	32	11.0
17	7	2.4
18	4	1.4
19	1	.3
Male & Female	**Frequency**	**Percent**
Male	197	67.9
Female	93	32.1
Total	290	100.0

Table: 2a
Frequency distribution of knowledge among school children

Questions	Yes	No	Idon't Know
Do you have knowledge about oral hygiene?	81.4%	12.8%	5.9%
Do you know brushing is necessary twice daily?	81.7%	13.1%	5.2%
Do you know sweets / candies is bad for your oral health?	73.8%	21.4%	4.8%
Do you know chalia or ghutka is bad for your oral health?	88.6%	8.3%	3.1%
Do you have any knowledge regarding smoking hazards?	76.2%	12.1%	11.7%
Do your gums bleed when you brush your teeth?	61%	34.8%	4.1%
Do you feel bad breath in your mouth?	36.9%	58.3%	4.8%
Do you have any knowledge regarding dental floss?	25.9%	52.8%	21.4%
Do you have knowledge about mouthwash?	30%	53.1%	16.9%

Table: 2b
Frequency distribution of attitude among school children

Frequency	Yes	No	I don't know
I know I have to improve my oral hygiene through proper brushing	85.2%	6.2%	8.6%
I know gum disease is bad for my oral health, that's	77.6%	10.7%	11.7%
why I have to plan to increase brushing frequency:			
I have a plan to reduce sweets & chocolate intake	78.6%	17.9%	3.4%
I have a plan to reduce gutkha /chalia habit	80.7%	13.4%	5.9%
I have plan to withdraw my smoking habit	72.8%	10%	17.2%

Table: 2c
Frequency distribution of practice among school children

Variables	Once	Twice	No
Do you clean your teeth	46.2%	52.4%	1.4%
Do you get your teeth clean?			
Tooth Paste with finger	4.8%		
Tooth Paste with brush	87.9%		
Miswak	5.5%		
Not clean	1.7%		

Table: 3
Frequency distribution of gingival index among school children

Gingival index	Frequency	Percent
No inflammation	121	41.7
Mild inflammation	126	43.4
Moderate inflammation	39	13.4
Severe inflammation	4	1.4
Total	290	100.0

DISCUSSION:

In Pakistan being a third world country, has its major bulk of population residing in the rural areas. There is lack of health services and personnel in such areas thus leading to the deficiency of knowledge and awareness of dental hygiene being given by the doctors. This study presented an overview of the oral health behavior in terms of knowledge, attitudes and practice of school children ages eleven to nineteen years[10.]Dental plaque initiates reaction in tissues which starts in early ages especially during infancy and results in bacterial challenge in the host. The balance between microbial challenges in the host response is impaired and causes inflammation thatresults in loss of periodontal attachment. Usually males have a poor oral hygiene. Periodontal disease progression depends on age, sex, socioeconomic status, brushing habits and their frequency.[11, 12] Previous studies on gingivitis had been conducted in many parts of the world in different ethical and cultural background. Majority of the students examined in our study used tooth brush and paste to clean their teeth, some used finger or miswak as a method of cleansing. When age wise prevalence was seen it was found 80% in 5-7 years, 79% in 8-10 years and 78% in 11-13 years.[13] When gingival index was considered, children examined had gingivitis out of which 13.4% had moderate gingivitis, 43.4% had mild gingivitis and 1.4% had severe gingivitis while 41% were found to be healthy.

Previous studies showed contrast results in comparison to our results, reason behind may be the difference of socio economic and geographical conditions. There was no periodontitis noted, results were concurrent with previous studies. Previous international studies involving Jordanian school children showed that oral hygiene, gingival conditions, have improved since the early 1990s although gingival disease and dental caries among Jordanians were found to be more prevalent than in developed countries.[10,11]Another previous study conducted among elementary school children 74.9 subjectsagreed that fluoride protects the teeth and 84.9 were agreed that clean mouth everyday is the best way to prevent from gum diseases.[14]

In our study, 81.4% had knowledge of oral hygiene but 5.9% in a category of I don't know,12.8% had no knowledge about oral hygiene. Different authors had explained effects of this type in terms of inequality of access to oral healthcare services. This survey found that 81.7% had high percentage of children in this study.[15]

A high proportion of the subjects reported that they did not attend dental clinics due to fear from dental treatment; this coincided with previous study on Jordanian private and public school children.[16] This might be attributed to the lack of proper oral health education programs for both children and parents. In addition to the above dental treatment undesired, high costs of dental care, and lack of toothache. Lack of parental encouragement and advice to visit the dentist might also contribute to the irregular dental attendance. Lack of parent's regular dental attendance might be reflected in their children.[17,18]

The participants demonstrated positive attitudes toward their dentists and high awareness of the link between oral health and systemic well-being. This might be explained by the fact that schools in Gadap town had been consciously promoting the role of prevention.[19] Unfortunately, these efforts are limited and insufficient nationwide; there is a need for comprehensive national educational programs to improve the oral health practice, knowledge, and attitudes of the general population.[20] Health education, since they indicate that social factors need to be taken into account in public education programs aimed at improving oral health practices[21.] Observed that daily tooth brushing became more frequent after a community education programs about oral hygiene.In other studies based on the KAP model as applied in health education, the educational intervention significantly improved oral health practices.[22] According to WHO periodontal disease is one such chronic diseases for which evidence is available on efficacy of prevention, which has been emphasized by other authors.[23,24] WHO Global Oral Health Program formulated the policies and the necessary actions for the improvement of oral health. The strategy is that oral disease prevention and the promotion of oral health need to be integrated with chronic disease prevention and general health promotion as the risks to health are linked (like tobacco use and the standard of hygiene).[23] It is imperative that dental hygiene awareness is imparted and measures for improvement in oral hygiene are undertaken in all age groups across rural areas of Pakistan as this constitutes the major portion of the population and community oral hygiene promotion must attempt to maximize opportunities for oral health for all and reduce inequalities by removing financial and other barriers.[24,25]

CONCLUSION:

Students had knowledge of oral hygiene practices like change of brush, frequency of brushing, time period for brushing and brushing techniques but to improve the oral hygiene status of this population, health schemes like free dental checkups; health education and motivation about oral hygiene and free distribution of samples should be made available for this needy population. The sample size of this study is too small to be conclusive. More researches are required in this field with other parameters related to dental fluorosis, water fluoridation, prevalence and risk factors of oral cancer.

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ORIGINAL ARTICLE

Efficacy of 50g Glucose Challenge Test as a Screening Tool for Gestational Diabetes Mellitus

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ABSTRACT:
Objective: To evaluate the validity of 50 g oral Glucose Challenge Test as a screening tool for GDM in our population.
Materials and Methods: This cross sectional study was carried out in Obstetrical clinic, Combine Military Hospital (CMH) Lahore. 100 women carrying singleton pregnancy between 20-35 years of age, booked in first trimester were included while patients with risk factor of GDM or with established type I or II DM were excluded from study. 50 g GCT was administered to patients between 24-28 weeks of gestation after informed consent. Venous plasma glucose levels after 1 hour of glucose load, were taken, using 140 mg/dl as a cut off value. Regardless of results of screening, all patients were tested with 100 g OGTT as a "gold standard" of diagnosis of GDM.. Validity of 50g GCT was calculated for sensitivity, specificity, positive and negative predictive value. Data was analysed by SPSS version 16.
Results: Out of 100 patients, 19% were screen positive and 81% screened negative with 50g GCT. With100 g OGTT, true positive were 10 out of 19(52.6%) screen positive, and false positive were 9 out of 19(47.4%) screen positive. False negative were 3 out of 81(3.7%) screen negative, whereas true negative were 78 out of 81(96.3%) screen negative. Validity of 50 g GCT has been calculated to be having sensitivity of 76.92%, specificity of 89.6%, positive predictive value of 52.6% and negative predictive value of 96.2%.
Conclusion: 50 g GCT is an effective screening tool for GDM between 24-28 weeks of gestation with adequate sensitivity and specificity.
Key words: GDM, OGTT, 50 g GCT, Screening tool

INTRODUCTION:

Gestational Diabetes Mellitus (GDM) is defined as glucose intolerance with onset or first detection during pregnancy.[1,2] It usually disappears immediately after delivery or upto 6 weeks postpartum. Prevalence of GDM varies among different racial, ethnic groups[3] and with prevalence of type II diabetes mellitus (DM). It is more common in African, Latino, Hispanics and Asian (Indian subcontinent) women. Risk factors for GDM are family history,[4] body mass index (BMI) > 25,[5,6] age >35 yrs, grand multi parity, macrosomia in previous pregnancy, intra uterine demise (IUD),[7] foetal anomaly[8] and black race.[9] But 12% of patients with GDM have no risk factors.[10] Overall worldwide its prevalence is 1-14% depending upon the population studied and diagnostic tools applied. Overall GDM affects 2-5% of pregnancies in USA and 4-5% in UK.[11] Reported incidence in Asian population is 2-10%. In Pakistan prevalence of type II DM is around 10-14%[12] and even younger population is getting afflicted with it.[13] A study conducted at Karachi observed 8% prevalence of GDM.[14] Other studies conduc-ted in different cities of Pakistan showed a range of 15.7% to 24%.[15,16] Early detection and treatment of GDM is of utmost importance to prevent obstetrical and perinatal implic-ations like miscarriages, birth defects, macrosomia, unexplained IUDs, shoulder dystocia, polycythemia, respiratory distress syndrome (RDS), hypoglycaemia, hypocalcaemia, hyperbilirubinemia; childhood risks like dyslipidemias and adiposity.[17] Maternal risk factors include preeclampsia, repeated urinary tract infections (UTIs),[18] vaginal infections, polyhydramnios, instrumental deliveries, perineal tears and increased chances of C sections. One third of women develop type II DM later in life.

For early detection of GDM screening is required as it is an asymptomatic metabolic syndrome. Screening recommendations about tests applied and timing of screening and whether to do universal or selective screening vary among different organizations due to lack of properly conducted randomised controlled trials (RCTs).[19] Screening methods include risk factors based screening, fasting plasma glucose, timed random blood sugar (RBG), HbA1C and 50 g GCT. Yet no screening test is validated.

American Diabetes Association (ADA) and American college of obstetricians and gynaecologists (ACOG) recommend screening by 50 g GCT (threshold 7.2mmol/l or 7.8mmol/l can be used).[20,21] Either of the thresholds can be used. Even for diagnostic, there is lack of universally accepted "gold standard". ADA and ACOG recommend 100 g oral glucose tolerance test (OGTT) while WHO recommends 75 g OGTT as diagnostic test. The question whether selective or universal screening is better is still unanswered. In Canada and USA, universal screening is done as recommended by ACOG and in UK risk factor based screening is practised. ADA recommends universal screening. Australasian Carbohydrate Intolerance Study (ACHOIS) demonstrated

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improved perinatal outcome by formal screening of whole obstetrical population. A commentary on this trial published in BJOG 2006, also supports this recommendation.[22] Canadian task force on preventive health care does not support for or against universal screening for GDM. General recommendation is to conduct risk assessment and then glucose testing for high risk women on 1st antenatal visit followed by retesting at 24-28 weeks of gestation. Average risk women should be screened at 24-28 weeks of gestation as recommended by ACOG. In short a single approach to testing of GDM cannot be recommended at present because of lack of evidence based data.

Purpose of this study was to establish efficacy of 50 g GCT as a screening test of GDM in our population as very few local studies are available to guide us in this regard.

MATERIALS AND METHODS:

This cross sectional study was conducted from 1st Aug 2012 to 30th July 2013 at the obstetrical outpatient clinic of Combined Military Hospital, Lahore. Patients were selected through non probability convenient sampling. 100 patients carrying singleton pregnancy either primigravida or multigravida within age group of 20-35 yrs, booked in 1st trimester were included in this study. Patients with history of type I or II DM, history of glucose intolerance in the past, with bad obstetrical history, family history of DM, IUDs, still births or early neonatal deaths, congenital anomalies, macrosomic babies and patients with polyhydramnios were excluded. After taking the consent, patients between 24-28 weeks of gestation were tested with 50 g GCT, regardless of previous state of fasting. Venous plasma glucose levels were measured by taking sample of blood one hour after administering the glucose drink using glucose oxidase hexokinase method. A glucose value of 140 mg/dl was taken as cut off. Regardless of the results, all patients were further evaluated with 3 hours 100 g OGTT. Patients with two or more values of blood glucose equal to or exceeding the proposed values were labelled as having GDM and those with one abnormal value were labelled to have impaired glucose tolerance. Values proposed by Carpenter and Coustan and adapted by 4th international workshop conference on GDM were used, which are: fasting- 95 mg/dl, 1 hour after glucose load- 180 mg/dl, 2 hours after glucose load - 155 mg/dl and 3 hours after glucose load - 140 mg/dl. Data was collected on a pre designed proforma and was analysed using computer software (SPSS 10). Validity of 50 g GCT was measured in terms of sensitivity, specificity, positive and negative predictive value.

RESULTS:

Total of one hundred patients were evaluated in this study. 19 were screen positive, whereas 81 were screen negative (Table 1). Among screen positive, majority were of greater than 28 years of age i.e. 57% (11 out of 19) and multi or grand multi gravidas i.e. 78.9 % (15 out of 19). Screening was negative mostly in primigravidas i.e. 69.1% (56 out of 81) and in patients with age of less than 28 years i.e. 71.6 % (58 out of 81). All the patients were put to 100 g 3 hrs OGTT as gold standard diagnostic test. Out of these, 13 (13%) were labelled to have GDM due to either one impaired glucose tolerance (IGT) or two abnormal values (frank DM) according to Carpenter and Coustan's criteria. 76.9% of patients labelled with GDM on 100 g OGTT were screen positive initially, while 23 % of these patients were not picked up on initial screening alone. Out of 13 patients with GDM on OGTT, 69.2% had only impaired glucose tolerance while 30.7% had frank Diabetes (Table 2). Out of 19 screen positive patients, 10(52.6%) had abnormal OGTT as well; so were labelled as true positive. 9 out 19 (47.3%) had normal OGTT; so were labelled as false positive. Out of 81 screen negative patients, 78 (96.3%) came out to be true negative. They had normal OGTT as well. Whereas 3 out of 81(3.7%) had abnormal OGTT, so were labelled as false negative.

According to this study, sensitivity of 50 g GCT was calculated to be 76.92%, specificity of 89.6%, positive predictive value of 52.6% and negative predictive value of 96.2%. (Table 3).

Table: 1
Results of 50 g GCT

Results of screening	No of patients	%
Screen positive	19	19%
Screen negative	81	81%

Table: 2
Patients with GDM on OGTT

Total no of patients labelled as Gestational Diabetics	Screen positive	Screen negative	GDM	IGT
13(13%)	10 (76.9%)	3 (23.07%)	4/13 (30.7%)	9/13 (69.2%)

Table: 3
Validity of 50 g GCT

	Formula	Result	Percentage
Sensitivity	TP/(TP+FN)*100	10/(10+3)*100	76.92%
Specificity	TN/(TN+FP)*100	78/(78+9)*100	89.6%
Positive Predictive Value	TP/(TN+FP)*100	10/(10+9)*100	52.6%
Negative Predictive Value	TN/(FN+TN)*100	78/(3+78)*100	96.2%

DISCUSSION:

The high frequency of GDM in Asian (Pakistani population) [14,15,16] and its foetal and maternal implication emphasize the significance of timely diagnosis and management of GDM. As it is an asymptomatic metabolic syndrome so for detection of preclinical disease, screening is required. There is no consensus about time of screening, test to be applied, various thresholds for screening tests and which population should be screened (universal or selective).[23] Systematic screening of pregnant population is still not common in Pakistan despite of the fact that subcontinent is included in high risk population for GDM by most of authorities. There is a need to conduct study about how to screen, which population to screen in Pakistan and to develop a country wide protocol.

In this study, we have evaluated the validity of 50 g GCT as a screening tool for GDM. This was a small study and on low risk patients. Although this study showed very encouraging results to apply GCT as a screening tool between 24-28 weeks of gestation but a larger scale study is still required for on average high risk patients to validate its results. In this study, 19% came out to be screen positive and 81% were negative. This is consistent with many international studies which show that 14 -18% of patients were screen positive if threshold of GCT was taken as = 140mg/dl and 20 - 25% with 130 mg/dl. Most of the screen positive patients were multigravidas (47.3%) in patients with age >28 years, whereas screen was negative in primigravidas. This is consistent with the study of Maresh. [24] All the patients were put to 100 g OGTT regardless of results of screening and 13 patients were labelled as having GDM. It is important to note that all the 3 patients who were screen negative initially but had abnormal 100 g OGTT results had only IGT (Impaired Glucose Tolerance) and none had frank DM. Among the patients who were screen positive, 6 out of 10 had impaired glucose tolerance and 4 had two abnormal values (criteria for GDM). The validity of 50 g GCT was calculated in term of sensitivity, specificity, positive predictive value and negative predictive value which came out to be 76.9%, 89.6% 52.6% and 96.2% respectively. This is in consistence with a study that showed sensitivity of 80% and specificity of 90%.[25] According to these results, we recommend that 50 g GCT, as a screening test for GDM, should be applied to all pregnant ladies between 24-28 weeks of gestation with a threshold of 140 mg/dl, with high sensitivity and specificity and also as a simple method, suitable for all pregnant women. Difficulties encountered were to convince the ladies for these special tests, extra financial burden, and nausea/vomiting associated with glucose intake. Some of large hospitals have instituted this test as an essential part of antenatal clinic services. But still a lot of work is required in this regard to create a nationwide strategy. This study was a small effort to develop a fixed framework of screening of GDM for Pakistani population.

CONCLUSION:

50 g GCT is an effective screening tool for GDM between 24-28 weeks of gestation with high sensitivity and specificity. It picked up almost all the cases with GDM or IGT between 24-28 weeks of gestation. This can not only help us to improve perinatal outcome, but also to identify ladies who are at high risk of developing type II DM in future. A large scale population based study is recommended to further validate the findings of this study.

