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Editorial

How Healthy Are You?

Dr. MohsinMasud Jan
Editor

"Everybody is healthy until they become sick" still holds true as science advances with new healthcare concepts.

A few decades ago most doctors could say quite confidently that if you are not sick, then by definition you are healthy. But that was then. As medicine advanced and with it the sciences that support medical knowledge, the definition of health has started to change. The 'old' joke about getting old is perhaps more relevant than ever, if you wake up in the morning, and nothing hurts then you are as healthy as you are going to be. Generally speaking the absence of disease continues to be the basic definition of a state of health. The appropriate modifier now is 'apparent' health.

The ability to discover 'things' that are, or, could become wrong with our bodies has changed the very definition of 'disease'. Here I will just give just one example to illustrate this point. The presence of a mere 'gene' that predisposes women to breast cancer as they age, causes them to preemptively undergo mastectomies.

In a slightly less extreme fashion, most adults above a certain age are advised regular colonoscopies to find 'tumors' (polyps) that have the potential to become tumors or to find actual cancers. The polyps can be removed during the diagnostic procedure while real cancer on being discovered will need more definitive treatment. There are also diagnostic tests recommended for people with 'risk factors' that could lead to heart disease. These tests can detect heart problems before they produce what would be called 'disease' in a formal sense.

What it means is that almost every disease is already percolating in our bodies until such time that it finally becomes manifest. The obvious example of this 'sudden' manifestation of 'latent' disease is a person who was well enough in the morning but by the end of the day needed a life-saving heart procedure to even make it through the night.

All this leads to interesting problems in modern healthcare. We have 'newer and better' diagnostic procedures and tests that can provide important information about the extent and seriousness of medical conditions in time to prevent serious consequences. As these procedures and tests become 'famous', more and more patients demand such testing, often, without good reason. The cost of medical care then goes up as physicians often order tests as a part of 'defensive medicine'. This definitely contributes to the increasing cost of healthcare.

Even if we ignore the tussle between physicians and 'educated' consumers of medical services for the latest tests or preventive treatments, the fact remains that even when physicians recommend some of these tests and treatments voluntarily, they are doing it unnecessarily. Some of what was once considered 'good' medical advice is not considered good advice anymore. The most famous casualty is perhaps the 'annual check-up'. Most analyses of the benefits of this annual ritual have shown that such check-ups offer no health benefits.

There are two other rather commonly used tests that are being questioned. First there is the routine 'breast mammography'. The mammogram does identify the presence of abnormal tissue in the female breast. Once such tissue is identified it leads to biopsies and even eventual surgery for removal. Some of these cases might not even be cancer and do not really need to be removed. The other test is a Prostate Specific Antigen (PSA) that can identify prostate cancer. A positive test can lead to unnecessary prostate operations in patients that have cancer but the cancer is so slow growing that if it is left alone, the person might die of something entirely unrelated.

The new concept that seems to be the future of medicine is 'tailored treatments'. These treatments are based on an individual's 'genetics and physiology'. What this concept suggests is that there are few types of diagnostic testing or preventive as well as active treatments that are applicable to all people equally. For instance in the situations mentioned above, family history, genetic markers, environmental risk factors, individual habits and pre-existing medical conditions should determine what sort of investigations should be carried out in a particular person.

Another relatively new concept is also finding some traction. The idea is that of 'numbers needed to treat' (NNT). What this means is for instance in patients at risk for a heart attack that are placed on daily Aspirin is that how many patients would need to take a pill a day to avoid a heart attack. Statistics suggest that roughly two thousand people with the appropriate 'risk factors' would have to take an Aspirin a day for two years to prevent 'one' heart attack while it would still not prevent four heart attacks in this group. Considering the fact that Aspirin can produce serious side effects in some patients, the question has to be asked whether taking an Aspirin a day is really worthwhile in every patient with risk factors for developing an eventual heart attack.

That being said, in a country like ours, where people die every day of inadequate sanitation and malnutrition, all of that means little except for the elite of the country. But still, nevertheless, these are all goals and ideals that we should strive for; that in due time, as our healthcare system improves, these should be our ideals to strive for.

Original Article

Postoperative Wound Infection After Midline Abdominal Incisions

Postoperative Wound Infection

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ABSTRACT

Objectives: The objective of this study was to compare postoperative wound infection rate after abdominal closure with Polydioxanone and prolene for midline incisions.

Study Design: Randomized control trial

Place and Duration of Study: This study was conducted at the department of Surgery Sheikh Khalifa Bin Zaid Hospital Rawlakot Azad Kashmir from 09-05-2013 to 28-05-2015.

Materials and Methods: Total of 106 patients undergoing elective and emergency laparotomies. In this randomized control trial conducted at Sheikh Khalifa Bin Zaid Al Nahyan Hospital Rawlakot Azad Kashmir Department Of Surgery, we studied 106 patients for midline closure of abdominal surgery. We made two groups (Group A consisted patients who underwent abdominal closure with Polydioxanone no. 1 and Group B contained patients who underwent closure with Prolene no. 1). The outcome variable was wound infection.

Results: The average age of 106 patients was 36.88 ± 13.28 years with range 14-49 years. Statistically the post operative wound infection was present in 25 (23.6%) patients, in which 7 (6.6%) were from group A and 18 (18%) were from group B. The percentage of wound infection was statically higher in group B as compared to group A (p-value < 0.05).

Conclusion: Polydioxanone is inert in tissues if we compare it with other absorbable materials. According to our experience, Polydioxanone causes less wound infection as compared to Prolene in midline abdominal wound closure.

Key Words: Abdominal closures, Midline surgery and wound infection

Citation of article: Siddique A, Ahmed MA. Postoperative Wound Infection After Midline Abdominal Incisions. Med Forum 2015;26(11):2-5.

INTRODUCTION

Abdominal wound closure often reflects a surgeon's personal preference. The importance of suture material may be accessed by wound complications. Early complications include wound dehiscence and infection.[1] Chances of infection are less with non-absorbable sutures[2-5]. Examples of such materials are polypropylene, nylon, polyethylene, and polyamide[6]. Braided silk have a high association with infection, and an intense inflammatory reaction.[7-9]

Wound infection remains the most significant early postoperative complication in 3 to 21% of patients undergoing midline laparotomy.[10,11] The choice of material for abdominal closure should be made in the light of what is known about resistance to infection. Non-absorbable materials (e.g., polypropylene) are associated with high incidence of wound pain and sinus formation.[1]

Absorbable materials are designed to approximate the fascia during the critical early healing period and subsequently to undergo absorption to avoid these complications associated with non-absorbable sutures. Polydioxanone (PDS) and polyglyconate (Maxon) are the most commonly used slowly absorbable suture materials. On review of a meta-analysis, absorbable monofilament suture material was found superior in comparison with non-absorbable monofilament.[1] Most authors suggest that a slowly absorbable monofilament suture material is superior to a non-absorbable suture material for closure of the abdominal wall, and that there is no standard technique generally accepted as best or rather safest for closing the abdominal wall after primary midline laparotomy.[10] This study aims to compare two suture materials, polydioxanone and polypropylene, in closure of midline laparotomy wounds in order to find a better choice of suture material in terms of wound infection.