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ORIGINAL ARTICLE

Effects of Combined Regimens of Gabapentin and Verapamil with Diazepam on Kindled Model of Epilepsy in Mice

Itefaq Hussain Qureshi[1], Shabana Usman Simjee[2]

ABSTRACT:
Objective: To compare the in vivo effects of anticonvulsant combined regimens of Gabapentin / Verapamil with diazepam on kindled model of Epilepsy in Mice.
Materials and Methods: This experimental study was carried out in Hussain Ebrahim Jamal (H.E.J.) Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi from May 2009 to July 2011.Gabapentin and Verapamil were used as tested drugs while Diazepam was used as a reference drug. Kindling was produced by repeated administration of Pentylenetetrazole in a dose of 50 mg/kg by subcutaneous route every 48 hours for 20 days. Six doses of Gabapentin from 50mg/kg to 300mg/kg and six doses of Verapamil from 5mg/kg to 30mg/kg in combination regimen were administered by intraperitoneal route. Diazepam was administered by intraperitoneal route in a dose of 7.5mg/kg. Both tested drugs Gabapentin and Verapamil with reference drug Diazepam were administered once daily, however on the day of Pentylenetetrazole treatment the tested and reference drugs were injected 40 minutes before injecting Pentylenetetrazole. The anticonvulsive effects of tested drugs were then compared to reference drug Diazepam.
Results: Combination regimens of Gabapentin and Verapamil exhibited synergistic dose dependent anti- seizure effects up to 100%. The maximum dose of combined regimen exhibited antiseizure effects which were superior to the reference drug Diazepam.
Conclusion: Combination regimens of Gabapentin and Verapamil showed synergistic effect superior to diazepam on kindled model of epilepsy in mice.
Keywords: Antiepileptic drugs (AED),Diazepam (DZ), Gabapentin(GBP), Verapamil (VP),Pentylenetetrazole(PTZ)

INTRODUCTION:

Epilepsy is one of the most common neurological disorders which has no age, racial, social, sexual and geographical boundaries. The International League Against Epilepsy (ILAE) defines epilepsy as: "A transient occurrence of signs and symptoms due to abnormal excessive or synchronous neuronal activity in the brain."[1] About 50 million people around the world are suffering from Epilepsy.[2] In Pakistan 1.38 million epileptic patients have been reported.[3] The incidence of Epilepsy in Pakistan is 9.9 per 1000 of the general population.[4] Epileptic foci are a potential site for the generation of epileptic seizures and have high levels of neuronal activity either due to abnormally increased excitatory neurotransmitters or abnormally decreased levels of inhibitory neurotransmitters.The clinical manifestation of epileptic seizures depends upon the affected cortical area from where the seizures originate. There are various pathological causes of Epilepsy resulting in abnormal neuronal discharge or neuronal and synchronicity such as trauma, infections, neoplasm, abscesses, cysts, metabolic abnormalities, stroke, chronic degenerative disease of the central nervous system and genetics.

It is essential to differentiate between epileptic seizures and general non-epileptic seizures like febrile seizures, hypoglycemic seizures, alcohol and narcotic withdrawal seizures, seizures due to poisoning and diabetic ketoacidosis. In non-epileptic seizures the mechanism of initiation of seizures is almost the same that is hyperexcitability; however, the neurons are hyperexcitable for a limited period of time and not permanent like epileptic foci.The genetics of epilepsy is a very complex phenomenon and new progress has been made in the last 2 decades which shall provide new possibilities for the diagnosis and treatment of inherited disorders of epilepsy. Mutations in the genes which code for the different ionic channels are one of the main causes of inherited epileptic syndromes.[5] These mutational channelopathies result in defective voltage gated ionic channel formation which control flow of sodium, potassium and calcium ions in and out of the neuronal cells.[6,7]

The Pharmaco-resistant or refractory epilepsy presents in about 30 percent of the epileptic patients.[8] This pharmaco-resistant epilepsy is the most difficult type of epilepsy to be treated.[9,10]The clinical condition can be improved by add-on therapy with newer antiepileptic drugs like GBP and calcium channel blockers like Verapamil (VP). Gabapentin (GBP)is approved as adjunct therapy for partial as well as for generalized tonic clonic seizures. High doses of GBP are needed for improvement in seizure control, however, the high doses are mostly tolerable and its safety and tolerability is rated as good

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to excellent.[11,12,13,14]VP is a calcium channel blocker which is widely used as antianginal, antiarrythmatic and antihypertensive drug in patients of coronary heart disease. In heart it acts on rapidly firing L-type voltage gated calcium channels and blocks T-type voltage gated calcium channels in central nervous system. Antiseizure effects of VP have been noted in some clinical randomized trials in pharmaco-resistant epilepsy.[15,16,17]It affects P-glycoprotein expression at various sites including blood brain barrier. Some patients of refractory epilepsy were also found suffering from severe myoclonic epilepsy of infancy. VP when used as an adjunctive therapy successfully controlled seizures. Even on long term usage it has given promising results by its modulating effects on calcium channels.[18,19] Defective calcium channels due to inherited genetic mutation causes various types of epilepsies.[20,21] Until today, there are no satisfactory and approved treatment regimens for pharmaco-resistant refractory epilepsy.[22] GBP and VP are voltage-gated calcium channel blockers; therefore, they can be a potential candidate for the treatment of different kinds of epilepsies.[23,24,25,26,27,28]Present study was designed to compare the anticonvulsant effects of combined regimens of GBP/ VP with DZ on kindled model of epilepsy in mice.

MATERIALS AND METHODS:

This experimental study was carried out at Hussain Ebrahim Jamal (H.E.J) Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi from May 2009 to July 2011. The use of animals in this study was approved by the Scientific Advisory Committee on Animal Care, Use, and Standards, International Center for Chemical & Biological Sciences, University of Karachi, Pakistan, in accordance with the international guidelines for the care and use of laboratory animals. Male NMRI albino mice weighing 20-25 g were used. The group size of 12 were used which had 80% power to detect differences in the means.

The anti- epileptic activity of the GBP and VP were evaluated in vivo by chemically-kindled model of epilepsy. Total duration of study was forty days. The mice were divided into nine groups that is G-I to G-IX. Each group had twelve mice. G-1 (normal control) was given only 0.9 percent normal saline. G-II was given PTZ only.G-III to G-VIII was given tested drugs GBP and VP. G-IX was given DZ and PTZ. The kindling was produced in GII group by repeated administration of sub-convulsive dose of PTZ (50 mg/kg, s.c.) every 48 hours for 20 days. The test drugs VP and GBP were administered to the mice intraperitoneally (i.p.) in six different doses. The reference drug DZ was also administered intraperitoneally (i.p.) in a dose of 7.5mg/kg in G-IX. The test drugs GBP and VP and the reference drug were given daily, however, on the day of PTZ-treatment which was given on every alternate day, the drugs were administered 40 minutes before injecting PTZ. The resultant kindling scores were classified as numerical 1 to 5.The animals showing the score 4-5 on 20thday of treatment in G-II PTZ treated were considered to be fully kindled. The mean of the seizure scores were calculated showing results of all groups mean of seizure scores of kindling standard scores from 1 to 5 ± SEM in 12 mice (n = 12 per group).The mean of the seizure scores were converted into percentage of seizure scores and seizure protection in all nine groups.

Statistical Analysis: The statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 10and Graph Pad Prism. Results were reported as mean ±SEM. Data of seizure activity was analyzed by nonparametric Student's t-test and ANOVA with post hoc Dennett's multiple comparison tests. The sequential differences among means were calculated at the level of $p < 0.05$.

RESULTS:

The results of kindling scores were classified as numerical 1 to 5 (Table 1). The data from combined usage of GBP and VP when analyzed showed a dose dependent synergistic anti-epileptic activity exhibiting 33.4%, 41.8% 45%, 55%, 77% and 100% seizure protections in six different dose regimens respectively(Table 2). Thus, at the maximum dose employed, the combination regimen of GBP and VP exhibited superior anti-epileptic activity in terms of seizure protection capability compared to the reference drug DZ. (Figure 1).GBP and VP at the maximum dose at GVIII group exhibited 100% seizure inhibition and seizure score was 0.00%, while DZ exhibited 91.8% seizure inhibition. Combination regimen of GBP and VP exhibited 8.2% more seizure protection with almost zero seizure score (100% seizure inhibition) compared to DZ. Though the effect is dose dependent, however, the therapeutic index of GBP is much higher than DZ and human maximum dosage of GBP is 4.5 gm per day(Table 2,Figure 1).

Table:1
Five distinct seizure patterns used for scoring kindling stages

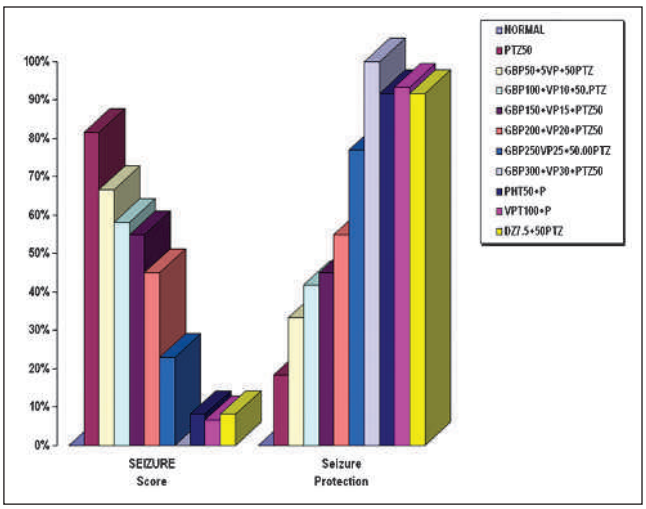
Seizure scoring in kindling by PTZ	Seizure Pattern
0	No Response
1	Ear and Facial Twitching
2	Convulsive Wave through the body
3	Myoclonic Jerks
4	Clonic-Tonic Convulsions, Turnover into Side Position
5	GerneralizedClonic-Tonic Seizures, Loss of Postural Control.

Table: 2
Effect of Gabapentin and Verapamil treatment on the seizure score and seizure protection against PTZ-induced kindling

Group ID	Treatments	Dosage (mg/kg)	Mean ± SEM of Seizure Score	Seizure Score (%)	Seizure Protection (%)
GI	Normal Control	0.9% Saline	0.00	0.00%	0.00%
GII	PTZ	50	4.08 ± 0.64	81.6%	18.4%
GIII	GBP: VP:PTZ	50: 5:50	3.33 ± 0.74	66.6%	33.4%
GIV	GBP: VP:PTZ	100: 10:50	2.91 ± 0.49	58.2%	41.8%
GV	GBP: VP:PTZ	150: 15:50	2.75 ± 0.43	55%	45%
GVI	GBP: VP:PTZ	200: 20:50	2.25 ±0.82	45%	55%
GVII	GBP: VP:PTZ	250: 25:50	1.16±0.89	23%	77%
GVIII	GBP: VP:PTZ	300: 30:50	0.00	0%	100%
GIX	DZ:PTZ	7.5:50	0.41 ± 0.14	8.2%	91.8%

Both the seizure score and seizure protection were calculated in % and the data represented as a Mean SEM of n = 12 animals per group

Figure: 1
Graphical representation of synergistic effect of gabapentin and verapamil treatment on the seizure score and seizure protection against PTZ-induced kindling



The mean SEM of seizure score and seizure protection are shown in %

DISCUSSION:

Current treatment and management of epilepsy by antiepileptic drugs is not satisfactory and though, availability of newer antiepileptic drugs have widened the choices of the clinicians for the treatment of epilepsy, however; the prognosis and efficacy of these new drugs are still disappointing.[29]The results of our study showed that combined regimens of GBP and VP when analyzed and compared exhibited a dose dependent synergistic anti-epileptic activity starting from 150:15 mg/kg of GBP: withVP exhibiting 45 % seizure protection. This further increased to 55 % seizure protection at the dose of 200: 20 mg/kg of GBP:VP reached maximum that is 100 % seizure protection at 300:30 mg/kg of GBP: VP. When the synergistic effects of GBP and VP were compared to DZ we observed the differences in seizure inhibition of 8.2 % at the maximum dose of combination regimen which was superior to the anti-seizure effects of DZ. Though the effect is dose dependent, however, the therapeutic index of GBP is much higher than DZ and human recommended maximum dosage of GBP is 4.5 g per day. We are therefore, inclined to hold that the dose dependent superior anticonvulsant synergistic effects of GBP and VP compared to antiseizure effects of standard single dose of DZ had insignificant chances of error. When the synergistic effects of GBP and VP were compared to PTZ control we observed that the seizure inhibition was17%, 26%, 29%, 39%, 61% and 84% in six dose regimens of combination therapy, demonstrating inhibition of PTZ seizure effects of 67%, 58%, and 55%, 45%, 23% and 0.00 % respectively. At the maximum dose of combination regimen we observed complete inhibition of PTZ induced seizures, which was beyond doubt, superior to the antiseizure effects of reference drug given with PTZ.

In one study, it was observed that animal models using subcutaneous Pentylenetetrazole, is a common model to study the antiseizure effects and mechanism of action of antiepileptic drugs. It was further observed in the same study that animal models can be used to evaluate different combinations of AEDs before their use in humans.[30]In another study it was observed that GBP as monotherapy had not exhibited effective antiseizure effects however, the study revealed that combinations of GBP with other antiepileptic drugs generally exhibited synergistic interactions. The study concluded that GBP had exhibited synergistic effects with other antiepileptic drugs in same dosage. [31]Our results are coinciding with the findings of these studies.

The most important question is how the instant combined regimen of GBP with VP is justified for providing better, safer, synergistic, effective and broader spectrum therapeutic choice for the treatment of various types of epilepsies as compared to other AEDs. Firstly, the mode of action of GBP can be augmented or modified if given in combination with other drugs like calcium channel blockers i.e. verapamil.[32]Secondly, GBP is a very safe drug as compared to other AEDs.[33]Thirdly, the GBP has a very high therapeutic index and safety profile.[34]Fourthly, instant novel regimen of GBP and VP can be employed with adjustment of their doses from minimum to

maximum doses for the treatment of different types of epilepsies without any significant adverse effects. Fifthly, doses of GBP up to 4.5 g/day can be given with low doses of VP to achieve the therapeutic goals which are not possible with other antiepileptic drugs. Sixthly, GBP in various studies has demonstrated its efficacy as monotherapy equivalent to that of carbamazepine (CMZ) for partial and generalized seizures.GBP has also established its efficacy in refractory epilepsy, therefore the combination regimen would have wider spectrum to treat various types of epilepsies.[35]Seventhly, the side effects of GBP are few, tolerable and short term.Eighthly, GBP has been approved by the drug agency FDA as a monotherapy for partial and complex partial seizures with or without generalized tonic-clonic seizures.[36]Lastly most of the antiepileptic drugs have potential for causing hepatitis and bone marrow suppression like Valproate and Carbamazepine.

CONCLUSION:

The novel combination regimen of GBP with VP has potential for alternate regimen of treatment for different types of seizures including epileptic seizures and would provide better, safer, synergistic and effective therapeutic effectbecause of its synergistic and channel modulating effects not only in drug resistant epilepsy but also in various other types of epilepsies. This study has provided basic ground-work guidelines for the future clinical use of combination therapies of GBP and VP in different doses combinations in various forms of epilepsies for the long term management of epilepsy.

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ORIGINAL ARTICLE

Evaluation of S-T Resolution by Streptokinase Therapy in Patients of Myocardial Infarction among the Age Group of more than 60 Years

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ABSTRACT:

Objective: To evaluate the benefit and efficacy of streptokinase therapy on ST-segment elevation resolution in different types of myocardial infarction in more than 60 years age group.

Materials and Methods: This Hospital based cross sectional study was conducted at National Institute of Cardiovascular Diseases (NICVD) of Karachi, Pakistan. The study included patients more than 60 years of age having different types of myocardial infarction. Fifty patients both male & female fulfilling the inclusion criteria for thrombolytic therapy were included. Baseline ECG was recorded before streptokinase infusion and repeated at completion of infusion, at 90 minutes, day 1 and day 2. Effect of streptokinase therapy (SK) on blood pressure, CKMB, and ST-segment resolution was also evaluated at 90 minutes, day 1, and Day 2.

Results: The mean systolic blood pressure was 138.20±4.57 and 125.20±3.92 pre and post SK therapy reflecting a percentage decrease of 9.40 and highly significant (P<0.001). The Diastolic blood pressure was decrease to 9.52% with a mean value of 84.80± 2.46 and 76.80±1.89 before and after the Streptokinase therapy's, segment resolution at 90 minutes was decreased to 50.69 percent from the baseline and continued to decrease at Day-1 and Day-2 with a percentage reduction of 69.12 and 84.33 % respectively. The P values were highly significant (P<0.001).

Conclusion: Thrombolysis when given within 12 hours of the onset of symptoms, improves survival, is beneficial and effective.The magnitude of benefit is greatest when reperfusion is established early. Age itself should not be considered a contraindication for fibrinolysis.

Keywords: Streptokinase, ECG, ST-elevation, Myocardial infarction, Efficacy

INTRODUCTION:

Myocardial infarction is a key component of the burden of cardiovascular disease. Studying the trends in the incidence and outcome of myocardial infarction and of coronary disease mortality provides crucial insights into the determinants of heart disease which is essential to its treatment and prevention. It is important to recognize that the trends in the incidence and outcome of coronary disease are complex, likely multifactorial and evolve over time.[1]

In developed nations cardiovascular diseases are the leading cause of death and disability and also are increasing rapidly in the developing world. Among 75 years of age and older patients, mortality after acute coronary occlusion approaches 30% at 1 month and exceeds 50% at 1 year. However, despite evidence from several randomized trials that thrombolytic therapy has clear net benefits and is a cost-effective treatment in the elderly.[2]

Intravenous Thrombolysis in Acute Myocardial Infarction "in the Sixth ACCP Consensus Conference on Antithrombotic Therapy" recommended "that patients with ischemic symptoms characteristic of acute myocardial infarction for < 12 h who have ST-segment elevation or left bundle-branch block on the ECG should receive I/V fibrinolytic therapy unless they have contraindications.[3]

Acute myocardial infarction is one of the leading causes of death in the elderly, however clinical data reveals a disproportionately lower use of thrombolytics because of fear of complications especially intracranial hemorrhage. One study has documented that out of one hundred patients 77 (77%) were males and 23 (23%) were females. Mean age was 73.39±5.29 years. No patient developed intracranial hemorrhage. Use of streptokinase for acute myocardial infarction should therefore not be discouraged in the elderly.[4]

Streptokinase is a 1st generation fibrin non-specific thr-

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ombolytic and biochemically a serine protease enzyme derived from certain strains of beta hemolytic streptococci.[5]It consists of a single polypeptide chain containing 414 amino acids. It was first used in 1958 in acute myocardial infarction and since then it has revolutionized the management of acute myocardial infarction.[6]Coronary atherosclerosis is by far the most frequent cause of ischemic heart disease and plaque disruption with superimposed thrombosis is the main cause of acute coronary syndrome of unstable angina, myocardial infarction and sudden death.[7,8]The true frequency of atherosclerosis is difficult, if not possible to accurately determine because it is a predominantly asymptomatic condition. More advanced lesions begin to develop when individuals are aged approximately 25 years. Plaque rupture is probably the most important mechanism underlying the unpredictable rapid progression of coronary lesions.[9]The role of platelets in acute coronary syndromes begins with the exposure of the sub-endothelium after plaque rapture. Thrombosis develops on a plaque either because the plaque tear open (rupture) exposing the highly thrombogenic core to blood in arterial lumen.[10]

ST-segment elevation is an excellent marker of acute coronary occlusion in which reperfusion therapy is needed. Patient with non ST elevation of myocardial infarction have a thrombotic stenosis in the affected artery but the artery is usually patent,in contrast ST-elevation myocardial infarction, the artery is occluded and at base line flow cannot be worsen, it can only improve.[11]

The most frequently use electrocardiographic criteria for identifying acute myocardial infarction is ST-segment elevation where ST-segments are (re) emerging as a clinical tool of great importance. Evaluating the response to thrombolytic therapy that early resolution of ST-segment elevation is a useful mean of assessing perfusion.[12]

Thrombolytic therapy is that early and sustained re-canalization prevents cell death, reduces infarct size, preserves myocardial function, and reduces early and late mortality.[13]The current evidences indicate that early thrombolytic therapy can limit extent of myocardial necrosis in evolving myocardial infarction may be early restoration of coronary blood flow, preserve left ventricular function and reduce mortality in patients with acute myocardial infarction (AMI).

Present study was designed with the objective to observe streptokinase therapy, in ST-segment elevation resolution, in age more than 60 years and in different types of myocardial infarction.Moreover also to observe the toxicity of administered streptokinase therapy.

MATERIALS AND METHODS:

This hospital based cross sectional study was carried out in 2005 for a total duration of 6 months. The study was conducted in the Department of Pharmacology and therapeutics, Basic Medical Sciences Institute Jinnah Post-graduate Medical Centre in collaboration with National Institute of Cardiovascular diseases (NICVD) of Pakistan, Karachi.The study was approved by the postgraduate committee at NICVD and BASR of Karachi University. Informed consent for administration of thrombolytic drug was obtained from each patient. Inclusion criteria was patients diagnosed with myocardial infarction,more than 60 years of age ,with chest pain suggestive of myocardial infarction, ECG findings of ST-Segments elevations.Exclusion Criteria was patients with myocardial infarction havingactive internal bleeding,cerebro-vascular accident, blood pressure> 200/100 mmHg, pregnancy, allergic reaction to streptokinase, previous coronary artery bypass Graft. Streptokinase (Streptofactor Hakimsons/Eskinase, Medinet), 1500000 units was used

Criteria of ST-segment resolution:

A positive ST-marker was defined as a reduction in ST-segment elevation of more than 50% within 90 minutes after the start of thrombolytic therapy.

Treatment Plan:

All patients fulfilling the inclusion criteria for thrombolytic therapy were included and admitted to either coronary care unit or place in the ward with and continuously monitored for arrhythmias. Baseline 12 lead electrocardiogram was taken Two intravenous lines were maintained, one in each arm. One I/V line used for medication and another for collection of blood samples.

Blood sample for complete blood count, erythrocyte sedimentation rate, urea creatinine, blood glucose, cardiac enzymes and lipid profile, activated partial thromboplatin time.

Tablet aspirin 150 mg was given once for 24 hours. Isosorbide dinitrate I/V infusion 10-20 μg/min followed by oral nitrates

Streptokinase 1.5 million units dissolved in 100 ml 5% dextrose water infused in 60 minutes.

Vital signs 10 minutes during the infusion. The 12 lead electrocardiograms were recorded Baseline ECG recorded before streptokinase infusion and repeated at completion of infusion i.e. 90 minutes, day 1 and day 2.

RESULTS:

During the four months study period 50 patients were included in the study after fulfilling the inclusion criteria for thrombolytic therapy. Demography of patients with acute myocardial infarction exhibited that there were 44 (88%) males and 6(12%) females, of these 50 patients 30 (60%) had an anterior wall infarction, while 20 (40%) suffered from an inferior wall infarction. No patient had a lateral wall acute myocardial infarction. Two patients died and cause of death was ventricular fibrillation in those patients (Table 1).

The mean systolic blood pressure was 138.20±4.57 and 125.20±3.92 pre and post SK therapy reflecting a percentage decrease of 9.40 and high significant ($P<0.001$). The Diastolic blood pressure was decrease to 9.52% with a mean value of 84.80± 2.46 and 76.80±1.89 before and after the Streptokinase therapy. ST-segment resolution at 90 minutes was decreased to

50.69 percent from the baseline and continued to decrease at Day-1 and Day-2 with a percentage reduction of 69.12 and 84.33 % respectively. The P values were highly significant (P<0.001) (Table 2)

There were 30 patients out of 50 with anterior wall Myocardial Infarction. The mean value of Systolic Blood Pressure (SBP) before therapy was 146.43± 4.98 and was decreased to 132.86±4.11 after therapy with Streptokinase. The Diastolic Blood Pressure (DBP) was decreased to 10.32 percent post Streptokinase therapy. The ST segment shows a resolution of 62.45% 69.99 and 87.14% at 90 minutes, day-1 and day-2 respectively. Figure-1 The P value for SBP, DBP and ST-segment resolution was highly significant (P<0.001).(Table 3a)

Twenty patients had inferior wall infarction in more than 60-years.(Table-3b)There was highly significant value of SBP, DBP and ST-segment resolution. The mean Systolic Blood Pressure value was 127.73±7.30 before therapy and decrease to 115.45±6.23 post streptokinase therapy which shows a percentage decrease of 9.61. The Diastolic Blood pressure showed a percentage decrease of 8.13. The ST elevation before therapy was 1.40± 0.16, which was resolved to 0.70± 0.13, 0.50 ± 0.13 and 0.33± 0.14 at 90-minutes, day-1 and day-2, showing a percentage decrease of 50.57, 64.28 and 76.92 respectively (Figure-2). The P value was also highly significant (P<0.001).

Table: 1
Gender, site of myocardial infarction & mortality in age group of > 60 Years

Variables	Age group >60 years n= 50	Total %
Male	44	88%
Female	06	12%
Anterior Wall MI	30	60%
Inferior Wall MI	20	40%
Latral Wall MI	--	--
Death	2	4%

Table: 2
Percentage changes from Pre to Post Streptokinase (SK) therapy

Variables	No of Observation	(Mean ± SEM)		% change	p-Value
		Pre SK Therapy	Post SK Therapy	Pre to Post	
SBP (mmHg)	48	138.20 ± 4.57	125.20 ± 3,92	(-) 9.40	0.001***
DBP (mmHg)	48	84.80 ± 2.46	76.80 ± 1.89	(-) 9.52	0.001***
CKMB (IU)	48	50.92 ± 1.82	154.80 ± 4.25	204.00	0.001***
ST Resolution 90 min	48	2.17± 0.18	1.07± 0.12	(-) 50.69	0.001***
ST Resolution day 1	48	2.17± 0.18	0.67 ± 0.08	(-) 69.12	0.001***
ST Resolution day 2	48	2.17± 0.18	0.34 ± 0.08	(-) 84.33	0.001***

Pharmacological action of Streptokinase therapy on blood pressure, CKMB and ST-Segment elevation resolution
*** Highly Significant(-) Shows decrease from pre to post streptokinase therapy

Table: 3a
Effects of Streptokinase (SK) therapy according to the site of anterior wall myocardial infarction in >60 year of age
There were 30 patients out of 50 with anterior wall Myocardial Infraction

Variables	No of Observation	(Mean ± SEM)		% change	p-Value
		Pre SK Therapy	Post SK Therapy	Pre to Post	
SBP (mmHg)	30	146.43± 4.98	132.86± 4.11	(-) 9.26	0.001 ***
DBP (mmHg)	30	90.00± 4.11	80.71± 2.21	(-) 10.32	0.001 ***
CKMB (IU)	30	54.36 ± 2.51	154.00 ± 7.04	183.29	0.001 ***
ST Resolution 90 min	30	2.69 ± 0.17	1.01 ± 0.12	(-) 62.45	0.001 ***
ST Resolution day 1	28	2.69 ± 0.17	0.80 ± 0.10	(-) 69.99	0.001 ***
ST Resolution day 2	28	2.69 ± 0.17	0.35 ± 0.10	(-) 87.14	0.001 ***

Two patients died because of ventricular fibrillation *** Highly Significant(-) Shows decrease from pre to post streptokinase therapy

Table: 3b
Effects of Streptokinase (SK) therapy according to the site of
Inferior wall Myocardial Infarction in < 60 year of age
There were 20 patients out of 50 with inferior wall myocardial Infarction

Variables	No of Observation	(Mean ± SEM) Pre SK Therapy	Post SK Therapy	% change Pre to Post	p-Value
SBP (mmHg)	20	127.73 ± 7.30	115.45±6.23	(-) 9.61	0.001 ***
DBP (mmHg)	20	78.18 ± 3.77	71.82 ± 2.63	(-) 8.13	0.001 ***
CKMB (IU)	20	46.55 ± 2.05	155.82±4.01	234.76	0.001 ***
ST Resolution 90 min	20	1.40 ± 0.16	0.70 ± 0.13	(-) 50.57	0.001 ***
ST Resolution day 1	20	1.40 ± 0.16	0.50 ± 0.13	(-) 64.28	0.001 ***
ST Resolution day 2	20	1.40 ± 0.18	0.33 ± 0.14	(-) 76.92	0.001 ***

Pharmacological action of Streptokinase therapy on blood pressure, CKMB and ST-Segment elevation resolution
*** Highly Significant(-) Shows decrease from pre to post streptokinase therapy

Comparative percentage change in the >60 age according to the site of myocardial infarction group, with anterior wall infarction showed a percentage change of 9.26, 10.32, 183.29 and 87.14 of SBP, DBP, CKMB and ST-segment resolution at day2, as compared to a percentage decrease of 9.61, 8.13, 60.4, 234.73, and 76.92 in patients with inferior wall myocardial Infarction at day-2(Table 4a) The mean duration of chest pain was 4.89± 0.28 hours. The minimum chest pain duration was 2 hours and maximum it was 12 hour. The mean stay at hospitals was at hospital was 5.03± 0.24 from a period of 5-days to 15-days (Table 4b)

The complications of Streptokinase therapy in more than 60 years age patients was, that out of 50 patients two died because of ventricular fibrillation, which could have been due to reperfusion arrhythmias or the arrhythmias as a normal cardiac event in Myocardial Infarction.

ST-Resolution at Day-1 and Day-2, pre and post SK-therapy according to site of M-1 are mentioned in Figure 2 and 3.

Table: 4a
Pharmacological action of Streptokinase therapy on blood pressure, CKMB and
ST-Segment elevation resolution

GROUP	Site of MI	SBP mmHg	DBP mmHg	CKMB IU	ST Resolution 90-Mints	Day-1	Day-2
More than 60 years	Anterior Wall	(-) 9.26	(-) 10.32	183.29	(-) 62.45	(-) 69.99	(-) 87.14
	Inferior Wall	(-) 9.61	(-) 8.13	234.73	(-) 50.57	(-) 64.28	(-) 76.92

(-) sign shows decrease from pre to post SK-therapy

Table: 4b
Duration of chest pain, Cholesterol, Random blood sugar and duration of patients stay at hospital

Group		Duration Chest Pain Hours	Cholesterol (mg/dl)	RBS (mg/dl)	Hospital stay days
More than 60 years	n	50	50	50	48
	Mean ± SEM	4.89±0.28	218.84±8.67	132.16±13.82	5.03±0.24
	Range	2-12	132-290	59-392	4-15

Figure: 1
ST- Resolution according to site of myocardial infarction in more than 60 years age Patients

	Pre-SK Therapy	Post-SK Therapy
Anterior wall	2.69	0.35
Inferior wall	I.40	0.33

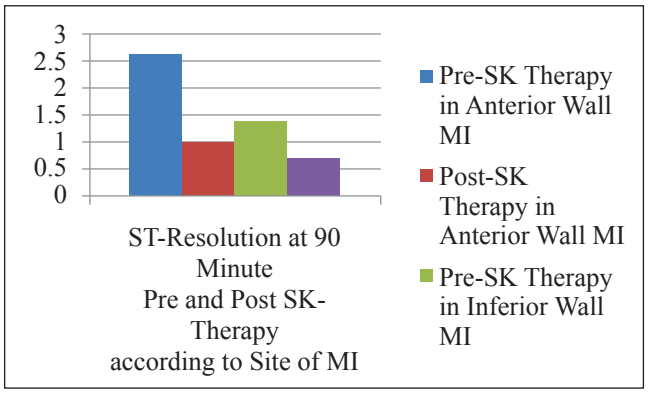


Figure: 2

	Pre-SK Therapy	Post-SK Therapy
Anterior wall	2.69	0.80
Inferior wall	I.40	0.50

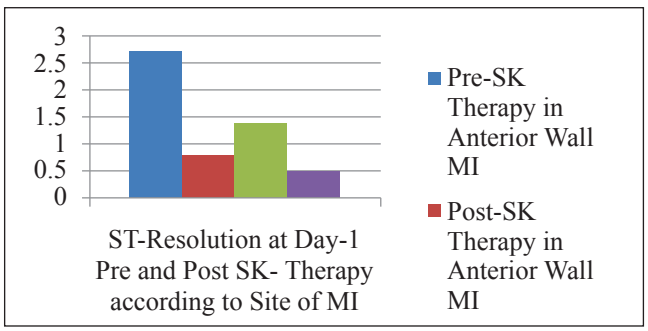
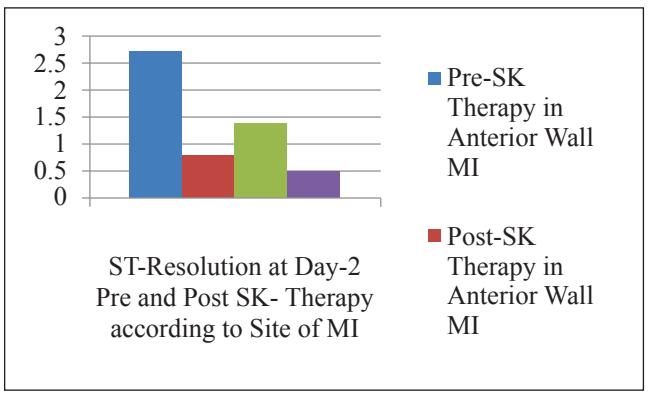


Figure: 3

	Pre-SK Therapy	Post-SK Therapy
Anterior wall	2.69	0.35
Inferior wall	I.40	0.33



DISCUSSION:

The best reperfusion treatment is one that achieves the highest rate of early, complete, and sustained infarct-related artery patency in the largest number of patients, but with the lowest rate of undesirable effects.Emergency management of acute myocardial infarction is evolving at an extremely rapid pace. What nearly all mortality reducing strategies have in common is, prompt restoration of blood flow to ischemic myocardium that has been compromised by intra-coronary thrombosis.Medical therapy alone is the preferred treatment in older patients after myocardial infarction. Indications of revascularization in older patients after myocardial infarction are prolongation of life and relief of unacceptable symptoms despite optimal medical management.[14]

Three clinical criteria have been proposed as markers for myocardial perfusion is reduction of chest discomfort (pain), improvement of electrocardiographic ST-segment elevation, and reperfusion arrhythmias. These clinical signs have been shown to be related to coronary artery recanalization and prognosis. Resolution of chest pain is very subjective and may frequently be related to analgesic medicine, cardiac arrhythmia could be a part of arrhythmias complicating acute myocardial infarction Resolution of ST-segment elevation has been shown to be a simple and useful predictor of final infarct size, left ventricular function and clinical outcome after thrombolytic therapy.

Though the use of thrombolytic therapy decreases with increased age, but should not be considered a contraindication.[15]This study was conducted to observe the efficacy and complication of streptokinase therapy in more than 60 years age patient.The results of the present study suggest that streptokinase is effective and reduces the percentage resolution of ST-segment elevation. It is also suggested this therapy should be offered to all patients presenting with ST-segment elevation of acute myocardial infarction.

Our study matches with the study of Laurie[16] which provided careful and detailed analysis of trial with specific regard to beneficial-to risk ratio for patients.Our study matches with the GISSI-study[17] in which hospital mortality was 2 to 9 percent for patients 61 to 70 years old as compared to younger patients. In our study the in- hospital mortality was 4 percent in patients more than 60 years.

Present study has demonstrated rapid restoration of coronary blood flow in patients with evolving myocardial infarction. Our study matches with the study of Schroder[18], who performed short term infusion of streptokinase in 93 patients within six hours after the onset of acute myocardial infarction.

Our study matches with Fibrinolytic Therapy Trials Collaborative (FTT) group study[19], the data of the study do not provide evidence from withholdingfibrinolytic therapy from patients on the basis of age. The excess of death in this study on day 0 to 1 increased with age but so did the reduction in death during days 2 to 35. The absolute mortality reduction seems much the same among younger and older patients. We do have early death in our study, two patients died within twelve hours of the start of therapy, whereas the patients discharged continue to do well.

In patients with acute myocardial infarction, quick initiation of thrombolytic therapy is the best strategy for improvement of survival and reduction of morbidity. Since advanced age by itself is certainly not a contraindication to thrombolytic therapy, and because reinfarction occurs frequently, the benefit-risk ratio of reexposure to streptokinase or its derivative is decreased in the elderly who present with reinfarction.[20]Our study did match with the study of, [21] thrombolytic therapy with streptokinase was found to be a beneficial and cost-effective treatment for suspected acute myocardial infarction in elderly patients in a wide variety of clinical circumstances.Acute myocardial infarction is one of the leading causes of death in the elderly, however clinical data reveals a limited use of thrombolytic because of fear of complications especially intracranial hemorrhage. Use of streptokinase for acute myocardial infarction should not be discouraged in the elderly.[22]This decade has witnessed the establishment of thrombolysis, the most widely available therapeutic intervention that specifically treats the direct cause of myocardial infarction and leads to biologically and clinically compelling patient outcome benefits.[23,24,25]

CONCLUSION:

Thrombolytic therapy with streptokinase is found to be a beneficial and cost-effective option for patients having suspected acute myocardial infarction.Thrombolysis when given within 12 hours of the onset of symptoms, improved survival, is beneficial and cost effective. Present study has demonstrated rapid restoration of coronary blood flow in patients with evolving myocardial infarction and the magnitude of benefit is greatest when reperfusion is established early. Age itself should not be considered a contraindication for fibronolysis. Although intra-coronary application may be somewhat more effective, the advantage of intravenous administration is striking.Considering the experience of others we concluded that I/V short term infusion of streptokinase can be performed safely in patients with evolving myocardial infarction.

One limitation of the administration of an intravenous infusion of streptokinase is that it can cause a significant fall in systemic blood pressure and rapid infusion of high dose intravenous streptokinase frequently causes transient and sometimes severe fall in blood pressure, the magnitude of which is directly related to the rate of infusion of streptokinase.