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MATERIALS AND METHODS

This randomized control trial study was conducted at the department of Surgery Sheikh Khalifa Bin Zaid Hospital Rawlakot Azad Kashmir from 09-05-2013 to 28-05-2015.

Sample Size: Using WHO sample size calculator, where level of significance was 5%, Power of test = 80%, Population proportion (P_1) = 9% and P_2 was 2.3%.

So, sample size (n) = 106

(53 patients in each group A and B, randomly allocated). Group A = Polydioxanone was used in abdominal closure. Group B = Prolene was used in abdominal closure.

Sampling Technique: Non-probability purposive sampling

Sample Selection

Inclusion Criteria:

- All patients undergoing midline laparotomy in elective as well as in emergency operation theatres.
- ASA (American Society of Anesthesiologists) grade I and II.

Exclusion Criteria

- Radiotherapy of the abdomen completed less than 8 weeks before operation.
- Current immunosuppressive therapy.

Data Collection Procedure: All patients who met the inclusion criteria, underwent midline laparotomies in elective as well as in emergency operation theatres of our hospital were selected for the study.

After obtaining approval by the hospital ethical committee, informed written consent was taken from each patient. All midline abdominal wounds were closed by continuous single layer mass closure, and the procedure was performed by a single selected team of surgeons. The patients was randomly allocated either to group A or B (randomization) Lottery method.

Group A: patients who were undergo abdominal closure with Polydioxanone # 1.

Group B: patients who were undergo abdominal closure with Prolene # 1.

Patients in each group were administered preoperative prophylactic intravenous antibiotics covering gram negative organisms and anaerobes. The same intravenous antibiotics along with analgesics was continued postoperatively for at least five days. Postoperative wound infection was assessed immediate postoperatively till 7 days by daily wound examinations. If there was any purulent discharge then it was sent in laboratory for regular examination. Culture and sensitivity of the discharge was only be requested if the white blood cell (WBC) count on regular examination is more than 11,000 cm^3. Abdominal wounds was cleaned by pyodine solution followed by normal saline dressings on daily basis.

Data Analysis: All the data was entered on SPSS for windows version 10. Mean and standard deviation was calculated for quantitative data, i.e., age. Frequencies and percentages was calculated for qualitative data, i.e., results of routine examination (microscopy), results of culture and sensitivity, results of wound infection, suture breaking, knot slipping and intact suture cutting out of the tissues.

Chi-square test was used to compare wound infection in group A and group B. A p-value $\leq$ 0.05 was considered statistically significant.

RESULTS

In this study a total of 106 patients were divided into two groups; Group A contained 53 (50%) in which Polydioxanone was used for abdominal closure and in Group B 53 (50%) patients were taken in which the abdominal closure was done with Prolene.

In Group A the average age of patients was 36.32 ± 13.57 years with minimum and maximum ages 16 years and 65 years respectively. In Group B, the average age was 37.43 ± 13.09 years along with minimum and maximum ages 17 years and 65 years respectively. Hence over all, the average age of 106 patients was 36.88 ± 13.28 years with range of 49 years. Table #1

WBC > 11000 cm^3 was present in 17 (16%) patients in which 6 (5.7%) patients were belonged to group A and 11 (10.4%) in group B. The status of WBC > 11000 cm^3 was statistically same in both groups (p-value > 0.05). Table # 2

Table No. 1: Descriptive statistics of Age (years)

	Polydioxanone	Prolene	Total
Mean	36.32	37.43	36.88
Std. Deviation	13.57	13.09	13.28
Minimum	16	17	16
Maximum	65	65	65

Table No. 2: Frequency Distribution of "WBC > 11000 cm 3" with respect to study groups

		Study Group		Total
		Polydio-xanone	Prolene	
WBC > 11000 cm^3	Present	6 (5.7%)	11 (10.4%)	17 (16%)
	Absent	47 (44.3%)	42(39.6%)	89 (84%)
Total		53 (50.0%)	53(50.0%)	106 (100.0%)

Chi-Square Test = 1.75 p-value = 0.186

Table No. 3: Frequency Distribution of "Culture and Sensitivity of fluid, Organism Isolated" with respect to study groups

		Study Group		Total
		Polydio-xanone	Prolene	
Culture and Sensitivity of fluid, Organism Isolated	Present	4 (3.8%)	6 (5.7%)	10 (9.4%)
	Absent	49 (46.2%%)	47 (44.3%%)	96 (90.6%%)
Total		53 (50.0%)	53(50.0%)	106 (100.0%)

Chi-Square Test = 0.442 p-value = 0.506

According to culture and sensitivity of fluids, Organisms were isolated in 4 (3.8%) patients and 6 (5.7%) patients in group A and group B respectively. In Groups A the cultures sensitivity of fluid, Organism isolation was absent in 49 (46.2%) and in group B it

was absent in 47 (44.3%) of the patients. The culture and sensitivity of fluid, organism isolation was statistically same in both groups (p-value >0.05). Table # 3

Sutures were broken in one patient only in Group A, while in 8(7.5%) patients belonged to group B the suture were broken during follow up. Statistically in group B the breakage of suture were significant (p-value < 0.05). Table #4

Knot slipping was seen only in one patient who belonged to group B. The knot slipping was statistically insignificant (p-value >0.05) in both treatment groups. Table #5

Finally, the post operative wound infection was present in 25 (23.6%) patients, in which 7 (6.6%) were from group A and 18 (18%) were from group B. The percentage of wound infection was statically higher in group B as compared to group A (p-value < 0.05). Table # 6.

Table No. 4: Frequency Distribution of Suture Breaking with respect to study group

		Study Group		
		Polydio-xanone	Prolene	Total
Suture breaking	Present	1 (.9%)	8(7.5%)	9 (8.5%)
	Absent	52 (49.1%)	45(42.5%)	97(91.5%)
Total		53 (50.0%)	53(50.0%)	106 (100.0%)

Chi-Square Test = 5.950 p-value = 0.015

Table No. 5: Frequency Distribution of knot slipping with respect to study group

		Study Group		
		Polydio-xanone	Prolene	Total
Knot slipping	Present	0 (0%)	1 (0.9%)	1 (0.9%)
	Absent	53 (50%)	52 (49.1%	105
Total		53 (50.0%)	53(50.0%)	106 (100.0%)

Chi-Square Test = 1.010 p-value = 0.315

Table No. 6: Frequency Distribution of "Post operative wound infection" With respect to study groups

		Study Group		
		Polydio-xanone	Prolene	Total
Post operative Wound Infection	Present	7 (6.6%)	18 (17%)	25 (23.6%)
	Absent	46 (43.4%)	35 (33%)	81 (76.4%)
Total		53 (50.0%)	53(50.0%)	106 (100.0%)

Chi-Square Test = 6.334

DISCUSSION

The midline laparotomy incision is enormously standardized and easy to perform, yet there has been substantial variation in the method of the repair of this incision. The ideal suture should avoid incisional wound infection, wound pain or the formation of suture sinus.[12,13,14]

Within the last many years the habitual trend of using non-absorbable sutures has been changed, with numerous studies and meta-analyses advocating the use of slowly absorbable sutures, claiming comparable wound strength with significantly lower prevalence of wound complications.[15,16] There is a verity of literature in which the different kind of suture material has been tested, many of them are in favor of different kind of suture materials (like observable and non-observable). Similarly we conducted this study to see the effectiveness of Polydioxanone and Prolene in midline closure. We compared these two suture materials in terms of less postoperative wound infection. According to this study our experience shows that the Polydioxanone has less but statistically insignificant postoperative complications like suture breaking, knot slipping and wound infection.The healing process of abdominal fascia after surgical incision continues for 9 to 12 months.[17,18]

Various studies[19,20] have demonstrated a significantly lower incidence of wound infection in the Polydioxanone group. Similarly in our study, the incidence of wound infection was statistically high in group of Prolene.[21]

According Dooren VP et al[22] concluded after a follow-up period of 60 months the use of Polydioxanone and Prolene for closure of the abdominal fascia after laparotomy showed no significant difference in the occurrence of wound infection which was clearly contradictive from our study.

CONCLUSION

Polydioxanone is a synthetic monofilament absorbable suture, which is relatively inert in tissues and retains its strength for longer than other absorbable materials. According to our experience Polydioxanone causes less wound infection and wound dehiscence as compared to Prolene in midline abdominal wound closure.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Smoking Behavior among Medical and Dental Students in Abbottabad, Pakistan

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ABSTRACT

Objective: To assess the prevalence of smoking among young medical and dental students and explore the smoking habits and associated variables,

Study Design: Cross-sectional observational study

Place and Duration of Study: The study was conducted in Frontier Medical & Dental College, Abbottabad, Pakistan during June-July, 2015.

Materials and Methods: This was a cross-sectional observational study where anonymous, self-administered questionnaire was used to collect data like socio-demographic data and details about various aspects of smoking from 146 study subjects.

Results: The rate of smoking was found to be 23.28%, with male preponderance. The mean age of initiation of smoking was 18.79±1.68 years. The most common reason for starting smoking was company and peer pressure followed by stress or tension. The mean number of cigarettes smoked per day was 13.09±6.52. The commonly used product was cigarette (89.28%) among males and waterpipe (shisha), (83.33%), among females. Majority of study subjects, 63.70%, and 73.53% of smokers were aware of harmful effects of smoking. The most commonly known harmful effects included; lung cancer, carcinoma of oral cavity, respiratory and cardiovascular diseases.

Conclusion: Smoking is common among medical graduates. Tobacco control measures should be introduced to reduce smoking as well as it should be made part of curricula taught at medical and dental colleges to increase awareness among students.

Key Words: Smoking, Cigarette, Student

Citation of article: Anjum MU, Anwar R, Khan MS, Ahmad R, Shah SH. Smoking Behavior among Medical and Dental Students in Abbottabad, Pakistan. Med Forum 2015; 26(11):6-9.

INTRODUCTION

Smoking is a major global public health problem. It is one of the leading preventable cause of morbidity and mortality [1]. According to a report by World Health Organization (WHO), smoking is responsible for around six million deaths each year globally as well as contributes to around half a trillion dollars each year in terms of economic costs associated with smoking [2]. If the current rate of smoking continues, then the smoking related deaths will increase to seven million by year 2020 and to more than eight million a year by 2030 [3]. Secondhand smoke consists of smoke released by burning of tobacco products as well as exhaled during smoking [4]. It also leads to 600,000 deaths annually, with majority of deaths happening among children and women [5].

Smoking, both active and passive, is deleterious to health and is associated with many diseases [5]. These diseases include respiratory, cardiovascular diseases and different types of cancers [6]. Smoking is responsible for more than one fourth of all cancer related fatalities, which include carcinoma of lung, oral cavity, kidney, stomach and cervix [5]. A recent survey has shown that about 80% of deaths associated with smoking were due to lung cancer and chronic bronchitis and emphysema while 17% were from cardiovascular diseases [7].

Smoking is common among people of all ages. But, younger persons are particularly susceptible to smoking. This means that they will be exposed to smoking for a longer period of time and hence, more risk of adverse effects of smoking [8]. Therefore, we conducted this study to access the smoking habits and patterns of smoking among young medical and dental students as well as to ascertain the reasons of smoking and knowledge of medical students about the harmful effects of smoking.

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MATERIALS AND METHODS

This was a cross-sectional observational study which was conducted during June-July, 2015 in Frontier Medical & Dental College, Abbottabad, Pakistan. There was a non-probability convenience sampling. All medical students of third year and dental students of second year, who were willing to participate in the study, were included in the study. Students of other

classes were excluded from study. The study was approved by the institution's review committee.

Anonymous, self-administered questionnaire was used. Questions were grouped into different sections which covered different factors like socio-demographic variables, reason and age of starting smoking, whether they know about harmful of smoking or not and if they answered yes, they were asked to enlist the harmful effects they know, no of cigarettes smoked per day, which product they prefer to use like cigarette, water pipe (shisha), cigar, etc. Questionnaires were handed over to the students by authors and students were given 15 minutes to complete them. Before the start of the survey, informed verbal consent was taken from students and they were given detailed instructions about how to complete the questionnaire. Student's privacy was strictly observed by voluntary and anonymous participation.

WHO criteria was used to assess smoking status: smokers were those subjects who smoked daily (at least one cigarette per day) or occasionally (less than one cigarette per day). This group also included those students who were experimenters and have smoked less than hundred cigarettes in a year. Non-smokers were those subjects who haven't smoked at the time of this study. All the data was entered, organized and analyzed using Statistical Package for Social Sciences (SPSS version 17). Frequencies and percentages were calculated for categorical data and mean and standard deviation were calculated for continuous data.

RESULTS

The study sample consisted of 146 subjects with 91 males and 55 females, as shown in Figure 1. The mean age of study population was 22.09±1.21 years while that of 22.20±1.34 years for male subjects and 21.91±0.97 years for female subjects.

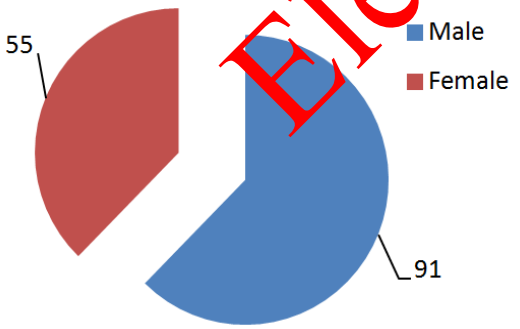

Figure No.1: Gender-wise distribution of study population

Table No.1. Distribution of study sample according to smoking status

	Non-smokers	Smokers	Percentage
Males	91	28	30.77%
Females	55	06	10.91%
Total	146	34	23.28%

Out of 146 study subjects, 34 were smokers. There were 28 males and 6 females in this group. The mean age of study subjects in this group was 22.5±1.26 years. The mean age of male smokers was 22.68±1.25 years while mean age of female smokers was 21.67±1.03 years, as shown in Table 1.

Mean age of starting smoking was 18.79±1.68 years. Number of cigarettes smoked per day was 13.39±6.52. The average duration of smoking was 3.81±1.73 years. Most common reason for starting smoking was company and peer pressure followed by stress/tension. Among study population, 63.70% of the subjects were aware of harmful effects of smoking while 36.30% were not, implying that majority of subjects have knowledge of harmful effects of smoking. Among smokers, 31 subjects, (25 males & 6 females), were aware of these harmful effects. The harmful effects identified by study subjects were lung cancer, carcinoma of oral cavity, respiratory and cardiovascular diseases, as shown in Table 2.