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ORIGINAL ARTICLE

Prevalence of Vitamin- D Deficiency among Women with Gestational Diabetes Mellitus

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ABSTRACT:
Objective: To determine the frequency of vitamin D_3 deficiency among women with Gestational Diabetes mellitus visiting tertiary care hospital.
Materials and Methods: This descriptive case series study was carried out in Obstetrics and Gynecology department at Dr. Ziauddin Hospital Karachi for a period of six months. 136 GDM women with age 18 to 30 years having singleton pregnancy and gestational age of 24-40 weeks were enrolled. Patients were offered according to ADA (American Diabetic Association) recommendations, 1 hour 50gm Oral Glucose Challenge Test, without any preparation or fasting. Then 1 hour later plasma glucose measurements were done. If values were>140 mg/dl or 7.8m.mol/l then 3 sample 75g Oral Glucose Tolerance Test (WHO criteria) was offered (to diagnose GDM) on next visit. The mothers were advised not to have breakfast on the day of the diagnostic test.Then fasting blood glucose sample was taken. Afterwards hourly samples were taken till 2 hours. If one reading was raised then diagnosis was established as impaired glucose intolerance and if two readings were raised then diagnosis was confirmed as gestational diabetes mellitus. Estimation of vitamin D levels by Electrochemilumenscence technique was done in diagnosed GDM women.
Results: Mean age of the patients was 26.46 ±2.91 years. Mean gestational age of the patients was 33.03 ±6.14weeks. There were 57 (41.90%) primiparous and 79 (58.1%) multiparous patients. Frequency of vitamin D deficiency was found in 84 (61.80%) patients with GDM.
Conclusion: The frequency of vitamin D_3 deficiency was found higher among women with GDM visiting tertiary care hospital.
Keywords: Prevalence,Vitamin D deficiency, GDM, Tertiary care hospital

INTRODUCTION:

Vitamin D is well known for its primary physiological role of regulation of calcium homeostasis in maintaining bone health. However, mounting evidence indicates that vitamin D is also involved in controlling body composition, energy homeostasis, insulin sensitivity, and immune function. Low levels of vitamin D during pregnancy or breast feeding can have an adverse effect onthebaby's growth and development.Studies have shown the prevalence of vitamin D deficiency (defined as <50 nmol/L) or insufficiency (<75-80 nmol/L) during pregnancy.[1,2]One study suggested that 63.3% mothers are affected.[3]

Low levels of vitamin D during pregnancy or breast feeding can have an adverse effect on mother and baby's health and wellbeing. Infants born to mothers with hypovitaminosis D have increased risk of symptomatic hypocalcaemia, small for gestational age and larger fontanelle,suggestive of impaired ossification of skull bones.[4] In addition, vitamin D deficiency has been linked to other adverse effects on pregnancy, such as diabetes mellitus, preterm deliveries, bacterial vaginos is, pre eclampsia[5] and small-for-gestational-age babies.[6]Gestational diabetes mellitus (GDM) is hyperglycemia with onset or first recognition during pregnancy. Although the symptoms of GDM are similar to type 2 diabetes mellitus, it is often diagnosed through prenatal screening, rather than reported symptoms.[7]It has also been suggested that vitamin D deficiency may play a role for the occurrence of GDM.[8]The prevalence rates of GDM vary by region. Vitamin D and Lifestyle Intervention for Gestational Diabetes Mellitus Prevention research group indicated that although the prevalence rates differed by regions in Europe (ranges 2.0-6.0%), lower prevalence rates of GDM were found in Northern or Atlantic seaboard parts of Europe (< 4%); while higher prevalence rates (> 6%) predominated in South or Mediterranean seaboard regions.[9] The prevalence of a low vitamin D in pregnancy in USA is reported to be 59%, Ireland 20.8%, Australia 80.5%. United Arab Emirates 40% and in Pakistan 69.9%.[10, 11]There are several studies that suggest a relationship between vitamin D deficiency and GDM risk, howevertheir results appear mixed and inconclusive.[12, 13, 14, 15]The rational of this study is to determine the current burden of vitamin D deficiency in GDM women during pregnancy at Dr. Ziauddin tertiary care hospital Karachi, so that the preventive strategy can be planned and implemented along with early detection of gestational diabetes mellitus in order to reduce the severity and complications associated with GDM.

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MATERIALS AND METHODS:

This is a descriptive non-probability consecutive case series study conducted in Obstetrics and Gynecology department at Dr. Ziauddin Hospital Karachi for a period of six months. The sample calculation was done using

the raosoft software for "Sample size calculation" by using the proportion (Vitamin D and Lifestyle Intervention for Gestational Diabetes Mellitus Prevention research group indicated that although the prevalence rates differed by regions in Europe (ranges 2.0-6.0%) 8 with 95% confidential interval an 8.5°4 of margin of error, the sample size stands tobe n=128). All pregnant women diagnosed as GDM carrying a singleton pregnancy between gestational age 24 - 40 weeks were included in the study. Women with preexisting Diabetes mellitus were excluded from the study. Informed consent was taken from all eligible women for the study.All the patients included were subjected to detailed history taking with special focus on maternal age, parity, gestational age at diagnosis of gestational diabetes, previous history or family history of diabetes, history of gestational diabetes in previous pregnancies.GDM was diagnosed by means of Oral Glucose Tolerance test. Diagnosed women for GDM with OGTT were offered for vitamin D levels using radio immunoassay. Vitamin D deficiency was defined conservatively as <25 nmol/L, insufficiency as 25–50 nmol/L and sufficiency as >50 nmol/L.Results were documented on proforma. After collection of data, the analysis was conducted by using Statistical Package for Social Sciences (SPSS) software version 17.Mean and standard deviation was calculated for quantitative variable like age, parity, gravida,gestational age was controlled by stratification. Chi square test was applied.

RESULTS:

In our results mean age of patient was 26.46 ±2.91 years. Mean gestational age of the patients was 33.03 ±6.14 weeks. Majority of the patients 76 (55.90%) presented at >30 weeks of gestational weeks. There were 57 (41.90%) primiparous and 79 (58.1%) multiparous patients. We found 84(61.80%) patients of GDM suffering from Vitamin D_3deficiency(Figure 1). Stratification was done to see the effect of age, gestational age, parity and gravida on the outcome. Chi-square test was applied.No significant association was detected between women's age, parity and gestational age and vitamin D deficiency (Table 1).

Figure: 1
Percentage of women with GDM and Vitamin D_3 deficiency

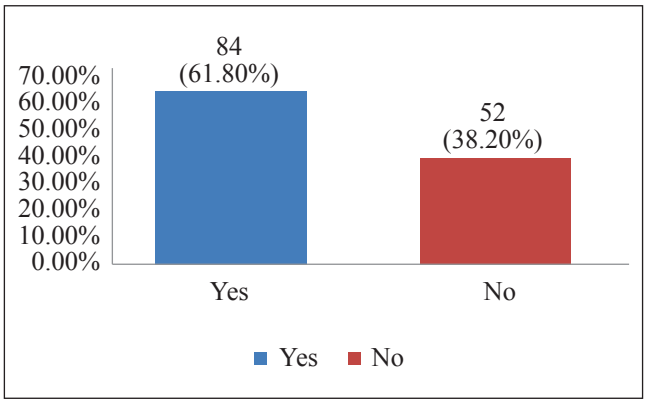

Table: 1
Comparison of vitamin D deficiency with respect to age, gestational age, parity and gravida

Variables		Vitamin D Deficiency		Total	P-value I
		Yes	No		
Age	=25	38 (61.3)	24 (38.7)	62 (100)	
	>25	46 (62.2)	28 (37.8)	74 (100)	
	Total	84 (61.8)	52 (38.2)	136 (100)	0.917
Gestational Age	=30	38 (63.3)	22 (36.7)	60 (100)	
	>30	46 (60.5)	30 (39.5)	76 (100)	
	Total	84 (61.8)	52 (38.2)	136 (100)	0.738
Parity	Primiparous	35 (61.4)	22 (38.6)	57 (100)	
	Multiparous	49 (62)	30 (38)	79 (100)	
	Total	84 (61.8)	52 (38.2)	136 (100)	0.941
Gravida	Primigravida	39 (63.9)	22 (36.1)	61 (100)	
	Multigravida	45 (60)	30 (40)	75 (100)	
	Total	84 (61.8)	52 (38.2)	136 (100)	0.639

DISCUSSION:

Vitamin D deficiency is associated with a number of adverse pregnancy outcomes. One of the effects of vitamin D_3 deficiency is its association with gestational diabetes mellitus. The probable reason of this relationship could be that vitamin D plays a role in glucose homeostasis and it also improves insulin sensitivity of the target cells (liver, skeletal muscle, and adipos-etissue).[16] However the prevalence of vitamin D_3deficiency and GDM is different in different parts of the world. The prevalence of GDM in UK, USA and European countries was estimated to be 5%, 3-7% and6% respectively. Higher prevalence of GDM was noted in African, Asian, Indian and Hispanic women.[17, 18]In London antenatal population, vitamin D level of less than 25 nmol/l was found in 47% of Indian Asian women, 64% of Middle Eastern women, 58% of black women and 13% of Caucasian women.[19]In our study, frequency of vitamin D deficiency among women with GDM was found to be 84(61.80%) patients, which is high. International studies results with regard to the relationship between vitamin D deficiency and GDM risk appears mixed and is not very clear with some of them in favor [12, 13] and others not in favor of relationship between vitamin D deficiency and GDM.[14, 15]

A meta-analysis by Poel[13] has found a significant association between vitamin D_3 deficiency and gestational diabetes mellitus with odds ratio of 1.61 (95% CI 1.19-2.17; p=0.002). Similarly another meta-analysis of 20 independent observational studies done by Zhang provided strong evidence that vitamin D deficiency was associated with an increased risk of gestational diabetes.[20] The levels of serum 25(OH) D have been observed to be inversely associated with levels of HbA1c among women with GDM and this relationship seemed not to be affected by other known risk factors in a study done by Lau.[21] in a tertiary referral Centre. Another recent large study published has found no association between circulating vitamin D_3 levels and GDM. They also looked for other complications such as preterm birth, small for gestational age and fetal growth retardation and found no association with circulating vitamin D3 levels.[22] Anna has documented in pregnant women with vitamin D_3 deficiency that most of their subjects had no significant association with GDM.[23]A case controlled study on 952 subjects however have found significant association with vitamin D_3 deficiency and GDM after adjusting for risk factors for GDM.[24]A recent meta-analysis on association of vitamin D_3 and GDM showed increased risk of gestational diabetes, pre-eclampsia, and small for gestational age infants but no association with increased risk of caesarean section. [25]Besides finding high levels of vitamin D_3 deficiency in women with gestational Diabetes Mellitus we could not found any association with women's age, parity and gestational age.

CONCLUSION:

The frequency of vitamin D deficiency was found to be higher among women with GDM visiting tertiary care hospital,however we are not sure whether it is a casual or true relationship because of the observational nature of the study. A larger randomized controlled trial is needed to prove this relationship

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ORIGINAL ARTICLE

The Safety and Efficacy of Percutaneous Trigger Finger Release Under Local Anaesthesia

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ABSTRACT:

Objective: To determine the safety and efficacy of trigger finger and thumb released percutaneously with an 18 gauge needle under local anaesthesia.

Materials and Methods: This descriptive case series study was conducted at Orthopaedic and Traumatology Unit "A" Medical Teaching Institution(MTI) Lady Reading Hospital (LRH) Peshawar Pakistan from April 2014 to December 2015.All patients of trigger finger or thumb of either gender fulfilling the inclusion criteria were percutaneously released under local anaesthesia with the tip of an 18-gauge hypodermic needle.Post operative assessment of these patients was done weekly for a month and then monthly for 6 months. Clinical results were evaluated in terms of pain, activity level and patient satisfaction after 6 months at follow up and rated as excellent, good and poor.

Results: Thirty two fingers in twenty five patients with mean age 38.28 years±11SD (range 18 to 62 years) were included in the study. Post operatively excellent results were achieved in 90.9%(20/22) patients and good in 9%(2/22) patients at six months follow up. There were only 3(9.3%) failed releases requiring conversion to open release. There was no recurrence of trigger finger and no digital nerve nor tendon injuries reported.

Conclusion: Percutaneous trigger finger release under local anaesthesia is a safe and highly effective method for releasing trigger fingers. We recommend it as a treatment of choice for established trigger finger or thumb.

Keywords: Percutaneous release, Trigger finger, Tendon, Stenosing tenosynovitis, Local anaesthesia

INTRODUCTION:

The term trigger finger for stenosing tenovaginitis or tenosynovitis of the tendon sheaths of flexor muscles of the finger was first proposed by French physician Alphonse Henri Notta in 1850 in his study of four cases of adult patients.[1,2] In recognition of Notta's discovery,a tendon nodule located on the volar aspect of the base of paediatric trigger thumb, mentioned in most studies is now commonly referred to as Notta's node.[3] Histopathologically, proliferatve thickening of flexor tendon sheath layer at the first annular(A1) pulley occurs resulting in narrowing of fibrous tunnel leading to tendon impingement when it moves through the narrow tunnel as the patient flexes and extends the affected finger.[3,4] Female patients in their fifth or sixth decades are more commonly affected than men and children rarely affected. It has a prevalence of about 2 percent in general population with diabetes, rheumatoid arthritis and amyloidosis are more prone to develop triggering.[3,5] The exact etiology of trigger finger in majority of cases is unknown[6] but certain occupations that involve constant gripping or repeated activities have been reported to be associated with more frequent triggering.[3] Thumb and ring finger is most commonly affected by triggering but it can involve any finger.[5] Various treatment options for trigger finger are injections of corticosteroid in the sheath of affected tendon[7] and percutaneous[8] or open [9] surgical release of the A1 pulley. In 1958 Lorthioir[8] first demonstrated A1 pulley release percutaneously in 52 patients with 100 percent success rate and no reported complications.A1 pulley release percutaneously with a hypodermic needle is a safe, quick, simple, economically feasible and highly effective technique with a short post-operative rehabilitation than open surgical release and can be performed as a day case or out-patient department (OPD) procedure.[10,11]The possible complications associated with open surgical release like infection,post-operative painful scar,A1 pulley tear resulting in bowstringing of flexor tendons, stiffness of interphalangeal joints and digital neurovascular injuries are minimal with percutaneous release.[12] The objective of this study was to evaluate the clinical results and safety of percutaneous trigger finger release under local anaesthesia in our set up.

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MATERIALS AND METHODS:

This study was conducted in Orthopaedic and Traumatology Unit "A" Medical Teaching Institution (MTI) Lady Reading Hospital(LRH) Peshawar Pakistan

from April 2014 to December 2015. All Patients of trigger finger or thumb of both gender and Quinnell's[13] grades IV and V (Intermittent locking but actively correctable and complete locking but only passively correctable respectively) were recruited from the outpatient department for this study. All patients had painful finger or thumb flexion and extension and triggering was clearly observed in all patients.Children with trigger fingers, patients of rheumatoid arthritis, previous flexor tendon repairs and patients having bleeding disorders were excluded from the study. The study protocol was approved by the hospital ethics committee and informed written consent was taken from all the participants of the study. Complete history and physical examination and X- rays of affected finger or thumb were done in all the included subjects. Under local anaesthesia in the outpatient department, the tip of an 18-gauge hypodermic needle was used to divide the A1 pulley percutaneously. Post operative assessment of these patients was done weekly for a month andthen monthly for 6 months. The clinical results were evaluated in terms of pain, activity level and patient satisfaction at 6 months follow up and rated as excellent, good and poor according to Grundberg's[14] rating system (Table1). Statistical analysis of the data was done with SPSS (version 16). Frequency and percentages were used for categorical or qualitative variables such as gender. Mean ± Standard Deviation (SD) was used for numerical or quantitative variables such as age (in years).

Operative Technique:

The procedure was performed in the outpatient department (OPD) as day case surgery. The position of the patient for the procedure was supine with forearm supinated and trigger finger in extension. Affected finger and hand was scrubbed with povidone iodine solution. About 1 ml of plain lignocaine was injected into the skin overlying the A1 pulley. To prevent injury to the digital artery and nerve during the procedure, we utilized the safe anatomical landmarks as the tubercle of the scaphoid bone and the midpoint of proximal palmar crease for the A1 pulley release in the little finger while the radial side of pisiform bone and midpoint of proximal palmar crease was used for index finger A1 pulley release. [15]The middle and ring fingers were released through midpoint of distal palmar crease[16] while the metacarpophalangeal crease was used as a starting landmark for trigger thumb release in all cases.[17] To avoid damaging digital arteries and nerves during the procedure the metacarpophalangeal joint is hyper extended so that the tendon gets closer to the skin and with neurovascular bundle falls to the side of the tendon.An 18 gauge hypodermic needle tip was inserted over A1pulley and divided in one clean stroke.The disappearance of grating sensations confirmed that the pulley was completely cut.After the procedure, the patient was instructed to flex and extend the finger a few times and a dressing was applied over the area. Post procedure nonsteroidal anti- inflammatory drugs were prescribed for three days in all cases.All the patients were advised weekly follow up visits for a month and then monthly for six months for assessment of any recurrence,pain, wound infection, digital stiffness etc.

RESULTS:

Thirty two fingers in twenty five patients with mean age 38.28 years±11 (range 18 to 62 years) were included in the study. Nine(36%) patients were male while 16(64%) were female. The frequency of fingers or thumb involvement among our patients is shown in Table 2. Nine(36%) patients(12 fingers) were diabetics.A total of six (18.7%) fingers had failed a trial of treatment by steroid injection at least once before percutaneous release. Eighteen (56.2 %) fingers were Quinnell's Grade III while 14(43.7%) were grade IV on initial admission. Post operatively excellent results were achieved in 90.9%(20/22) patients and good in 9%(2/22) patients while no poor result was recorded at six months follow up. There were only 3(9.3%) failed releases requiring conversion to open release at first follow up visit and all the three (thumb, index, little finger) were Quinnell's Grade IV diabetics and had previously failed steroid injection. In all three patients, intra-operative observation revealed incomplete release of the A1 pulley. There were no signs of digital nerve or artery injury nor was thereany significant tendon injury in any of these patients. The mean operative time was 12 min (9-15), including the local anaesthesia of the patient. There was no recurrence of triggering. Range of motion was preserved in all cases. There was no wound infection, hematoma formation,digital nerve ortendon injuries reported in our study.

Table: 1
Grundberg's rating system to evaluate clinical outcome

Rating	Pain	Activity and patient satisfaction
Excellent	No pain Returned to work or activity	Patient satisfied
Good	Pain only with heavy use Returned to work or activity	Patient satisfied
Poor	Pain unchanged	Patient dissatisfied

Table: 2
Frequency of fingers or thumb involvement among our patients

Finger	Side of trigger finger/thumb		Total
	Right	Left	
Thumb	4	2	6(18.7%)
Index	4	1	5(15.6)
Middle	8	3	11(34.3)
Ring	6	1	7(21.8)
Little	3	0	3(9.3%)

DISCUSSION:

Percutaneous release of trigger finger is easy to perform, economically feasible with excellent results and minimal complications and is therefore preferred than open surgical release.[18]Our study yielded excellent results in majority (90.9%) of patients and good in other(9%) patients whileno poor result at six months follow up. Other studies also reported that percutaneous release alone gave excellent functional results.[10,19] Our results of release are therefore comparable with those reported previously by other authors. Mishra [20]used the tip of 20 gauge hypodermic needle for percutaneous release of 27 trigger fingers and reported 95.4% excellent results with no recurrence or complications. They concluded that percutaneous release has a very high success rate and is a safer technique with a very few documented complications rather than open release. Similarly Dahabra[21] used 18 gauge needle tip for A1 pulley release and reported a success rate of 92.8% while failure in only 3(7.2%) fingers. Forty six trigger fingers were percutaneously released by Sahu[11]and excellent,good and poor results were noted in 82.6%(38/46),13.0%(6/46) and 4.3%(2/46) patients respectively at final follow up visit, by taking into account post op pain, patient activity and satisfaction. In our study no post procedure complications like digital nerve or flexor tendon injury, recurrence, wound sepsis and hematoma formation were reported and this was due to the fact that we carefully utilized the established guidelines for the precise anatomical recognition of the pulleys for needle placement and aseptic technique in each and every case. Ha[17]percutaneously released 185 trigger fingers with no complications noted while Gilbert [22] reported sensory loss on the radial side of the thumb in 3 (1%) patients. Fu[23] reported persistent or recurrent triggering symptom in 4% of his patients. Guler[24] reported an incidence of about 5.7% of digital nerve injury in his series of trigger thumb release and he therefore advised precise anatomical surface markings or use of ultrasound for trigger thumb release.For trigger thumb he suggested open surgery rather than percutaneously.