Table No.2. Characteristics of smoking population

	Number	Percentage
Reason for smoking, (n=34)		
Company	19	55.88%
Stress/tension	10	29.41%
Other	5	14.71%
Age of initiation of smoking, (n=34)		
≤20	20	58.82%
>20	14	41.18%
Awareness about health effects of smoking among study population, (n=146)		
Yes	93	63.70%
No	53	36.30%
Awareness about health effects of smoking among smokers, (n=34)		
Yes	31	91.18%
No	3	8.82%
Awareness of ill effects of smoking: Variables		
Lung carcinoma	72	77.42%
Cancer of oral cavity	23	24.73%
Respiratory diseases	11	11.83%
Cardiovascular diseases	7	7.53%
Others	4	4.30%

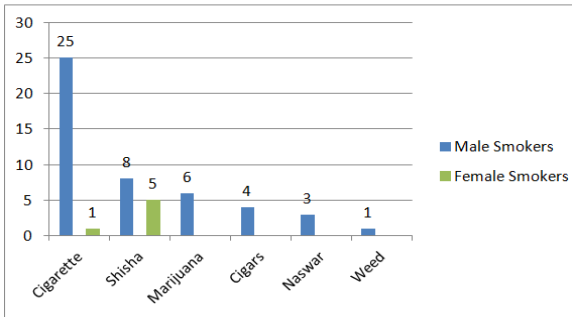

Figure No.2: Distribution of smokers according to the product used for smoking

Distribution of smokers according to the product used for smoking is shown in Figure 2. Majority of male (89.28%) smokers used cigarette followed by shisha (28.57%) and Marijuana (21.43%). Majority of female smokers used shisha (83.33%).

DISCUSSION

Smoking is one of the main risk factor for various diseases worldwide, including variety of different types of cancers. It is responsible for large number of deaths globally which is estimated to be about 5.4 million deaths each year and this is believed to rise considerably in future [8].

Our study has shown that the incidence of smoking was 23.28% with high preponderance among males (30.77%) than females (10.91%). Our findings are consistent with other studies done on the same subject. A study done in Western Nepal by Subba et al have reported the incidence of smoking to be 21.3% with 30.2% in males and 10.9% in females [9]. Similarly, a study conducted by Mumtaz et al in Rawalpindi has reported incidence of smoking among medical students to be 32.7% with incidence in males to be 42% and in females to be 10% [10]. Likewise, Piryani et al in their study conducted among house physicians in Karachi has shown that the incidence of smoking among house physicians was 32% [11]. Nguyen et al reported the incidence of smoking among college students in Vietnam to be 25% with higher male predominance of 43.77% [12].

In our study, mean age of starting smoking was 18.79 years. This is comparable to other studies. A study done in college students in Vietnam by Nguyen et al has shown to be 18.6 years [12]. Similarly, a study conducted by Binu et al in Nepal have shown that the mean age of starting smoking was 16.8 years while Sharma et al have shown that the age of initiation of smoking, among college students in India, was between 15-19 years [8, 13]. Subba et al reported that the age of initiation of tobacco smoking was 15.7 years in Western Nepal [9]. It is quite interesting to note is that the age of starting smoking, in all cases, was less than 20 years. Therefore, policies should be designed to target this age group to prevent them from becoming future smokers.

Our study has shown that the most common reason for the initiation of smoking was company and peer pressure (55.88%) followed by stress/tension (29.41%). This is similar to what other studies have found out. A study conducted in Lahore, Pakistan, by Malik et al showed that the 55.17% of the medical personnel initiated smoking due to the effect of company [14]. Subba et al reported that the most common reason for starting smoking in young population of Nepal was the company of friends [9]. Similarly, Sharma et al in their study, which was conducted among college students in Delhi University, India, reported that the company/peer pressure was responsible for 41% of cases while tension or stress was responsible for 17.8% of cases [13]. This implies that company of friends and peer pressure is an important contributing factor towards initiation of smoking.

The average number of cigarettes smoked per day by study subjects was 13.39±6.52 and the average duration of smoking was 3.81±1.73 years in our study. A study done on medical students in Lahore, Pakistan, by Karamat et al showed that the students smoked less than ten cigarettes per day [15]. Nichter et al, in their study done in Karnataka, India, showed that the mean number of cigarettes smoked by college students per day was 6 while Nguyen et al reported that the number of cigarettes smoked by Vietnamese medical students was 4.4±4.5 per day [12, 16]. This difference in rate of cigarettes smoked per day may be due to the effect of price and different taxation rates in different countries. It has been shown that there is inverse relationship between the tobacco taxes and its consumption [17]. Therefore, many countries in the world have significantly increased taxes on tobacco and its products to discourage its consumption [18]. The most common tobacco product used by male smokers in our study was cigarettes (89.28%), followed by shisha (28.57%) and marijuana (21.43%), while it was shisha (83.33%) and cigarettes (16.67%) among female smokers. Nichter et al have reported that 36% of young college students in India used cigarettes [16]. It is quite alarming to realize that the marijuana use is increasing among male medical students and shisha smoking is increasing among female students.

Our study has shown that majority of study subjects (63.70%) were aware of the harmful effects of smoking and this proportion was higher in smokers, 73.53%. The harmful effects that the study population was aware of included (in decreasing frequency); lung cancer, carcinoma of oral cavity, respiratory and cardiovascular diseases. This knowledge of harmful effects of tobacco can prove very useful as it can be used to help the youth understand the risks involved in smoking and later, help them to quit and stop smoking.

CONCLUSION

Quite a number of medical students are involved in smoking and they are mostly tempted by friends and peers to indulge in smoking. Tobacco control measures should be introduced to discourage and reduce smoking as well as facilitate those smokers who want to quit smoking. It should also be the part of curricula taught to medical students.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Battered Wife

Increasing Trend of Battered Wife in Pakistan

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ABSTRACT

Objectives: To evoke law enforcement agencies for batter legislative measures against increasing trend of battering of wives in Pakistan.

Study Design: Cross Sectional / Analytic Study

Place and Duration of Study: This Study was conducted at the Emergencies & OPDs Departments Islam Teaching Hospital, Sialkot, District Headquarter Hospital, Gujranwala, Rehmat Memorial Hospital, Lahore, Ameer ud din Memorial Hospital, Peshawar and Shahina Jamil Hospital, Abbottabad from 1st January 2012 to 31st May 2013.

Materials and Methods: Total 169 cases of battered wives were reported but 100 cases of battered wives out of 169 who consented were selected in the study. A proforma was specially designed to include different influential criteria like age, socio economic group, combined or joined family system, education, mental or physical health and addiction.

Results: Out of 100 cases who were selected the maximum incidence was among the young age group ranging between 21 to 30 years 56% in low socio economic group, 83% in suppose of addicted partners, 63% in illiterate couples, 67% in joined family system. Poor physical and mental health of wife is another precipitation factor amounting to 83%.

Conclusion: The tendency of battered wife is a global problem. It is increasing day by day in developed / under developed countries and nations. This trend is even going to be increased in Muslim countries where battering to the wife is prohibited (Haraam). Increasing tendency in Pakistan is mainly due to illiteracy addiction, financial stresses and low standards of living which in turn are the basis of poor physical and psychological health.

Key Words: battered wife, psychological , economical, mental / physical sickness, joint family system

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INTRODUCTION

Recently many social scientists have paid their attention towars the issue of violence agginst women not only in the developed but also in the developing world. Feminist movements for the last three centuries have been focusing of the repressive conditions being faced by women across the world but the condition of the women is still for from satisfactory and cries out for amelioration.[1] Recently feminst schlors have comtentracted on strategies to safegurad women from domestic violence.[2] Although, technological advancement, globalization, industrialization, internationalization of media and efforts made by iternational instutions, including international non-govermental orgainzations have created some space for women to compete on equal footing but the situation is unfortunately still much unsatisfactory for those women who are living in under developed nation.[3] On the other hand there are few international humanitarian organizations, which are working to eliminate this violence against them.[4] The cumulative and even concerted efforts by struggling parties have been borns little furit and the situation still remains unpalatable and appressive. This brutal violence has different forms and multi-lateral dimensions.[5] It waries for society to society in its maginitude and intensity.[6] Wife battering is one of the major issues and practices in violence against women. According to Heise violence against women is a worldwide phenomenon, transcending cultural, geographic, religious, social and economic boundaries. It has come to be recognized internationally as an important issue and has become the subject of a substantial amount of research in recent decades.[7] The most common type of violence against women is domestic; violence perpetrated by intimate partner or ex-parther.[8]

In the context of Pakistan social setup violence against women has a very abnormal proprtion since the societal norms encourage and perpetuate the superiority of men-folk. Among other reasons for the deminance of the men over women, is the joint family system.[9] This stretched family yields excessive influence of the in-lawa over the wife husband relations and is a substantial cause of wife degradation, wife humiliation and wife battering. It is usually the mother-in –law who

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is the major factor in this sanguine drama but she is all the same reinforced feudal make-up of family structure. It is very rare that mother-in-law comes to fend the disputes but most of time she igintes and sparkles vicious conflagration among spouses. He Pandora-box of complaints against her daughter-in-law is never exhausted.[10]

The factors intercating through which female are trageted in rural Punjab have specific formations. The societal norns to a large extent incits the husbands to wife battering. To some extant religion is also misused in perpetuating. The some extant religion is also misused in perpetuating such acts.[11] The frequency of sever wife battering has resulted into a chain reaction of social malformation.[12] The present research has unfolded disastrous, the victims have an urge to live in a unclear family rather than to live in a joint family and face such inexorable violence. In their presception and to some extent true, it minimizes the intrusions of the in-laws thus rending part the social fabric of society. While on the other hand some of these victims are thruggling to opt out of marriage contract but are faced with the dilemma of between the devil and the deep blue sea since the dissolution of such a contract is likely to result into further misfortune and complications and top of all the infliction of social stigma, that is attached to a forsakne divorce.[13]

MATERIALS AND METHODS

This cross sectional / analytic study was conducted at the Emergencies & OPDs Departments Islam Teaching Hospital, Sialkot, District Headquarter Hospital Gujranwala, Rehmat Memorial Hospital Lahore, Ameer ud din Memorial Hospital, Peshawar and Shahina Jamil Hospital, Abbottabad from 1st January 2012 to 31st May 2013.

Total 169 cases of battered wives were reported but 100 cases of battered wives out of 169 who consented were selected in the study. A proforma was specially designed to include different influential criteria like age, socio economic group, combined or joined family system, education, mental or physical health and addiction.

RESULTS

In our study the incidence of battered wife was maximum at the age of 21 – 30 years (33 %) and minimum at the age of 71 – 80 years as show in Table No.1.

The incidence was maximum I house wife (25 %) and minimum in wives of business man (0.5 %)/

The incidence of battered wife was 56 % in lower class, 34 % in middle class in 20 % in high gentry.

Addict member of married couple had 83 % incidence of battered wife and 17 % in non addict couple.

The incidence of battered wife was 73 % in families having more than one wife and 27 % in families having single wife.

The incidence of battered wife was 83 % in couple having mental / physical sickness has compared to healthy couple (17 %).

The incidence of battered wife was 63 % in literate couple and 37 % in illiterate couple.

The incidence of battered wife was high 67 % in couples living in non joint family system as compared to couple living in joint families (33 %)

The trend of battered wife was 67 % in rural area and 33 % in urban area as shown in table No.9

Table No.1 Battered Wife with relation to age

S.No	Age	Cases	Percentage
01	10 – 20	10	10 %
02	21 – 30	33	33 %
03	31 – 40	25	25 %
04	41 – 50	15	15 %
05	51 – 60	11	11 %
06	61 – 70	04	04 %
07	71 – 80	02	02 %
	Total	**10**	**100 %**

Table No.2 Battered wife with relation to occupation

S.No	Occupation	Case	Percentage
01	Students	07	07 %
02	House wife	25	25 %
03	Factory worker	15	15 %
04	Office worker	10	10 %
05	Business man wife	05	05 %
06	Former wife	07	07 %
07	Laborer	15	15 %
08	Addict wife	16	16 %
	Total	**100**	**100 %**

Table No.3 Battered wife with relation to socio – economic status

S.No	Socio – economic status	Case	Percentage
01	Lower class	56	56 %
02	Middle class	34	34 %
03	High gentry	20	20 %
	Total	**100**	**100 %**

Table No.4 Battered Wife with relation to addiction of wife / husband

S.No	Addiction	Cases	Percentage
01	Member of Addict couple	83	83 %
02	Non Addict couple	17	17 %
	Total	**100**	**100 %**

Table No.5 Battered wife with relation to Marital Status

S.No	Marital Status	Case	Percentage
01	More than one wife	73	73 %
02	Single wife	27	27 %
	Total	**100**	**100 %**

Table No.6 Battered Wife with relation to mental / Physical Sickness of wife / husband

S.No	Sickness	Cases	Percentage
01	Sick wife / husband	83	83 %
02	Healthy wife	17	17 %
	Total	**100**	**100 %**

Table No.7 Battered Wife with relation to Literacy Status

S.No	Literacy Status	Cases	Percentage
01	Literate	37	37 %
02	Illiterate	63	63 %
	Total	**100**	**100 %**

Table No.8 Battered wife with relation to joint family system

S.No	Family System	Cases	Percentage
01	Joint family system	33	33 %
02	Non joint family system	67	67 %
	Total	**100**	**100 %**

Table No.9 Battered wife with relation to residential area

S.No	Residential area	Cases	Percentage
01	Rural area	67	67 %
02	Urban area	33	33 %
	Total	**100**	**100 %**

DISCUSSION

Battered wife is a global problem and exists in both developed / under developed nations. The battering of wives is going to be increased even in Muslims countries like
Pakistan, Bangladesh and Saudi-Arabia etc.[14] The battering can be decreased by observing preventive measures like

a. Joint family system
b. Creating awareness about human rights by seminars, religious teachings / education
c. By providing psychological services
d. By providing social services
e. By providing economical services
f. By providing treatment for mental / physical sickness.
g. By increasing literacy rate
h. By increasing religious teachings