There were only 3(9.3%) failed releases in our study requiring conversion to open release at first follow up visit. All the three (thumb, index, little finger) were diabetics and had previously failed steroid injection as well. These cases with incomplete release were among the first cases in our series. Our last 29 fingers were completely released. Our inability to release trigger finger in a few cases might be due to our anxiety about the proximity of digital neurovascular bundle with hypodermic needle placement site or learning curve for the procedure as the surgeon's skill [25] is of utmost importance for a successful and complication free trigger finger release.Furthermore all the failed cases were diabetics and as Ryxewicz[9] noted that hyperglycemia leads to fibrosis and possibly tenosynovitis which is not only resistant to cure but also has a very high rate of recurrence and therefore requires early open surgical release rather than percutaneous release.Small sample size was the one of the limitations of our study.Although our study had fewer number of cases however but we achieved excellent results in majority of trigger finger and thumb release percutaneously. Further an analysis was not made based on a comparison with other methods of anesthesia and surgical techniques or steroid injection, because the study would then be more difficult and costly than the present. We believe that percutaneous trigger finger release is a very useful technique and we recommend continued study over its long-term effects.

CONCLUSION:

Percutaneous trigger finger release is a safe and highly effective technique. Utilizing precisely the safe anatomical landmarks we found it safe for all the fingers including the thumb, index finger and little finger. It is a quick and less invasive technique and can be done as a day care procedure in the outpatient department(OPD).It is easy to perform, economically feasible to all patients, has no major complications and allows the patient to return to his daily activities and work quickly. This technique produced excellent results in majority of our patients. We recommend it as a treatment of choice for established trigger finger or thumb.

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ORIGINAL ARTICLE

Relationship of Cardiac Disease with Oral Health: A Single Centre Study

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ABSTRACT:
Objective: To observe relationship of chronic dental and oral morbidity with cardiovascular disease in Pakistani population.
Materials and Methods: All indoor cardiac patients aged 40 and above, clinically and angiographically diagnosed with CHD at Islam Central Hospital, Sialkot, were included in the study. Demographic and clinical data (Age, Gender, Smoking, and Diabetes) were noted from patients' hospital record files. Missing teeth were examined and number of teeth missing was estimated from the number of teeth remaining in the mouth upon clinical examination. Attendants without a history of cardiac disease, of the cardiac patients who agreed to be included in the study, were examined for comparison of tooth loss.
Results: Nine hundred and thirty six cardiac patients and 595 healthy attendants with mean age of 51.9 ± 8.4 years were examined. Chronic periodontal disease and mean (±SD) tooth loss was significantly ($P < 0.001$) higher in cardiac patients. Odds ratio (OR) = 1.543 was found in cardiac patients when compared with healthy controls (95%CI = 1.985–2.851). Tooth loss was significantly ($P < 0.001$) associated with both males and female cardiac patients especially along with diabetes and smoking.
Conclusion: Chronic periodontal disease and tooth loss were found to be significantly higher in cardiac disease patients in comparison to healthy controls. Other risk factors found were age, gender, smoking and diabetes.
Keywords: Cardiac patients, Chronic dental morbidity, Oral morbidity

INTRODUCTION:

Non-communicable chronic diseases (NCDs) are presently, causing 80% of deaths in low and middle-income countries including Pakistan[1]. Association of poor oral health, periodontal disease and tooth loss with increased risk of cardiovascular diseases (CVD), pulmonary diseases, diabetes and adverse pregnancy outcomes such as low birth weight babies has been observed and established in scientific literature.[2] Chronic systemic and oral diseases share many common risk factors such as age, gender, education; smoking, diet, and obesity. These are also referred to as "shared risk factors".[3,4,5] A healthy mouth is a pre-requisite for overall good general health. When oral health is compromised, overall health is also affected.[6] Tooth loss is common among human beings, and having less than 20 natural teeth is categorized as poor Oral health.[7] Including other systemic diseases, higher incidence of chronic periodontal disease and tooth loss has also been reported to be significantly associated with cardiovascular disorders in various case–control and cross-sectional studies.[8,9,10] Tooth loss is found to be associated with CVD on the basis of chronic oral infections, such as chronic periodontal diseases.[11] Tooth loss may lead to changes in diet and other behaviors which in turn lead to increased risk for CVD.[12] CVDs are expected to rise as an epidemic in developing countries and projected to be a major cause of death by 2020.[13] Despite an expected rise in NCDs in Asia and a high prevalence of oral disease, few studies on their association have been conducted in Asiatic region including Pakistan. The purpose of this study was to observe prevalence of tooth loss in cardiac patients of the Pakistani population and to explore its possible association with coronary heart disease.

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MATERIALS AND METHODS:

This cross-sectional study was done from 1st Jan, 2014 to 30th June, 2015. Non–probability convenient sampling technique was employed for sample selection. All indoor cardiac patients aged 40 and above clinically and angiographically diagnosed with CHD at Islam Central Hospital, Sialkot, were included in the study. Healthy individuals were taken as control. Demographic and clinical data (Age, Gender, Smoking, and Diabetes) were noted from patients' hospital record files. Missing teeth were examined at bedside with the help of a mouth

mirror and tweezers. The number of teeth missing was estimated from the number of teeth remaining in the mouth upon clinical examination. Attendants without a history of cardiac disease, of the cardiac patients who agreed to be included in the study, were examined for comparison of tooth loss. Study subjects with other chronic systemic diseases, such as chronic obstructive pulmonary disease (COPD), chronic arthritis, chronic liver disease, and kidney diseases were excluded from the study. Data was analyzed using SPSS version 19. Summary statistics were calculated through descriptive analysis; independent t-test was applied for comparison of tooth loss between cardiac and healthy subjects. For comparisons of categorical variables, chi-square test was applied. Subjects were grouped into smoker–diabetic and nonsmoker–nondiabetic for a comparison of tooth loss. Multivariate regression models were fit to observe the association of tooth loss and CHD and confounding factors.

RESULTS:

During a nine-month study period, 1531 subjects were examined. Subjects' age ranged from 40 to 70 years and the mean age was 52.0 ± 8.4 years; 936 were CHD patients with a mean age of 53.7 ± 8.4 years, and 595 were healthy individuals with a mean age of 49.1 ± 7.7 years. Seventy four percent were cardiac patients and 58% healthy subjects were males. Thirty seven percent of cardiac patients and 20.5% healthy individuals were smokers. Thirty six percent were diabetics among cardiac patients as compared with 16.5% among healthy individuals. There was a statistically significant ($p < 0.001$) difference among cardiac patients and their healthy attendants with Odds ratio 2.82 (CI = 2.287-3.512), 2.036 (CI = 1.612-2.572) and 2.840 (CI = 2.202-3.663) healthy genders, smokers and diabetic subjects, respectively (Table 1).

The main variable of this study, tooth loss, was found in 1242 (81%) subjects of the study sample. Subjects with at least one missing tooth showed a mean (±SD) tooth loss 8.8 ± 8.5. CHD patients showed a mean tooth loss of 9.8 ± 9.2 and healthy subjects had a mean tooth loss of 7.0 ± 6.9; the difference was statistically significant ($p < 0.001$). Seventeen percent of CHD patients had all natural teeth as compared with 33% healthy individuals. CHD patients were at OR of 1.54 (CI = 1.192-1.197) for having more tooth loss as compared with healthy individuals. Seventy eight percent of subjects showed tooth loss in the range of 1-15 teeth and 88% of subjects showed 2 teeth losses up to 20 teeth. Thirteen percent CHD patients as compared with 4% of healthy individuals had 21-32 teeth lost (Table 2).

Tooth loss analysis among genders showed that a mean tooth loss in CHD (56%) and healthy (21%) males was 7.1 ± 8.4 and 4.4 ± 6.5, respecti-vely, with a significant difference ($p < 0.001$). Mean tooth loss among CHD (42%) and healthy (46%) females was 11.5 ± 10.2 and 6.4 ± 6.8 respectively, with a statistically significant difference (p 0.001). CHD males with tooth loss had an OR of 1.78 (CI = 1.307-2.427) and CHD females had an OR of 2.79 (CI = 1.521-5.148) (Table 3).

Among smoker-diabetic subjects, 67% of cardiac patients were presented with a mean tooth loss of 8.8 ± 9.3 as compared with 13% of healthy individuals with a mean tooth loss of 4.7 ± 6.00 ($p = 0.014$). Nonsmoker-nondiabetic CHD (40%) and healthy (40%) subjects were found with a mean tooth loss of 8.0 ± 8.6 and 7.3 ± 8.5, respectively. Smoker-diabetic patients with tooth loss (OR = 2.246: Cl = 1.789-6.394) had higher risk for CHD (Table 3).

Table 4a presents an age-related pattern of tooth loss prevalence in cardiac and healthy subjects. Forty to fifty five year old subjects showed a significantly higher tooth loss ($p = 0.015$) in cardiac patients with an OR of 1.396 (CI = 1.046-1.863). Mean tooth loss showed a steady increase in age groups 40-49 years (3.9 ± 5.2), 50-59 years (7.7 ± 8.2), and P60 years (12.9-10.8), however, statistical differences were insignificant in all age cohorts.

In multivariate regression analysis, coefficient was positive and a higher code for smoking was 1, the OR was 1.33; higher code for diabetes was 1 and the OR was 3.50; higher code for genders was 1 and the OR was 3.24; higher code for tooth loss was again 1 and the OR was 1.45. It can be significantly concluded that cardiac patients with smoking, diabetes, male gender and tooth loss were at higher risk as compared with healthy individuals.

Logistic regression model adjusted for all risk factors of CHD noted in this study showed that tooth loss P 1 teeth ($p = 0.010$), 620 teeth ($p = 0.024$) and >20 teeth ($p < 0.001$) are statistically significant predictors of CHD. Adjusted OR for tooth loss 620 teeth and >20 teeth were 1.39 (95%CI = 1.04–1.78) and 3.52 (95%CI = 2.01–6.18) (Table 4b).

DISCUSSION:

This cross-sectional study on the topic from Pakistan has found a statistically significant difference in tooth loss between cardiac and healthy subjects. An association of tooth loss with prevalent coronary heart disease is observed in this study that supports previous studies on the relationship of tooth loss and cardiac conditions.[8,10,11,14,15]

Demographic data of the study sample shows that males, diabetics and smokers were more than twice (OR P 2.036: CI = 1.612–2.572) at risk of CHD as compared with the healthy individuals. Males were significantly higher than females in the CHD group; whereas there was no difference in male–female ratio in the healthy group. Age is the constant and most commonly reported factor associated with missing teeth.[16,17] Tooth loss difference is found in genders; in particular, males have less number of teeth.[18] This study has noted a monotonous relationship between increasing tooth loss and advancing age in CHD/non-CHD individuals who were closely related with respect to their socioeconomic status (SES) background, and this finding corresponds with another contemporary study.[19] The current study showed that CHD males with tooth loss were twice the number of CHD females; however a mean tooth loss was much higher in females. These findings also correspond with other studies.[20,21] In the current study, incidence of tooth

Table: 1
Summary statistics of cardiac and healthy subjects

Variables	Cardiac n (%)	Healthy n(%)	Total	P-value/OR (CI=95%)
Study Sample	936(61)	595(39)	1531(100)	
Age				
Mean	53.7 + 8.4	49.1 + 7.7	52 + 8.4	< 0.001a
Range	40-70			
Male	692(74)	298(50)	990(65)	< 0.001/2.827b
Female	244(26)	297(50)	541(35)	
Smokers	348(37)	134(22.5)	482 (31.5)	
Non-Smokers	588(63)	461(77.5)	1049(68.5)	< 0.001/2.036b
Diabetics	336(36)	98(16.5)	434(28)	
Non-Diabetics	600(64)	497(83.5)	1097(72)	< 0.001/2.840b

a = Students T-test.
b =Chi-Square Test.

Table :2
Cardiac and Healthy subjects compared for tooth loss

Variables	Cardiac	Healthy	Total	P-value
Tooth loss				
Mean± SD	9.8 ± 9.2	7.0 ± 6.9	8.7 ± 8.5	< 0.001[a]
Subjects with tooth loss				
n(%)	n(%)	n(%)	n(%)	n(%)
> 1 tooth	784(84)	458(77)	1242(81)	< 0.01[b]
2-15 teeth	606(65)	373(63)	979(79)	< 0.01[b]
16-32 teeth	178(19)	85(14)	263(21)	NS

a=T-test.
b=Chi-square.
NS = Not-Significant

Table: 3
Cardiac and healthy subjects with tooth loss compared among genders, smokers, non-smokers, diabetics, non-diabetics

Variables	Cardiac	Healthy	Total	P-value
Males				
N= 990				
N (%)	555(56)	207(23)	762(79)	< 0.01[b]
Mean ± SD	7.1 ± 8.4	4.4 ± 6.5	6.2 ± 7.9	< 0.01[a]
Females				
N=541				
N (%)	229(42)	251(46)	480(88.7)	< 0.01[b]
Mean ± SD	11.5 ± 10.2	6.4 ± 6.8	8.8 ± 8.9	< 0.01[a]
Smokers and Diabetics				
N (%)	77(67)	15(13)	92(80)	< 0.02[b]
Mean ± SD	8.8 ± 9.3	4.7 ± 6.0	8.0 ± 8.8	< 0.01[a]
Non-smokers and Non-Diabetics				
N (%)	290(40)	291(40)	581(79.6)	NS [b]
Mean ± SD	8 ± 8.6	7.3 ± 8.2	7.8 ± 8.5	NS [a]

a = Independent T-test.
b = Chi-Square test.
NS= Non-significant.

Table: 4a
Cardiac and Healthy subjects compared for tooth loss in different age group

Variable	Cardiac	Healthy	Total	P-Value/OR (CI 95%)
40-55 years (n=1046)				
n%	451	354 (34)	805 (77)	<0.050/1.396 (1.046-1.863)[b]
Mean ± SD	5.7±7.0	4.1 ± 5.2	5.0 ± 6.3	<0.001[a]
56+years (n=485)				
n%	333 (69)	104 (21)	437 (90)	NS[b]
Mean ± SD	12 ± 10.6	10.42 ± 9.6	11.6 ± 10.3	NS[a]
40-49 years (n=615)				
n%	207 (34)	241 (39)	448 (73)	NS[b]
Mean ± SD	3.9 ± 5.2	3.3 ± 4.0	3.6 ± 4.6	NS[a]
50-59years (n=538)				
n%	307 (57)	141 (26)	448 (83)	<0.050/1.665 (1.049-2.643)
Mean ± SD	7.7 ± 8.2	6.3 ± 7.0	7.2 ± 7.8	NS[a]
60+years (n=378)				
n%	270 (71)	76 (20)	346 (91.5)	NS[b]
Mean ± SD	12.9 ± 10.8	11.6 ± 9.9	12.7 ± 10.6	NS[a]

NS: nonsignificant
a Stands for Independent t-test
b Stands for Chi square test

Table: 4b
Multivariate Logistic regression models for CHD/non-CHD subjects.

Variable	OR(CI=95)	P-value
Tooth Loss		
No	1	< 0.01
1 tooth	1.45	< 0.01
2-20 teeth	1.39	< 0.03
>20 teeth	3.52	
Smoking		
No	1	< 0.01
Yes	1.33	< 0.01
Diabetes		
No	1	< 0.01
Yes	3.5	< 0.01
Gender		
Female	1	< 0.01
Male	3.24	< 0.01

loss was noted significantly higher in subjects with diabetes and smoking, which are the most important confounding factors associated with cardiac diseases; and the Odds Ratio associated with cardiac patients was more than two times than the non-cardiac subjects. CHD subjects with diabetes and smoking having missing teeth, were five times higher in number and two times higher with a mean tooth loss than the healthy subjects. These results support the previous studies[22,23] showing that smoking and diabetes significantly contribute to tooth loss. However, cardiac patients of this study remained 1.232 times at higher risk for tooth loss, and this association was observed independent of confounding factors. Tooth loss (partial/total) is the dental equivalent of death, and tooth loss diminishes quality of life, often substantially.[11] The findings of studies on tooth loss and systemic diseases provide a clue that tooth loss may be considered as one of the important components of oral diseases that affects the general health of the people.

Desvarieux[24] reported that greater the number of teeth lost, the greater the extent of severe periodontal disease; in turn the severity of periodontal disease is associated with increased risk of CHD.[25] Correspondingly, other previous studies [8,10,11] have reported on the risk of myocardial infarction, stroke and prevalent coronary heart disease in relation to tooth loss. The findings emerging from this study analysis explained a relationship between tooth loss and cardiac diseases and partially/fully confirmed from other studies on the same topic.[26,27,28,29] The association of tooth loss, as observed in this study, with CHD and previous periodontal disease may be a significant public health problem because of the higher prevalence of the periodontal disease in the general public of developing countries.[30] Tooth loss distribution and risk association in individuals with and without cardiac diseases in this study provides a good reason for conducting such studies in developing countries like Pakistan where oral health is not a priority for the country stakeholders and the public at large where non-communicable diseases also show a steep rise.[31] This study illustrates that total tooth loss is a risk indicator for established CHD and confirms that some classical risk factors associated with an increase in CHD risk are also associated with the increased likelihood of tooth loss. Other risk factors for tooth loss, such as education and income, could not be included in this study; these may be considered as limitations.

CONCLUSION:

Chronic periodontal disease and tooth loss were found to be significantly higher in cardiac disease patients in comparison to healthy controls. Other risk factors found were age, gender, smoking and diabetes.

Conflict of interest: No conflict of interest by the authors.

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ORIGINAL ARTICLE

Comparative Study of Lipid Profile in Multibacillary and Paucibacillary Leprosy Patients

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ABSTRACT:

Objective: To evaluate the lipid profile in Multibacillary and Paucibacillary leprosy subjects and compare them with age and sex matched healthy control subjects.

Materials and Methods: This observational study was performed after approval from BASR, University of Karachi in the Department of Biochemistry, University of Karachi, from December 2014 to November, 2015. Present study was conducted in 42 newly diagnosed leprosy patients of both sexes and all ages were included in this study. The diagnosis were on clinical ground and bacterial examination by slit skin smear test, and are classified in two groups, Paucibacillary (PB) and Multibacillary (MB), based on the WHO guide lines. 1-5 skin lesions were regarded as PB with no acid fast rods on the smear and skin lesions more than 5 were regarded as MB. A positive bacterial index classifies the patient as MB, regardless of the number of skin lesions with bacteria visible on a smear.