In our study the incidence of battered wife was maximum at the age of 21 – 30 years (33 %) and minimum at the age of 71 – 80 years as show in Table No.1.
The incidence was maximum I house wife (25 %) and minimum in wives of business man (0.5 %).
The incidence of battered wife was 56 % in lower class, 34 % in middle class in 20 % in high gentry.
Addict member of married couple had 83 % incidence of battered wife and 17 % in non addict couple.
The incidence of battered wife was 73 % in families having more than one wife and 27 % in families having single wife.
The incidence of battered wife was 83 % in couple having mental / physical sickness has compared to healthy couple (17 %).
The incidence of battered wife was 63 % in literate couple and 37 % in illiterate couple.
The incidence of battered wife was high 67 % in couples living in non joint family system as compared to couple living in joint families (33 %). The trend of battered wife was 67 % in rural area and 33 % in urban area.
Most of the battered women thought that it was due to the family tradition and husbands are incited or coaxed by other family members to commit such acts.[15]
Domestic violence or any other type of violence is always due to some clashes in the relationship of two or more than two individuals. Family is a basic institution of the society where all the members act as component of the system and for the smooth environment it is important that every one play his/her role positively.[16]
The most important factor in the domestic violence in previous studies is the crucial role of mothers-in-law in Pakistan society. It is considered as extrinsic factor which abets and encourages the husband to become batterers in their houses.
The perception of divorcing has been fundamentally associated with severity of battering. Although it is thought to be course for a female to initiate for divorce, in rural Punjab.[17]

CONCLUSION

The tendency of battered wife is a global problem. It is increasing day by day in developed / under developed countries and nations. This trend is even going to be increased in Muslim countries where battering to the wife is prohibited (Haraam). Increasing tendency in Pakistan is mainly due to illiteracy addiction, financial stresses and low standards of living which in turn are the basis of poor physical and psychological health.

Suggestions: The tendency of battered wife can be decreased by observing measures like, (1) Joint family system (2) By creating awareness about human rights by seminars, religious teachings / education (3) By providing psychological services (4) By providing social services (5) By providing economical services and (6) By providing treatment for mental / physical sickness.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Aerobic Exercise

Effects of Aerobic Exercise on Lipid Profile in Patients with Type 2 Diabetes (NIDDM)

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ABSTRACT

Objectives: This study was undertaken to observe the effects of aerobic exercise on lipid profile in newly diagnosed type 2 diabetic patients.

Study Design: Observational study

Place and Duration of Study: This study was conducted at Physiology Department, JPMC Karachi from December 2001 to May 2002.

Materials and Methods: 30 adult male subjects with uncomplicated type 2 diabetes were selected from diabetic clinic of JPMC, Karachi. 30 apparently healthy adult male subjects were selected from friends, students and staff members of BMSI, as control. The subjects belonging to diabetic groups were then briefed about exercise protocol, which consisted of a regular brisk walk of 30 minutes on alternate days per week for 60 days.

Results: Base line Values of mean HDL-cholesterol serum cholesterol, serum total triglycerides, LDL- cholesterol, and mean fasting blood glucose were significantly different in diabetic groups as compared to control group ($P<0.001$) After aerobic exercise, all the parameters except HDL-C were significantly decreased while HDL-C was significantly increased as compared to the pre-exercise values.

Conclusion: Regular aerobic exercises improve blood glucose, TAG, LDLc and cholesterol and increases the HDLc in type 2 diabetic subjects has been concluded by the present study.

Key Words: HDL-C, LDL-C, Triglycerides, Aerobic exercise.

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INTRODUCTION

The incidence of non- insulin dependent diabetes mellitus (type 2 diabetes) has increased world wide during the last decades, despite the development of effective drug therapy and improved clinical diagnosis. Physical activity exerts pronounced effects on substrate utilization and insulin sensitivity, which in turn potentially lowers blood glucose and lipid levels. Exercise training improves many physiological and metabolic abnormalities that are associated with type 2 diabetes such as lowering body fat, reducing blood pressure ad normalizing dyslipoproteinemia[1]. Physical inactivity is an important risk factor and aids to other risk factors, such as obesity, high blood pressure and low level of HDL-C. A successful exercise program involves frequent physical activity that is rhythmic and repetitive, according to health experts. It should challenge your cardiovascular system and use large muscles, the exercise program must significantly increase the blood flow to the muscles for an extended period of time, promoting cardiovascular fitness[2]. Biological mechanisms that contribute to the lower risk associated with activity include improved lipoprotein profile and carbohydrate metabolism, lower blood pressure and weight loss[3]. Overweight subjects have worsening of all the elements of the cardiovascular risk profile, including dyslipidemia, hypertension, insulin resistant glucose intolerance, left ventricular hypertrophy, hyperuricemia and elevated fibrinogen[4]. Exercise-trained and physically active individuals generally exhibit lower plasma concentrations of triglycerides and higher levels of HDL-C than their untrained, sedentary counterparts[5]. Regular aerobic exercise elicits significant inhibition of ADP- and collagen-induced platelet aggregation as well as prolongation of PT INR and a PTT values without significantly altering lipoproteins[6].

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MATERIALS AND METHODS

Newly diagnosed adult male subjects suffering from uncomplicated type 2 diabetes (NIDDM); who have not yet started any medication were included in this study. Subjects suffering from any acute or chronic disease other than type 2 diabetes. And those performing any regular exercise were excluded from this study.

Selection of Subjects: A total of 60 male subjects were selected from general population of Karachi for this study. Out of which, 30 apparently healthy adult male subjects (as control group). Group B (test group) a total of 30 adult male subjects with uncomplicated type 2 diabetes were selected from diabetic clinic JMPC, Karachi. The subjects belonging to groups B were then detailed about exercise protocol, which consisted of a regular brisk walk of 30 minutes on alternate days per week for 60 days. Initially a detailed medical history was taken from each subject and physical examination performed. Body weight was recorded and height was measured.in meters and BMI was calculated. Baseline blood samples were drawn for blood glucose and serum lipid levels before the start of study on the day of each subject's physical examination. Physical examination was also performed and blood samples for blood glucose and serum lipid levels collected from all the three groups at the end of study period of 60 days.

Methods of Estimation: Enzymatic Colorimetric method was used to estimate Serum glucose, Serum triglycerides and Serum cholesterol Serum HDL-cholesterol was determined by using Kit, Cat. No. 1001095. LDL-cholesterol was calculated according to frieldwald formula (Fireldwald, et al., 1972).

RESULTS

The observations of all the studied subjects were recorded on various parameters, at baseline and after two months of aerobic exercise (brisk walking for 30 minutes).

Table 1 shows age, Weight, and BMI of the study subjects baseline. When the age, weight and BMI of group B was compared with group A, the change was found to be statistically significant (P<0.001).

Table 2 shows total cholesterol, triglycerides, HDL-cholesterol, LDL-cholesterol and blood glucose of group A, and B before aerobic exercise. When mean serum cholesterol, mean HDL-cholesterol, mean LDL-cholesterol, mean serum total triglycerides, and mean fasting blood glucose were compared between group A and B a significant difference was found (P<0.001).