Results: A total of 30 control subjects and 42 leprosy patients among 24 Multibacillary and 18 Paucibacillary leprosy were recruited for this study. Biophysical parameters in Multibacillary and Paucibacillary subjects were completely non significant when compared with control group.In biochemical parameters among Multibacillary and Paucibacillary leprosy cases, all the lipid fractions total cholesterol, triglycerides and LDL -cholesterol were significantly decreased ($p<0.05$) but HDL –cholesterol significantly increased ($p<0.05$) in both Multibacillary and Paucibacillary leprosy groups when compared with control group.

Conclusion: This study showed that, all the lipid fractions except HDL cholesterol were decreased significantly ($p<0.05$), where as HDL Cholesterol was increased significantly ($p<0.05$) in both Multibacillary and Paucibacillary leprosy groups when compared with control group.

Keywords: Leprosy, Lipid profile, Multibacillary(MB), Paucibacillary (PB)

INTRODUCTION

Leprosy is a granulomatous, chronic infectious disease caused by Mycobacterium leprae.[1] Mycobacterium leprae was discovered in 1873, by G. H. Armauer Hansen in Norway, therefore leprosy is referred as Hansen's disease. It is a mutilating, debilitating, devastating and deforming disease. It mainly affects the skin and peripheral nerves, leading to sensory loss in the skin, muscle weakness and often permanent disabilities of hands and feet.[2]

Over the last 25 years with the efforts of leprosy control programs and multi drug therapy (MDT) leprosy have decreased worldwide dramatically prevalence from approximately 5.4 million registered cases during the start of 2008.[3,4,5] Leprosy remains a significant public health problem in several parts of the world. According to World Health Organization (WHO) by 105 countries, the number of new cases detected during the year 2011 were 219, 075. indeed in year 2012 were 33,955 new cases were detected in Brazil alone (WHO 2012).[6] Leprosy is now known to be neither sexually transmitted nor highly infectious after treatment. Approximately 95% of people are naturally immune and sufferers are no longer infectious after as little as 2 weeks of treatment. It is completely curable by using multi drug therapy.[7] Leprosy is not a killing disease, it is a crippling disease and if not treated early and properly, may form permanent deformities.[8] The signs and symptoms may be ignored in the early stages until visible disabilities have not occurred.[9] Leprosy affects both sexes but males are affected more than females and ratio is 2:1.Until coming of AIDS, leprosy was the most feared infectious disease globally. It is still considered to be dreadful infectious disease, so normal healthy people try to avoid and breakup all kind of links to these patients.[10]

Leprosy has struck fear into human beings for thousands of years. In the time of Christ it was considered to be a holy curse conferred upon the people due to their wrong doings and the affected unfortunate was totally isolated and discarded. According to some ancient transcript the patients were confined to huge dungeons or well and even tortured and stone to death if they even tried to enter the cities. Leprosy cases are found world wide, Leprosy remains a public health problem with over 210,000 registered cases in world at the beginning of 2008.[11] The intracellular germ Mycobacterium laprae mediate strong inflammatory response in affected

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individuals and causes gross destruction of tissues during the chronic course of infection.[12] Among all mycobacteria it is likely the most dependent on the host for basic metabolic functions, in part because of its extensive genomic decay.[13] Lipid metabolism in leprosy have examined in various studies, but there has been limited work using whole metabolite profiles.[14] With this background present study was designed to evaluate the lipid profile in Multibacillary and Paucibacillary leprosy subjects and to compare them with age and sex matched healthy control subjects.

MATERIALS AND METHODS:

This observational study was performed after approval from BASR, University of Karachi in the Department of Biochemistry, University of Karachi, from December, 2014 to November 2015. A total of 42 newly diagnosed leprosy patients of both sexes and all ages were included in this study, among them 33 males and 09 females, aged 13 to 70 years (mean 36.7 ± 1.71years).The diagnosis was made on clinical ground and bacterial examination by slit skin smear test, and are classified in two groups, paucibacillary (PB) and multibacillary (MB), based on the WHO guide lines. 1- 5 skin lesions were regarded as PB with no acid fast rods on the smear and skin lesions more than 5 are regarded as MB. A positive bacterial index classifies the patient as MB, regardless of the number of skin lesions with bacteria visible on a smear.[15] A total of 30 age, sex matched healthy control subjects were taken from general population for comparison. Informed consent was taken from each patient and control subject for this study. After overnight fasting, 6 ml of blood was drawn from anticubital vein after all aseptic measures, blood was allowed to clot at 37ºC, serum was separated after centrifuged at 3000 rpm for 10 minutes then analyzed. Serum cholesterol was estimated by the Enzymatic kit method, serum triglycerides were determined by enzymatic colorimetric (GPO-PAP) kit method, serum HDL-cholesterol was determined by CHOD-PAP kit method[16] and LDL-cholesterol was calculated according to Friedewald's formula.[17]

RESULTS:

A total of 30 control subjects and 42 leprosy patients among 24 were Multibacillary and 18 were Paucibacillary leprosy recruited for this study. Biophysical parameters in Multibacillary and Paucibacillary subjects were competely non significant when compared with control group (Table 1). In biochemical parameters among Multibacillary, Paucibacillary leprosy cases, all the lipid fractions Total Cholesterol, Triglycerides and LDL - Cholesterol were significantly decreased ($p<0.05$) but HDL –Cholesterol significantly increased ($p<0.05$) in both Multibacillary and Paucibacillary leprosy groups when compared with control group (Table 2, Figure 1).

Table: 1
Comparison of biophysical parameters of multibacillary, paucibacillary leprosy cases and controls

	Cases		Controls
Biophysical Parameter	MB (n=24)	PB (n=18)	(n=30)
Weight (kg)	51.5 ± 1.44 *	52.3 ± 2.16	56.8 ± 1.36
Height (m)	1.60 ± 0.01	1.58 ± 0.01	1.61 ± 0.01
BMI	20.2 ± 0.55	20.9 ± 0.77	21.2 ± 0.53
BP Systolic(mmHg)	118.9 ± 1.23	116.8 ± 1.78	119.0 ± 1.30
BP Diastolic(mmHg)	77.1 ± 0.75	77.7 ± 1.07	77.8 ± 0.92

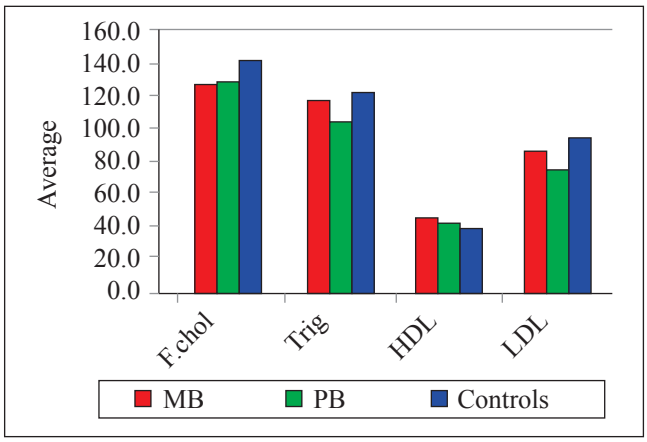
Values are expressed as mean ± s.e.m ,No significant difference was observed

Table: 2
Comparison of biochemical parameters of multibacillary, paucibacillary leprosy cases and controls

	Cases		Controls
Biochemical Parameter	MB (n=24)	PB (n=18)	(n=30)
Total Cholesterol (mg %)	* 146.1 ± 18.90	* 145.2 ± 16.90	148.2 ± 19.50
Triglyceride (mg %)	* 126.2 ± 13.08	* 125.4 ± 12.11	128.2 ± 17.08
HDL Cholesterol (mg %)	* 43.4 ± 3.24	* 44.3 ± 3.87	42.8 ± 4.40
LDL Cholesterol (mg %)	* 85.2 ± 10.28	* 84.4 ± 13.83	87.2 ± 12.6

Values are expressed as mean ± s.e.m, * $p<0.05$ statistically significant

Figure 1
Comparison of biochemical parameters of multibacillary (mb), paucibacillary (pb) leprosy cases and controls



DISCUSSION:

Lipids play an important role in all aspects of life. Although every living organism has been found to contain sterols, cholesterol is found almost exclusively in animals, it is also the main sterol. Studies have showed that lipid profile is altered in leprosy. The lipids inside the lepra cells may be of host origin and probably may result in alteration in serum lipids and therefore some research workers used alteration in the lipid profile as diagnostic tool for leprosy. Lipids are found everywhere in the body tissue and have an important role in virtually all aspects of biological life. Serving as hormones or hormone precursors, aiding in digestion, provide energy storage and metabolic fuels, acting as functional and structural components in bio-membranes and forming insulation to allow nerve conduction or to prevent heat loss.[18]

Metabolism of host-derived fatty acids is required for the synthesis of mycobacterial lipids including virulence factors such as phthiocerol dimycocerosate, sulfolipid-1, and polyketide synthase-derived phenolic glycolipid (PGL) and therefore, host lipids are used both for virulence and growth.[19, 20]The lipids inside the lepra cells may be of host origin and may result in alteration in serum lipids.[21] In this study we have found significant reduction in total cholesterol in both MB and PB groups ($p< 0.05$), when compared with control, this observation was in accordance with Gupta. [22] Similarly when triglycerides levels in the two test groups were compared with control we found statistically significant reduction in MB and PB Leprosy ($p<0.05$), whereas Misra[23] have documented an increased in serum triglyceride levels in their studies. These observations were not in agreement with our study.

In contrary when HDL cholesterol levels in both the test groups were compared with control we observed statistically significant increased levels in both groups of leprosy ($p< 0.05$). These observations were in agreement with the findings of Bansal.[24] Where as LDL cholesterol decrease was statistically significant in both groups when compared with control ($p<0.05$). These observations were in accordance with the Kher [25] and Ahaley.[26]

CONCLUSION:

All the lipid fractions except HDL cholesterol were decreased significantly ($p<0.05$), where as HDL cholesterol was increased significantly ($p<0.05$) in both Multibacillary and Paucibacillary leprosy groups when compared with control group.Increased level of HDL cholesterol as compared to controls are in favour of ailing lepers.

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ORIGINAL ARTICLE

Causes of Male and Female Sub Fertility in the Couples who Underwent 'In Vitro Fertilization' at Life Clinic; a Statistical Study from Lahore, Pakistan

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ABSTRACT:

Objective: To explore the causes of male and female sub fertility in the couples undergoing 'In Vitro Fertilization' at LIFE clinic.

Materials and Methods: In this retrospective, cross-sectional, observational study from Lahore, Pakistan all couples coming for evaluation and treatment for sub-fertility from 1st January to 30th April 2015 at Lahore institute of fertility and endocrinology LIFE with n=344 patients were included Fertility and Endocrinology (LIFE). Sampling method was non probability consecutive. The data collection instrument was an especially designed Performa. Causes of Sub fertility male and female were studied and data was extracted from the files of LIFE.

Results: Out of 344 patients 138(40.1%) had female factors, 122(35.5%) had male factor, 38(11.0%) had combined factors whereas 46(13.4%) had unexplained infertility. Out of 138, 55(39.85%) females had tubal factor, 2(1.45%) had endometriosis, 21(15.22%) had PCO and 60(43.47%) had unexplained causes of sub-fertility. Out of 122 males, 90 (74.4%) had oligospermia/asthenospermia and 32(25.6%) had azoospermia.

Conclusion: Tubal factor was a major cause of sub-fertility in females whereas in 2/3 of the females, cause of sub-fertility was not explained.Among the males,oligospermia was the most common cause and was found in 74.4%. Health education about menstrual hygiene should be imparted early in life to prevent Sub-fertility due to infection. Premarital counseling and testing should be made easily available. Andrology should be made part of the Gynecology courses and curricula. Community based Sub-fertility research should be encouraged to assess the disease burden and frequency of preventable causes.

Keywords: Sub fertility, Females, Males, Causes, Lahore, Pakistan

INTRODUCTION:

Mothering and motherhood have been regarded as issues of prime importance regardless of religion, geography, culture, art, mythology and literature. To become a parent and have children is a desire that leads goals and life plans of a common man and inability to achieve that desire may jeopardize the whole life of a person or a family.[1] Inability to have a kid even after 12 months of unprotected intercourse without use of contraceptives is known as subfertility.[2]Subfertility evaluation is usually started by the gynecologist or the couple is referred to a fertility center where the couple is evaluated for subfertility. If age of the female is more than 35 years or there is history of menstrual irregularities or there is a known male factor for subfertility then evaluation may be commenced earlier.[3,4]Subfertility has two types, primary and secondary subfertility. Primary subfertility is the inability to have a child despite unprotected vaginal intercourse for twelve months among women of reproductive age (15 to 49 years).

Secondary subfertilitymeans the inability to have a child after at least one pregnancy. Globally, primary subfertility is commoner than secondary subfertility. [5]

The process of conception in human beings is quite complicated and a firm understanding of anatomy and physiology of male and female reproductive system is

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essential for evaluating clinician to identify the investigations needed for a correct diagnosis of cause of infertility. [6,7,8] Modern laboratory and sonology/ radiology can help an intelligent clinician to think about the treatment strategies after reaching a meaningful diagnosis. [9,10]The whole record of the couple is to be scrutinized to look for co-morbid conditions and associated diseases. Sometimes it is very difficult to make the couple understand the mechanics of the male and female genital tract. Conception is the result of interplay between many physical and biochemical processes gauged by the biological clock. [11,12]The journey of the egg starts after well-timed ovulation and successful picking up by the fallopian tubes. [13,14] If semen has been deposited in the vaginal tract the spermatozoa are needed to travel all the way through the cervix and uterus to reach the fallopian tube having the egg. [15,16] After fertilization the embryo travels to the uterus to be implanted there and the process of pregnancy starts. So subfertility evaluation may be a long, tedious and expensive process. A well prepared couple should have the awareness and patience to bear the process. When a couple is labelled to be subfertile stress, anger, jealousy and frustration may be the usual result that may overwhelm the couple due to social response or resentment of close relatives. [17] Subfertility may be an important cause of marital conflict and may lead to an unwanted divorce and polygamy.[18,19,20]. In eastern culture motherhood qualifies womanhood and so women are blamed and victimized on being responsible for childlessness of the couple. [21] World Health Organization affirmed in 2001 that if subfertility rate exceeds 15% it may be declared to be a public health problem. [22] Subfertility is a social stigma and a couple is afraid to accept it and here comes into play the role of the family physician. A general practitioner or a family physician has a unique opportunity to help a childless couple. Initial workup and support can help the scared subfertile couple to think about visiting a fertility physician. An early visit to a fertility center may be of great value in terms of right and timely investigation.[23] The sub fertile couple is needed to be evaluated before detailed investigations. A detailed history and physical examination may point towards an area to be investigated if analyzed thoughtfully with an inquisitive mind. A well concerted effort may help the clinician to tailor the treatment strategy to have a fruitful outcome.[24] Couples across the globe are affected by the sub-ability to have children which is a source of personal discontent and social resentment. [2] A well prepared couple has the awareness and patience to bear the process.[25]The couple may need psychosocial counseling which may include family counseling.[26] Anatomy and physiology of the reproductive system may be compromised as a cause of subfertility. Sometimes genes may be implicated.[27] Prevalence of subfertility in different regions is different mainly due to environmental factors as well as reproductive behaviors, smoking and pollution etc.[28] Present study was designed to explore the causes of male and female sub fertility in the couples undergoing 'In Vitro Fertilization' at Lahore institute of fertility and endocrinology LIFE clinic.

MATERIALS AND METHODS:

In this retrospective, cross-sectional, observational study from Lahore Pakistan all couples coming for evaluation and treatment for subfertility from 1st January to 30th April at Lahore institute of fertility and endocrinology (n=334) were included. Sampling method was non probability consecutive. The data collection instrument was a specially designed performa validated by biostatistician and epidemiologist of LIFE research center. Causes of male and female subfertility were studied. Data was extracted from the files of LIFE. Data was entered into SPSS version 15.0 and descriptive analysis was done for frequencies and percentages for categorical variables. Mean, S.D and variance were calculated for numerical variables.

RESULTS:

In this study unexplained subfertility was seen in 13.4% (46) of the couples, both males and females were implicated in 11.0% (38) of the couples, only females were said to be responsible in 40.1% (138) of the cases where as in 35.5% (122) couple males were implicated (n=344). In the females 43.47% (60) had unexplained subfertility, in 39.85% (55) tubal factors were said to be responsible, 15.22% (21) had PCO and 1.45% (2) had endometriosis (n=138). Amongst the males oligospermia was found in 74.4% (90) and azoospermia in 25.6% (32) (n=122) (Table 1, Figure 1,2 & 3)

Table: 1

Sr.	Variable	Frequency	Percentage
1	Female factor	138	40.1
	Tubal factor	55	39.85
	Endometriosis	2	1.45
	PCOS	21	15.22
	Un-explained	60	43.47
2	Male factor	122	35.5
	Oligospermia	90	74.4
	Azoospermia	32	25.6
3	Both responsible	38	11.0
4	No cause found (female/male/unexplained)	46	13.4
Total		344	100 %

Figure: 1
Breakup of causes of subfertility

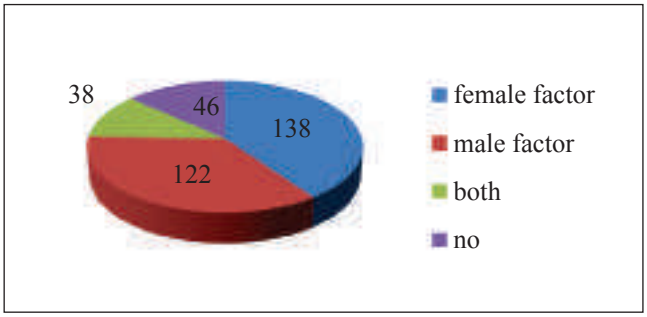


Figure: 2
Break up of female factors

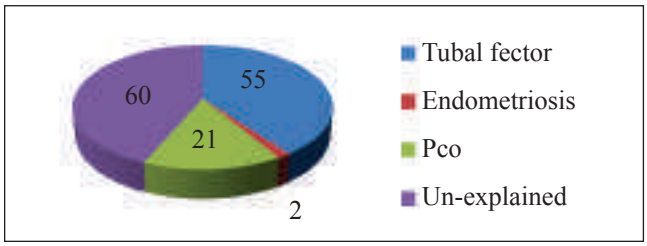
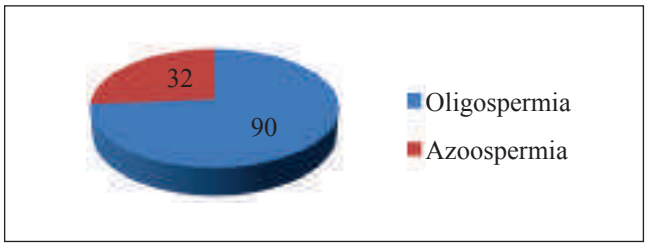


Figure : 3
Break up of male factors



DISCUSSION:

In our study only females were found to be responsible for subfertility in 40.1% of the couples, only males in 35.5% (122), both males and females in 11.0% (38) and unexplained subfertility was seen in 13.4% (46) of the couples. In males oligospermia was found in 74.4% (90) and azoospermia in 25.6% (32). In females unexplained subfertility was found in 43.47% (60), tubal factors in 39.85% (55), PCOS in 15.22% (21) and endometriosis in 25.6% (32).

Subfertility may be primary or secondary depending on the history of pregnancy in the past.[29]Primary subfertility is more common in developed countries as compared to developing countries where secondary subfertility is also prevalent. [30,31]

Zargar has shown that primary subfertility is quite common in India as compared to secondary subfertility but most of the subfertile couples delay to consult the fertility physician. Male factor was found to be responsible in 22.4 % whereas ovulatory dysfunction (17.2%), tubal factor (7.2%), failure of ovaries (8.8%) and hyperprolactinemia (8.4%) were the causes found in sub fertile females.[32]

In a study done in Mongolia, used WHO protocol 'Standardized Investigation of the Infertile Couple' to explore causes of sub fertility, female factor was responsible for subfertility in 45.8% of couples, male factor was responsible in 25.6% of couples and unexplained subfertility was seen in 9.8% of couples whereas in 18.8% of couples both the partners contributed to subfertility. History of STI (sexually transmitted infection) and PID (pelvic inflammatory disease) were found to be 33.5% and 25.1%, respectively. History of STI (sexually transmitted infection) in males was present in 42% whereas previous testicular damage was seen in 27.7% of the males.[33]

Another study done in Mongolia in 2004 also used WHO protocol. Primary subfertility was seen in 62.4% and secondary subfertility in 37.6%. Female factor was responsible for subfertility in 52.7% of couples, male factor in 6.4% of couples and unexplained subfertility was seen in 2.2% of couples whereas in 38.7% of couples both the partners contributed to subfertility. In the female factor, tubal block was found in 36.5%, pelvic adhesions in 23.6% and endocrine disorders in 32.8. Females showed to have four times more inflammatory complications as compared to males. [34]

Elussein analyzed 710 Sudanese couples at Khartoum Fertility Center in Sudan to explore causes of infertility. Primary subfertility was seen in 62.4% and secondary subfertility in 37.6%. Female factor was responsible for subfertility in 49.3% of couples, male factor in 36.2% of couples and unexplained subfertility was seen in 13.0% of couples whereas in 1.5% of couples both the partners contributed to subfertility. Female subfertility was found to be mostly due to ovulation failure i.e. 60.3%. Male subfertility was found to be due to Oligozoospermia (16.8%) and asthenozoospermia (17.5%). [29]

Whitman-Elia examined the diagnosis of the couples after evaluation and found that male factors caused subfertility in 40% of the subfertile couples, female factors in 40-55% and unexplained factors in around 10%. In a very small percentage i.e. 5% mixed factors were found to be responsible. Female factors responsible for subfertility were tubal disease, endometriosis and pelvic adhesions, ovulatory dysfunction and cervical factors. Hypothyroidism, luteal phase defect and immunologic factors were also implicated in a small percentage i.e. 5%. In 10% of the couples cause of subfertility remained unexplained even after all investigations. [23]

The diagnosis of idiopathic infertility in males reflects a poor understanding of the factors involved in regulation of spermatogenesis. Single gene mutations and chromosomal aberrations are some of the genetic causes of impairment of spermatozoa, which constitute ten to fifteen percent of severe subfertility in the males. [35]

CONCLUSION:

Tubal factor is the major cause of subfertility in the females whereas in 2/3rd of the females, cause of subfertility was not explained. Among the males oligospermia was the most common cause and was found in 74.4%.Health education about menstrual hygiene should be imparted early in life to prevent Sub fertility due to infection. Premarital counseling and testing should be made essential. Andrology should be made part of the Gynecology obstetrical courses and curricula. Community based Sub fertility research should be encouraged to assess the disease burden and frequency of the preventable causes.

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ORIGINAL ARTICLE

Is Gender Matters in Paediatric Cardiac Surgery

Iqbal Hussain Pathan[1], Sohail Khan Bangash[2], Saad Bader Zaki[3]

ABSTRACT:
Objective: To observe the potential effect of gender difference on the survival after pediatric cardiac surgery.
Materials and Methods: This retrospective cross sectional study was carried out in PCICU of Pediatric Cardiac surgery department at National institute of cardiovascular diseases Karachi, Pakistan from October 2013 till September 2015. Data was evaluated to find out the effect of gender on survival of patient during their post-cardiac surgery PCICU stay for structural heart defects.
Results: A total of 518 patients were operated for structural heart defects on pump and including glenn shunt and fonton procedure irrespective of use of pump. 68% of these were boys and 32% were girls. Unadjusted mortality was similar for both boys and girls (9% versus 8%, P=0.87). After adjustment of complex surgeries with Aristotle basic score > 8 like intervention for TGA , univentricular hearts and DVR ,more prevalent in male population , the outcome was not significantly different with 5% v/s 4% for boys and girls respectively .
Conclusions: Patient's gender has a no significant effect on mortality after pediatric cardiac surgeries.
Keywords: Congenital heart surgeries (CHD), Aristotal score , Paediatric cardiac surgery , Gender, Mortality

INTRODUCTION:

Risk prediction of an intervention always have central role in decision making and counseling as well as quality assessment of care. In adult cardiac surgery different models of risk prediction are used for risk assessment. Literature provide considerable evidence that female gender carries a higher operative morbidity and mortality.[1,2,3,4] Female gender is considered as an independent risk factor in various models like euroscore,[5] parsonnet score[6] and northern new England[7] score. Various reasons were mentioned in literature for adverse outcome in female gender. However there is no consensus on fact behind these observations; some suggest it is inherent other suggest socioeconomic or cultural reason responsible for delayed referral . Nevertheless it is generally accepted that compared to male , female gender present with different risk profile when presented for cardiac surgery.[8,9] Despite of same risk profile any intervention to medically address the same condition may result in a very different result between the genders and a given postoperative complication have more adverse effect on women.[10] Despite suggestion that female gender may be important risk factor for outcomes of cardiac operations, literature into gender-related influences on outcome of congenital heart disease (CHD) surgery or paediatric cardiac surgeries are sparse. Nevertheless when a review of literature was conducted for risk scoring system in paediatric cardiac surgery, we observed that scoring systems often lack complex integration of factors as in adult cardiac surgery risk scores. Scoring systems like RACHS[11] and the Aristotle score[12] used in paediatric cardiac surgery based on diagnosis and complexity of surgical procedure respectively. Thus predict more on the basis of diagnosis or intervention.

A recent report of risk-adjusted clinical data from the STS-CHSD data center failed to demonstrate effect of gender on the early postoperative mortality.[13] While there are many reports showing; female gender was associated with as high as 50% higher odds of death.[14,15,16] There may be an opposite trend than adults may be observed as it is well established fact that by nature normal female fetuses have a higher survival rate than male fetuses.[17]

In our study, we retrospectively analyzed data from the paediatric cardiac surgery department at NICVD to determine effect of gender on surgical outcome.

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MATERIALS AND METHODS:

Post surgical admission record of PCICU of NICVD was reviewed. All the paeditric patients underwent open heart surgeries and Glenn and Total Cavopulmonary connections for univentricular physiology irrespective of the use of cardiopulmonary bypass pump and were included in the study. Patient under went off pump surgeries were excluded from study. Similarly patients requiring emergency intervention as well as with missing data regarding sex and age were excluded from study. Data was collected from October 2013 to September 2015.

Data was analyzed and presented with percentage for

categorical data and numerical data with mean standard deviation. Two by two table was used to assess statistical significance of any association of unadjusted risk factor that is female gender with survival. After adjusting the risk factors like procedures with Aristotal score > 8 and double valve surgery, association of female gender with postoperative survival was also determined.

RESULTS:

After reviewing the record a total of 518 patients were included in this study. Their demographic data is shown in Table 1. 518 patients were operated in our department from October 2013 till September 2015. Patients shifted from PCICU to ward were 475 (91.6%) without shifting back to step up again. Among 518 patients total male patients were 350 (67.6%) compare to female patients 168 (32.4%). Incidence of unadjusted postoperative morality was [30(8.5%) v/s 13(7.7%) p =.87] for males and females respectively. Though incidence of more complex procedures with Aristotal score >8 and double valve replacement were more prevalent in male population but it did not significantly influenced the outcome 12(5%) v/s 7(4%) for males and females respectively.

Table: 1
Demographic data

Variable	Numbers
Total	518
Male	350 (67.57%)
Female	168 (32.4%)
Age	
Neonates	11 (2.12%)
Children	507 (98%)

Table: 2
Diagnosis of patients or intervention where diagnosis is undefined and outcome of individual procedure is mentioned

Type of procedure	Numbers	Aristotal basic score	Mortality observed
TOF	276(52.5%)	8 (5 to 10%)	14(5.07%)
VSD	129 (25%)	6(1 to 5%)	6(4.6%)
ASD	58 (11%)	3(<1%)	1(1.7%)
TGA	22 (4.2%)		
TGA (ARTERIAL SWITH)	12	11(10 to 20%)	11(91%)
TGA (ATRIAL S WITCH)	10	11(10 to 20%)	6(75%)
MVR	4 (7%)	7.5(1 to 5%)	0
DVR	2		0
VSD + Aortic Regurgitation	1		0
TRICUSPID ATRESIA	17 (3%)		
TRICUSPID ATRESIA (GLENN)	11	7.5(1 to 5%)	2(18.2%)
TRICUSPID ATRESIA (TCPC)	6	9((5 to 10%)	2(33.3%)
TAPVR	2	9(5 to 10%)	1
PAPVR	5(.9%)	7 to 9(5 to 10%)	0
CAVCD	2	9(5 to 10%)	0
Total procedures	518		43(8.3%)

TOF (Tetralogy of Fallot) VSD (Ventricular Septal Dfect), ASD (Atrial Septal Defect), TGA
(Transposition Of Great arteries), MVR (Mitral valve replacement), DVR (double valve replacement)
PDA(Persistent Ductous Arteriousis), TCPC(total cavopulmonary connection),CAVSD(Complete
Aterioventricular Canal Defect), TAPVR(Total Anamolus Pulmonary Venous Return),
PAPVR(Partial Anamolus Pulmonary Venous Return)

DISCUSSION:

Gender is very important demographic variable mentioned in almost every study conducted on humans. Differences in outcomes for diseases and interventions between males and females are increasingly being observed . It is still undetermined whether gender affects outcome after pediatric cardiac surgery because before puberty, hormonal differences are less prominent. Nevertheless there is evidence that gender differences might play role in mortality and morbidity early in life. From fetal life to postnatal status there are many biological differences between both genders. Similarly it had been long known observation that male babies are more likely born preterm.[18] Male children are more prone to deaths from respiratory[19] and neurologic complications[20] than female children. Premature girls have higher serum level of catecholamines possibly responsible for their better survival.[21] Effect of gender have been well observed for coronary artery disease , heart failure, valve disease, and pulmonary hypertension.[22,23,24,25] Even females who survive myocardial infarction are more prone for re-infarction and higher mortality than males.[26] Gender related heart defect pattern difference is also common observation like more boys are presented with transposition of great vessels and left sided obstructive lesion than girls who present more with atrial septal defects and Ebstein`s anamoly.[27,28] In children with congenital heart disease , little data exist on differences in operative / health outcomes between males and females. Evidence of gender related difference in surgical outcomes after pediatric heart surgery has been conflicting. Possibly results of different studies were confounded by the differential pattern and severity of CHD. Potential of selection biases and small sample sizes were major limitation of these studies. Chang and colleagues, reviewed large number of inpatient hospital records including almost all congenital heart surgeries with the aim to determine the effect of gender on outcome; females were found to have higher odds of death than males. Nevertheless it involved a single region while excluding low flow hospitals.[29] Same reports from California showed higher in hospital mortality rates for female children following cardiac surgery.[30] Harry has also reported increase association of adverse outcome with female gender with odds ratio 1.31.[31] There are many reports suggestive of opposite trend in paediatric patients with adverse out come for male patients . New England Regional Infant Cardiac Registry presented with data showed that female infants had a 5% lower mortality.[32] A cohort mortality study in patients observed higher death rates in males gender compared to females

with CHD . Pattern was persistent from 10 years of age and onward till adulthood.[33]

Our study failed to demonstrate any difference in survival in either of gender. The predominance of males having CHD surgery compared to females was most significant finding of our study, 68% v/s 32% for males and females respectively. Though males had more severe CHD at birth, female sex failed to demonstrate a protective effect on surgical mortality. Limitations of our study are first it has retrospective study design. Secondly like analysis of any databases it is important to understand effect of documentation of record within the presented diagnostic and procedural report. Thirdly it must be paired with this consideration that is the potential presence of co-morbidity profiles not related to surgical disease or intervention. Fourthly, this study does not directly examine the effect of payer status on risk-adjusted outcomes. Finally, inter institutional transfers cannot be tracked. Whereas the strengths of this study are, it is a single centre study and all patients were operated by two surgeons and got same level of care thus helping us in controlling many biases.

CONCULSION:

Patient's gender has a no significant effect on mortality after pediatric cardiac surgeries. Although we have found that a higher proportion of males had high-risk procedures and underwent more CHD surgeries but we have observed no difference on the survival.

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COMMENTARY

Workplace Based Assessment: A Step Towards Competency Based Training

Shafaq Sultana

ABSTRACT:
Assessment of clinical performance is important but challenging and the key features of good assessment include clarity of purpose, formative feedback, transparency, credibility, cost efficiency, use of multiple methods and ongoing quality assurance. In traditional educational paradigm assessment is based on integrating teaching,learning and assessment however complex professional attributes are difficult to assess using standardized assessment methods but can be better assessed in workplace situation.It has been observed that trainees are seldom observed, assessed and given feedback at workplace. Workplace based assessment as a part of an assessment strategy provides an opportunity to incorporate feedback and facilitate integration.It assesses the performance in everyday clinical practice in healthcare setting and tracks the progress in integrating clinical knowledge and skills for clinical decision making.Faculty training is an absolute radical to valid work based assessment and should include feedback training sessions as well as specifics of individual assessment instrument.
Keywords: Workplace, Based Assessment, Competency, Training

INTRODUCTION:
It has been very well said that "Assessment drives learning." For just over two decades leading educationists, including medical educators, have highlighted the intimate relationship between learning and assessment. Indeed, in an educational context it is now argued that learning is the key purpose ofassessment. Assess-ment is defined as "any systematic method of obtaining information from tests and other sources, used to draw inferences about characteristics of people, objects, or programs."Good assessment is difficult but critical to effective development of clinical learners.[1]This article provides you some principles of assessment and some professional competencies that are difficult to assess within the traditional assessment system for example multiple choice test and written papers, OSCE. We need to assess the competencies using information directly derived from the working environment.[2]
There is an increasing recognition of the need to include work based assessment as part of an overall assessment strategy; as well as providing an opportunity for authentic assessment incorporating feedback and facilitating integration of assessment and learning it also presents significant challenges.
In 1990 George Miller proposed[3] a frame work to assess clinical competence. It shows that there are different types of competence demonstrated at each stage of the pyramid and that it is vital to record, monitor and assess these in an authentic way. At the lowest level of the pyramid is knowledge (knows), followed by competence (knows how), performance (shows how) and action (does).The 'knows' level of pyramid can be assessed using simple knowledge tests,e.g. multiple choice questions (MCQs). The 'knows how' level can be assessed using one best MCQs, and unfolding patient management problems(PMPs).Objective structured clinical examination (OSCEs)can assess the 'shows how' level but when we are taking about assessing does level, it refer to assess performance in context[2] (figure 1). The problem is that what doctors do in controlled assessment situations correlates poorly with their actual performance in professional practice. These problems give rise to a need to develop assessment method that focus on top of pyramid that's where workplace assessment comes in.
Utility of any assessment method is a product of its reliability, validity, cost, acceptability and educational impact. It is necessary to set explicit standards and assessment program that should be monitored against these parameters. There will be a balance between the educational impact, acceptability, reliability, validity and feasibility across the suite of WBAs implementation.

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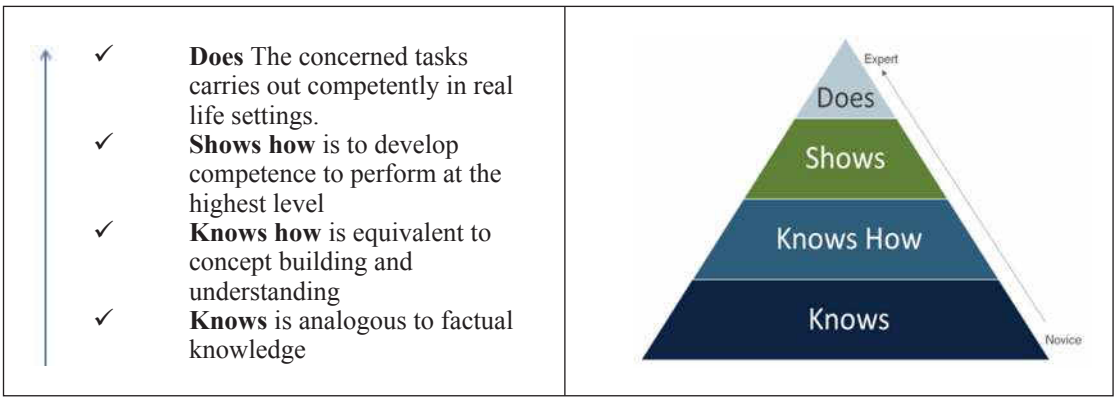
Types of assessment:
1. Formative Assessment: The assessment for learning through observation feedback.
2. Summative Assessment: The assessment of learning for a high stake decision (pass/fail, certification etc.)

What is work place based assessment?
WPBA is the assessment of competence based on what a trainee actually does in the workplace.[4] In Medical education context it means the assessment that is conducted in the clinical setting.Work place based assessment is usually a competency based assessment. The competencies assessed by workplace based assessment are medical expertise,decision making, communication, team work and collaboration, leader-ships, management and health advocacy, scholarship teaching and professionalism.[6]
The main aim of WPBA is to aid learning (Assessment for learning) by providing trainees with constructive feedback. Trainees can use the same methodology to assess themselves (Reflective practice).[7]The assessments help the supervisor to chart a trainee's progress during a placement.
WPBA is an essential part of an assessment system. It is comprehensive assessment system that collectively

forms an overall profile of an individual by testing their skills, knowledge and behaviors.[8] It evaluates trainees in the environment where they will be working upon graduation. The use of WBAs will support the individual's practice of providing safe patient-cente-red care.

It offers the opportunity of formative assessment and feedback at the same time.

Figure: 1
Miller's pyramid[3]



Purpose of work based assessment:

WPBA provides day to day practice in working environment.[9]It is used to support education and maximize learning impact. It assures patient safety, monitors progression, structures learning plansand provides a transparent policy on assessment for learning and its relationship to assessment of learning.