Table 3 shows total cholesterol, total triglycerides, HDL-cholesterol, LDL-cholesterol, and fasting blood gulcose of group A and B after aerobic exercise. The results of comparison between groups group B with group A showed significant change in the mean value of all parameters.

Table 4 shows the change in serum total cholesterol, HDL-cholesterol, LDL-cholesterol, total triglycerides and fasting blood glucose of patients with type 2 diabetes (group B) after aerobic exercise. The mean value of serum total cholesterol was deceased was by 10.37% (P<0.001). MeanHDL-cholesterol was increased by 25.30% (P<0.001). Mean LDL-cholesterol was decreased by 13.44% (P<0.001). Mean total triglycerides were reduced by 29.63% (P<0.001). Mean fasting blood glucose was reduced by 30.20% (P<0.001).

Table No.1: Comparison of age, weight, height and body mass index of control (group A) with type 2 diabetic (group B before aerobic exercise

Group	Parameters			
	Age (Years)	Weight (Kg)	Height (m)	BMI (Kg/m^2)
A (n=30	38.10± 1.00	70.30± 0.90	1.80± 0.00	22.60± 0.30
B (n=30)	41.00± 0.80	80.50± 0.00	1.80± 0.00	25.70± 0.50
A vs B	P<0.001	P<0.001	N.S	P<0.001

All values are expressed as Mean ±SEM.
N.S. = Non-significant

Table No.2: Comparison of total cholesterol, triglycerides, HDL-C, LDL-C and serum glucose levels of control (group A) with type 2 diabetic (group B) before aerobic exercise

Group	Perameters				
	Total Cholesterol (mg/dl)	HDL-C (mg/dl)	LDL-C (mg/dl)	Triglycerides (mg/dl)	F.Serum Glucose (mg%)
A	173.50± 1.70	41.20 ±0.90	109.00 ±2.10	115.20± 3.00	92.40 ±1.60
B	193.70± 3.10	33.20 ±0.50	127.90 ±3.20	163.00± 2.90	134.70 ±1.90
AvsB	P<0.001	P< 0.001	P< 0.001	P< 0.001	P< 0.001

All values are expressed as Mean ±SEM

Table No.3: Comparison of tatal cholesterol, triglyceride, HDL-C, LDL-C and serum glucose levels of control (group A) with Type2 diabetic (group B) after aerobic exercise

Group	Perameters				
	Total Cholesterol (mg/dl)	HDL-C (mg/dl)	LDL-C (mg/dl)	Triglycerides (mg/dl)	F.Serum Glucose (mg%)
A	173.50± 1.70	41.20 ± 0.90	109.00 ± 2.10	114.00± 3.10	91.50 ±1.20
B	173.60± 1.70	41.60 ±1.20	110.70 ±2.30	114.70± 2.90	94.00 ±1.60
AvsB	N.S	N.S	N.S	N.S	N.S

All values expressed as Mean ±SEM.
N.S. = Non-significant.

Table No.4: The change in serum total cholesterol, HDL-C, LDL-c, triglycerides and serum glucose levels in type 2 diabetic subjects (group B) After aerobic exercise

	Before aerobic Exercise	After aerobic Exercise	% change	P-value
TC	193.70± 3.10	173.60± 1.70	(-) 10.37	<0.001
HDL-C	33.20± 0.50	41.60± 1.20	(-) 25.30	<0.001
LDL-C	127.90± 3.20	110.70± 2.30	(-) 13.44	<0.001
TG	163.60± 2.90	114.70± 2.90	(-) 29.63	<0.001
Glucose	134.70± 1.97	94.00± 1.60	(-) 30.20	<0.001

All values are expressed ad mean ± SEM, N.S.- Non-significant.
(-) Shows decrease in pecentage change after aerobic exercise.
(+) Shows increase in percentage change after aerobic exercise.

DISCUSSION

Hypertension and type-2 diabetes are common inter-related medical problems that are associated with an increased risk of cardiovascular disease[7.] Exercise has been shown to decrease the risk factors and produce favorable changes in blood pressure, blood lipids and blood glucose levels[8,9,10.] Hyperlipidaemia is frequently associated with diabetes and is often considered a major determinant of its atherosclerotic squealae[4]. Hyperlipidaemia has also been associated with hypertention[11]. And increased risk of coronary heart disease[12,13.] In our study we also found that the serum cholesterol and triglycerides levels in type-2 diabetics were significantly higher as compared to the normal subjects. We observed significant decreased in total cholesterol and triglycerides after having aerobic exercise of 2 months period in type 2 diabetics (P<0.001). Aerobic exercise has been invastigated as a potential method of altering the levels of lipids and lipoproteins as exercise has been shown to increase metabolic rate by using fatty acid as fuel. It has been suggested that the lipolytic effect of aerobic exercise is due to selective increase in β_1 adrenergic activity[14,15]. Our study revealed that HDL-cholesterol in group B was low at the baseline than the recommended range which was significantly improved after the exercise training programme of 2 months[16]. Found that changes in HDL-cholesterol concentrations showed greater increases after exercise training. This finding is also in agreement with the findings of many different researchers[14]. The beneficial effect of an increase in HDL cholesterol is also well documented[17,18]. HDL-C concentration has been found to be inversely related to coronary heart disease[19] because of its antiatherogenic role[17].

The protective effect of HDL-C against atherosclerosis and hence hypertension and coronary heart disease has been shown to be due to its competitive inhibition of LDL-C incorporation into endothelial cells and mobilization of cholesterol away from the atherosclerotic lesion[20]. Levels of cholesterol, LDL-C and triglycerides have been shown to have a direct relationship with coronary heart disease[17] and in this regards diabetics have been found to have higher levels of LDL-C and triglycerides[9] The results of our study, found significant reduction in LDL-C in type 2 diabetics (P<0.001). A Postulated machanism of hypercholesterolemia is increased production of oxygen free redicals that may be responsible for impaired endothelium dependent relaxation due to destruction of nitric oxide, Aerobic exercise has been shown to prevent this destruction and increase the production of nitriic oxide[5]. A study by Amstrong and Welsman[21] found that physical activity has on beneficial effect on lipid and lipopoprotein levels; however other studies[11,22] are in agreement to our finding that aerobic exercise causes a decrease in the levels of total cholesterol, LDL-C and triglycerides and increase HDL-C levels. Some of the potential mechanism by which exercise modifies plasma and lipoprotien profile are related to increases in lipoprotien lipase (LPL) and lecithin cholesterol acid trandferase (LCAT) activity. HDL contains LCAT, and the enzyme catalyzes a reaction that gathers free cholesterol and returns it to the liver. LPL decreases HDL_2 breakdown and increases the use of triglycerides (HDL_2 is a major class of HDL). In addition, exercise lowers triglycerides by increasing insulin receptor activity and reduces abdominal body fat. Abdominal fat, commonly seen postmenopausally, is associated with decreased liver LPL activity, impairing the breakdown of triglycreides. Therefore the therapeutic effects of physical exercise have become a widely used strategy to reduce the risk of CVD[12].

CONCLUSION

The present study concludes that the aerobic exercises improve blood glucose, TAG, LDLc and HDL cholesterol in type 2 diabetic subjects. Aerobic exercise reduces bad cholesterol (LDLc) and increases the good cholesterol (HDLc) and thus may reduce the chances of atherosclerotic disease in diabetics.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Celiac Disease

Celiac Disease; A Hidden Cause of Iron Deficiency Anemia?