Types of WPBA:

A number of methods of assessment for observation are used in clinical settings.[10]Some of the common methods areMini - clinical evaluation exercise (mini - CEX),Direct observation of procedural Skills (DOPS),Case - based discussion (CBD),Multi - source feedback (MSF)**,** Mini-PAT peer assessment tool (Figure 2a, 2b).

Areas of competence assessed through WPBA

Figure 2a[3]

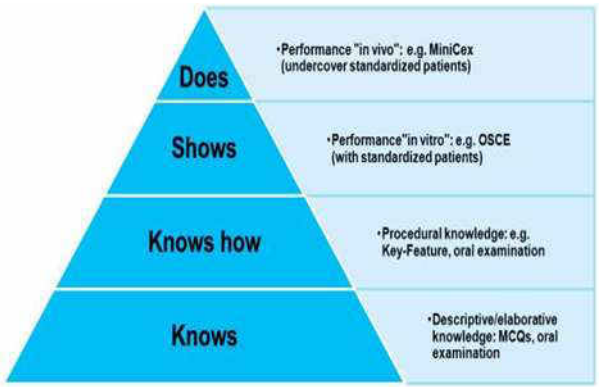
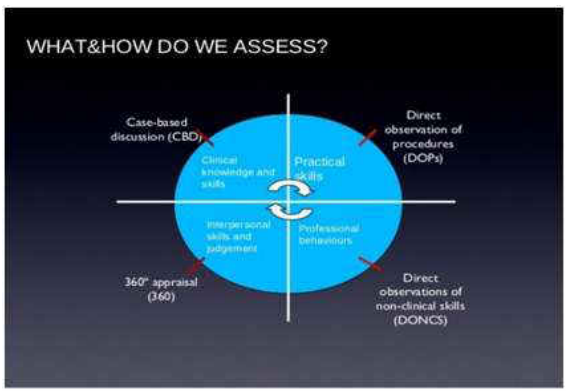


Figure 2b[15]



Effective feedback:

The work place based assessment is a usefulexercise to get personalized feedback to create, enhance and support learning, thus strengthening the formative impact of this assessment.[11]It provides an educational supervisionto learners about progress and encourages the practice of reflection.It fosters an environment where assessment for learning along with assessment oflearning is seen. Thus effective feedback informs trainees of their progress, facilitates learning, and motivates them to engage in appropriate learning activities.[11]

Strengths and limitations:

WPBA is potentially highly valid assessment tool.[12] It can assess 'does' (what the doctor actually does in practice) and contribute to an understanding of whether the trainee can apply the skills and knowledge in particular situation. It focuses on Trainee experience and maps achievement in a competency framework.[13] Moreover it helps to identify those who might need particular educational support early in training and creates a nurturing culture and provides feedback. It samples widely in the workplace across the curriculum and utilizes a range of judges and assessors.[14]Not yet robust in terms of reliability. Other assessments of 'show how' and 'know how' are needed to provide reassurance in terms of reliability. WPBA does not assess knowledge

directly. If educational supervision is not working appropriately trainees are more likely to try to delay or avoid assessments, or ignore feedback.[15] WPBA is learner dependent and vulnerable.

CONCLUSION:

Workplace Based Assessment is definitely a step towards Competency Based Training.The assessment tools should be designed and continuously refined to maximize their validity in competency frame work. They also ensure what they assess?and what they are intended to assess? WPBA have positive impact on learning and performance and creates a nurturing culture.

Several good methods are available that have major influence on learning and should be utilized. The opportunity for educational feedback is an important contribution to the assessment process. At the end of each assessment session the experts should provide a comprehensive evaluation to trainee based on strengths and weaknesses. Faculty members then should be encouraged for self - assessment and develop action plans, which will enable the trainees to address any deficiencies. In a sense, these methods bring summative and formative assessment closer to each other. However faculty need to be trained on 'how to give effective feedback' as it is one of the most important success factor in workplace based assessment.

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STUDENTS CORNER

Oral Health Education Poster Competition 2015 by Department of Community Dentistry at BUMDC

Raima Bashir[1], Kulsoom Fatima Rizvi[2]

The Department of Community Dentistry of Bahria University Medical & Dental College, organized a students'"Oral Health Education Poster competition"on Wednesday 7th Oct 2015 from 9am to 2pm at the Ibn - e -Sina auditorium of BUMDC. The program was headed by Dr. Kulsoom Fatima Rizvi (Head of Department) and hosted by Dr. Raima Bashir and Dr. Anum Sami (lecturers of the department).The event commenced by display of scientific posters on a variety of topics relating to Community Dentistry and pertaining to oral conditions like xerostomia, baby bottle tooth decay, dental anxiety, prevention strategies and various other topics like cosmetic dentistry, which were prepared and presented by the 2nd Year BDS students. The whole Class had been divided into 14 groups which were supervised by Dr.Raima and Dr.Anum Sami. The Director General of BUMDC Vice Admiral (Retd) Tehseenullah Khan and Dean & Principal Health Sciences, Brig (Retd) Dr. Shaheen Moin were invited as chief guests. Respectable heads and faculty of entire medical & dental sections of BUMDC as well as guests from other Medical & Dental Colleges were also invited to provide support and encouragement to the participants. The Jury comprised of Dr Ashar Afaq (HOD Community Dentistry &Vice Principal of DUHS OJHA campus), Dr Mariam Azfar(HOD Community Dentistry, JSMU), Dr Ambreen Usmani (HOD Anatomy BUMDC) and Dr Mushtaq Memon (HOD Periodontology/Oral Medicine BUMDC) who judged each poster on their concept, knowledge, and presentation skills and scored them accordingly. The results were then compiled by commutating the marks allotted by each jury member. Every one appreciated the efforts of the students and shared their expert opinions and knowledge with them.

The event then proceeded with an introductory presentation on departmental achievements and a featured video on outcomes and accomplishments of a "Community Support Program" running successfully in BUMDC under the dynamic supervision of Dr. Kulsoom Fatima.

Dr. Kulsoom Fatima welcomed the respected guest, faculty and students of all BDS batches and congratulated all the participants and the organizers for conducting a successful event.Two students of 3rd year BDS , Affaf Fatima and Safia Anwar presented their researches before the audience that have been presented earlier at both national and international conferences. The motive was to encourage the upcoming batches and students towards research work, extracurricular participation and enhancing their knowledge and confidence. Dr. Ashar Afaq and Dr. Mariam Azfar also addressed the audience sharing their experience and delivered presentations on oral health promotion.

The ceremony was concluded with prize distribution of shields and certificates to meritorious students. 1st prize was awarded to poster titled "Xerostomia" by Anika Choudary, Hafsa Saeed, Kulsoom Zaidi and Anum Malik, 2nd prize was bagged by poster on "Importance Of Salivary Diagnostic Tools In Oral Disease" by Bibi Hafsa, Tooba Taj, Saba Gul and Moneezay Jaffer and poster titled "Dental care for mother and child" by Ramsha Iqbal, Madiha Parveen and Rehab Tahir aquired 3rd prize. Honorary shields were also presented to respected judges and certificates of appreciation were also awarded to the organizers namely Dr Raima Bashir, Dr Anum Sami and Assistant Qadeer Ahmed for working day in and out in making this event a complete success. The Director General Vice Admiral (Retd) Tehseenullah Khan and Dean health Sciences Brig (Retd) Dr Shaheen Moin congratulated the participants and the department with words of tremendous appreciation for working wholeheartedly as a team in the execution and completion of the event and emphasized that more of such activities should be conducted on regular basis.

Lastly, Dr Kulsoom gave her vote of thanks to the chief guests for sparing their precious time, entire medical and dental faculty for joining them, her team and the entire 2nd year BDS student for their tremendous hard work. BUMDC encourages such healthy extracurricular activities for students as they seta platform for all the young nurturingdentists and researchers to present their real-time work and get appreciations which are their real achievements.

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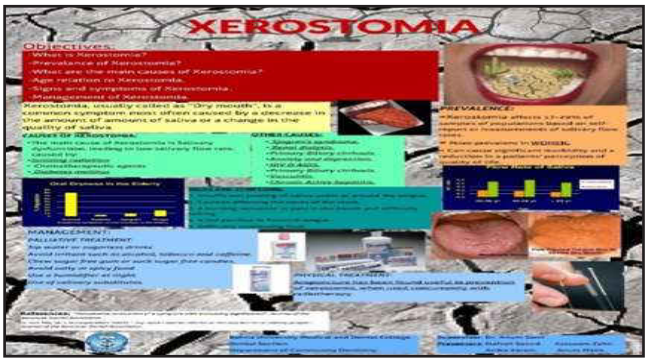

1st position Poster
Titled: Xerostromia

2nd Position Poster
Titled: Importance of Salivary Diagnostics in Oral Diseases

3rd Position Poster
Titled: Dental Care for Mother and Child

1st Position Holder Group
Group members
Hafsa Saeed, Anika Akram, Anum Malik, Kulsum Zaidi

2nd Position Holder Group
Group Members
Bibi Hafsah, Moneezay Jaffar, Saba Gul, Tooba Taj

3rd Position Holder Group
Group Members
Ramsha Iqbal, Madiha Perveen, Rehab Tahir

Students Presenting before a
Judge for Poster Evaluation

Group Photo with Director General,
Judges and Departmental Faculty

CASE REPORT

Endodontic Therapy of Mandibular Canines with Two Canals in a Single Root

Shama Asghar[1], Mahwesh Hasan[2], Asghar Ali[3]

ABSTRACT:
Mandibular canines have less anatomical diversities than other teeth.Mandibular canine is generally asingle rooted tooth with one wide root canal.This case describes the root canal treatment of a mandibular canine with two completely separate root canals in a single root. Clinical and radiographic examination revealed a mandibular canine with carious lesion and pulp exposure, tender to percussion.The precise understanding of the dental endocanalicular system's anatomy is critical in the success of the root canal management.
Keywords: Mandibular canine,Endodontics, Two canals, Anatomical variations

INTRODUCTION:

The objective of endodontic therapy is the eradication of infection from the root canal and the prevention of reinfection.[1]Abnormal root and root canal morphology can be found associated with any tooth with varying degree and frequency and affects endodontic management.[2] Knowledge of the root canal anatomy is the basic pre-requisite for successful completion and outcome of endodontic treatment.[3] Mandibular canines'anatomy usually presents just one wide canal associated with a single root.[2]In mandibular canine, the occurrence of two roots and more than two root canals is rare, ranging from 1% to 5%.Most of the lower canines'studies(98.3%) presented a single root, with three internal variations, one canal and one foramen(92.2%), two canals and one foramen(4.9%), two canals and two foramina (1.2%).This paper reports the case of a patient with mandibular canines with a single root and two entirely separated root canals.

CASE REPORT:

A 47-year-old woman patient reported to Department of Operative and Endodontics of Bahria Dental College with the chief complaint of pain in lower left anterio region for the last one week.The clinical examination revealed that the mandibular left canine had proximal caries involving pulp. Periapical radiograph showed pulp exposure and patient was diagnosed with irreversible pulpitis.Any unusual medical histories were not revealed. Informed consent was obtained and root canal procedure was started after administrating local anesthesia,2% lidocaine.Rubber dam was placed and endodontic access cavity was created through the center area of the lingual surface using a long-shank, round bur on a high-speed handpieceand an Endo Z tapered safe-end bur. Only one root canal orifice was found in the center of the tooth after access cavity opening.The pulp was extirpated completely using a K-hand filesize No. 10 and 15.After removal of infected pulp, another canal toward labial side was visible (Figure1a) The pulp was removed from this canal by using a K-hand file size No. 10 and 15.Working length of both canals was taken with electronic apex locator.The length of the buccal canal was 22 mm and the lingual was also 22 mm and No. 25 K-files wereplaced in both canals (Figure 1b) and radiograph was taken at two different angulations to confirm the presence of extra canals (Figure 2a). Radiograph revealed the presence of two canals and one root. In the next stage, the mechanical treatment was performed.The canals were prepared,using a step back instrumentation techniquewith a hand file with master apical filling up to No. 30.Rinsing of the endodontic space with done with plenty of antiseptic solution, using a 2.5% of sodium hypochlorite as irrigant, at every change of instruments.The canals were dried with sterile paper points.

The root canals were filled with intra-canal medicament with the help of Lentulo-spiral and cavity was sealed with temporary filling material and analgesic was given.After a week, patient was recalled for obturation, she had no pain.Temporary filling was removed, and canals were irrigated with normal saline and dried with sterile paper points. The canals were filled with gutta-percha cones and root canal sealer (Figure 2b).

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Figure: 1a
Two canals in left lower mandibular canine
(one Lingual and Labial)

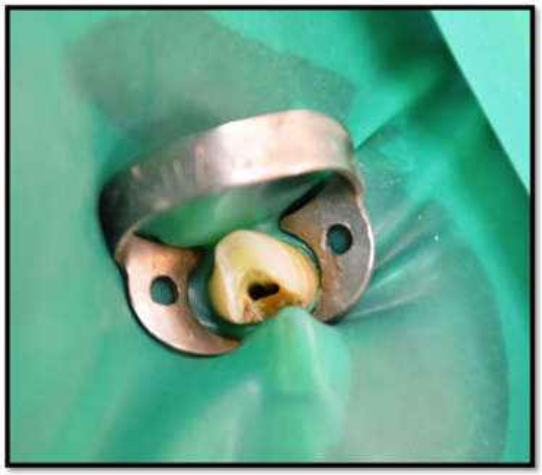

Figure : 1b
Left lower mandibular canine with two K-file No. 25 in both canals

Figure: 2a
Radiograph of working length of left lower mandibular canine with two K-file No. 25 in both canals

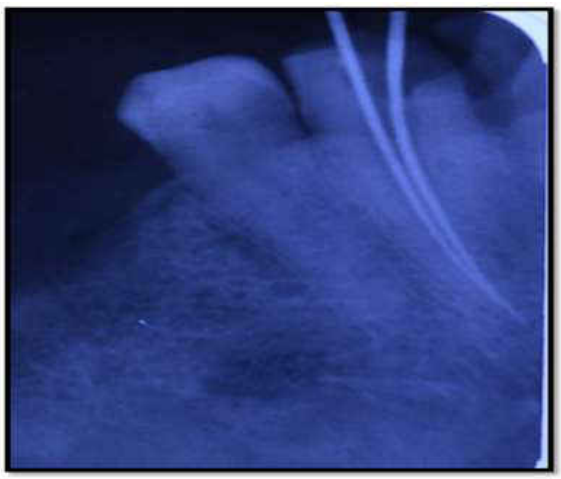

Figure: 2b
Obturation of both canals
(filled with GuttaPurcha points)

DISCUSSION:

Knowledge of anatomic variations is essential because endodontic success is related to a thorough debridement of the root canal system.[2]The mandibular canine is the second longest tooth in dentition.[5] It is only 1-2 mm shorter than the upper canine.[6]

On studying the literature it becomes seeming clear that there is disagreement of opinion as to the structure of root canal of human permanent teeth. The occurrence of two canals in single rooted tooth has been reported to be as low as 0.0% and as high as 6.25%[7]. Incidence of one root with two canals in mandibular canines was detected by several authors.[5,6,7] Hess in 1921, Barrett in 1925, Pucci and Rei in 1944, Madeira in 1973, De Deuss in 1982, all have demonstrated the case of single root and two canals.[6,7,8]In 1972, Pineda F and Kuttler Y found that 18.5% of the mandibular canines had two canals through a study on 187 radiological images.[9] Green D reported 13% in 1973 following the analysis of 100 teeth.[10]Hession reported 11% in 1977.[11]Similar results were obtained by Kaffe I et al. in 1985, in a radiological study on 400 mandibular canines, in vivo, which showed a percentage of 13.75%.[12]Laurichesse et al in 1986 informed that 2% of mandibular canines presented with single root and two canals and 1% had two roots and two canals.[13]Our case report demonstrated two canals in a single root. In 2006, Bakianian studied 100 canines by using the stereomicroscope; he noticed the occurrence of two radicular canals in 12% of the cases.[14]Another study conducted on internal anatomy of mandibular canine, showed that 4.9% had two canals and one foramen, 1.2% had two canals and two foramina.[15] According to Vertucci, in single-rooted mandibular canines, type II and type III configurations may be found in 14% and 3% of the cases, respectively.[16]

Other researchers have performed in-vitro studies using sectioning[9] or radiographic[10] techniques: they also reported that about 15% of single-rooted lower caninesshowed two canals with one or two foramina.The anatomy of root canal system dictate the condition under which root

canal therapy is carried out and can directly affect this prognosis.[16] Extra root or rootcanals if not detected, remain a major reason for failure of treatment.Incomplete removal of all the irritants from the pulp space may increase the possibility of treatment failure.

CONCLUSION:

Clinicians should be aware of anatomical variations in the teeth they are managing, and should never assume that canal systems are simple. Even though the most common anatomy of mandibular canines comprises a single root and a single root canal, clinicians should consider the possible variations and always search for the second root canal in teeth with either one or two roots.

Conflicts of interest: The authors have no conflicts of interest relevant to this article.

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LETTER TO EDITOR

Medical Brain Drain – An Increasing Social Stigma

Maria Shoaib

To,
The editor,

Migration of talented and educated professionals from their native country, in search of higher salaries, advanced technology, stable political conditions, and a better living, defines the term brain drain. This is not only concerned with people but is also concerned with migration of education, intellect, talent and resources as well. Currently in our country, brain drain of doctors is a rising social stigma as Pakistan ranks as 3rd leading country for International Medical Graduates working abroad.[1]The reason may be financial, social stressors, job satisfaction and better learning opportunities but this mobility is very asymmetrical. The immigrants are usually from developing nations to countries like USA, UK, Canada, Australia which are marked 1st world and beneficiaries of large scale physician immigration over last fifty years.[2]

These professional émigrés are competent, profound and skilled people, who are moreover an asset to that society, their contributions at home would have been valuable to theirhealth care and socioeconomic sectors. Further, they could be role models and a source of greatacademic inspiration. It is of great interest that the recipient countries and the migrants are not at loss, in fact the donor country is decreasing doctor-patient ratio and in short loss of resources and human capital there.[3]Although at some point there are remittances that immigrant physicians be sent home, however the stated disadvantages are not compensated by the clinical and educational link they establish or their economical support.

Pakistan has a greater burden of diseases and increasing mortality, with a growing disease load of cancers, cardio vascular diseases, disabilities and an increasing rate of infectious diseases and nutritional deficiencies.[4]It is indeed a socioeconomic need to identify the reasons which push towards efflux of the talented young graduates or trained professionals to the other countries at national level. Disparities in working conditions and demotivating factors should be resolved. The young graduates and students should be given some incentives, leadership and better chances to progress. The government should design policies, introduce teaching research programs and take responsibility to train, retain and sustain its youthful and important work force. Many countries intensify their efforts to attract and retain foreign students, which increases the risk of brain drain in the developing countries. In poor countries, this transfer can change the skill structure of the labor force, cause labor shortages, and affect fiscal policy.It can be a boon or a curse for developing countries.[5]Finding opportunities and seeking better choices is a basic human right. But a promising future with good learning and work environment, improvised salaries, optimism, peace and equity can certainly help to reduce and control the social malaise of the medical brain drain.

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