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ABSTRACT

Objective: The aim of the study is to determine frequency of celiac disease in adults with inexplicable iron deficiency Anemia

Study Design: Cross-sectional / observational study

Place and Duration of Study: This study was conducted at all Medical units of Civil Hospital Karachi from December 2009 to June 2010.

Materials and Methods: The study included diagnosed cases of Iron Deficiency Anemia on basis of Iron profile without evident reason. They were evaluated for celiac disease on the basis of serological markers i.e. tissue transglutaminase antibodies (TTG) IgA type via standard laboratory procedures.

Results: A total of 100 patients with Iron deficiency anemia previously diagnosed on basis of serum levels were included in this study. The average age was 37.12+ 8.2years and 44 (44%) were males.

Celiac disease was found via serology in 16 (16%) of the patients. Out of these 16 Celiac disease patients 7 (43.75%) were males and 9 (56.25%) were females with 1:1.28 male to female ratio.

Conclusion: Celiac disease is an important cause of inexplicable iron deficiency anemia especially in absence of gastro-intestinal symptoms. Serology though less sensitive, but can be an important screening tool for these patients.

Key Words: Iron Deficiency Anemia, Celiac disease, Tissue Transglutaminase antibody IgA.

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INTRODUCTION

Celiac disease is a condition in which immune system responds abnormally to a gluten, a protein, which then leads to damage to the lining of small intestine. It is also known as gluten-sensitive enteropathy or celiac sprue.[1]

The common symptoms of celiac disease include diarrhea, poor appetite, weight loss or difficulty in gaining weight. These symptoms can occur at any age from infancy to adulthood. It may do not presents with classical symptoms in some people rather presenting with nutritional deficiencies including iron, B12 or /and folate.[2,3] It may manifest with a skin rash called as dermatitis herpetiformis. Celiac disease in adults has variety of symptoms, including typical and atypical features. In atypical features the commonest is iron deficiency anemia.[4]

Iron-deficiency anemia, itself, is a common form of anemia worldwide and despite of scrupulous workup often examination is inconclusive, Celiac disease has been identified as the cause of undeterminable iron deficiency anemia and cause refractory to the iron therapy.[5] Anemia without other clues of intestinal malabsorption is one of the most common extra intestinal manifestations of celiac disease. Anyone who is refractory to iron therapy should be screened for celiac disease. The prevalence of Iron-deficiency anemia in adults, as the only manifestation or the most frequent extra-intestinal signs in Celiac disease is up to 6%.[6,7]

Conventional investigations of iron-deficiency anemia include both gastroscopy and colonoscopy to rule out the possible lesions.[8] However, even with extensive search, >35% of patients remain without a diagnosis.[9] Multiple international studies have shown presence of celiac disease in patients having iron deficiency anemia.[10] Although no such study has been done in Pakistan, but there is a study conducted on iron deficiency anemia, and it showed 5% cases with refractory anemia, and the reason was malabsorption.[11]

As a general rule the management of celiac disease includes education about the disease and lifelong adherence to gluten free diet. Those patients who are refractory to gluten free diet, are the candidates for steroids or other Immunosuppressant medications.

The incidence of Celiac Disease is increasing among certain populations in Africa (Saharawi population), Asia, and the Middle East.[12]Although the true prevalence of celiac disease in Pakistan is not known, it is felt to be a common problem.[13] It is especially common in the Punjab but also present in other

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provinces.[14] These patients often remain undiagnosed due to lack of awareness regarding the versatile presentation of the disease. Iron-deficiency anemia is the most common form of anemia worldwide and has usually been attributed to increase menstrual bleeding and pregnancy-associated requirements in premeno-pausal women and to GI blood loss in men and postmenopausal women.

The aim of our study was to find out the proportions of celiac disease so that early diagnosis and management can be planned in these patients and local data on this issue may help us to device strategies as per our circumstances.

MATERIALS AND METHODS

This cross sectional study was conducted in Medical units of Civil Hospital Karachi from December 2009 to June 2010.

All previously diagnosed cased of iron deficiency anemia aged between 12 to 60 years were included in the study and informed consent was obtained from all the subjects. Iron deficiency anemia was proven on basis of iron profile but, no specific cause being detected. A total of 100 cases were found to be eligible for the study. Blood samples were collected for anti tissue transglutaminase IgA type antibodies detection. Patients with previous diagnosis of Celiac disease, history of depression, surgery within eight weeks and pregnant females were excluded from the study.

The filled in Performa was converted into database on SPSS version 14.0. Transglutaminase antibodies detected above range were calculated and their percentage was determined.

RESULTS

A total of 100 patients with Iron deficiency anemia previously diagnosed on basis of serum levels were screened for the presence of Celiac disease via transglutaminase IgA type antibodies.

The average age of the patients was 37.12± 8.2years. Out of 100 patients 56(56%) were females and 44 (44%) were males with 1.27:1 female to male ratio. (Figure I)

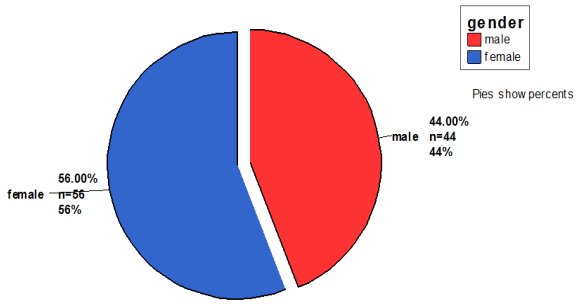

Figure No.1: Gender distribution of patients n=100

The average duration of Iron deficiency anemia was 32.14 ± 4.90 months which approximates roughly to 2.5 year.

Of these 100 patients with history of Iron deficiency anemia, Celiac disease was found via serology in 16 (16%) of the patients. (Figure 2) Among them 7(43.75%) were males and 9 (56.25%) were females with 1:1.28 male to female ratio.

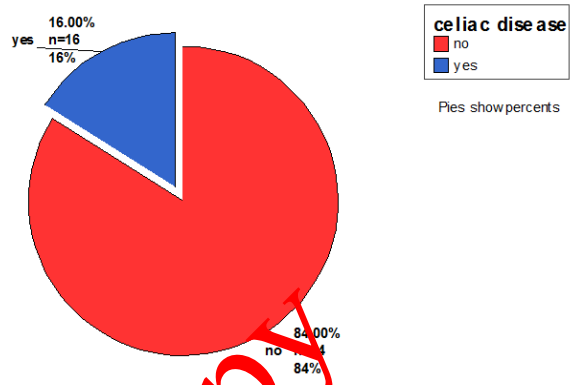

Figure No.2: Frequency of celiac disease n=100

Out of these 16 diagnosed cases of Celiac disease 7 (43.75%) have shorter duration of iron deficiency of anemia i.e. less than 30 month (2.5 year). (Table I)

Table No.1: Celiac disease with duration of IDA

Duration of Iron deficiency Anemia	Celiac disease (Male) n=7	Celiac Disease (Females) n=9
21 to 30 month	3 (18.75%)	4 (25.0%)
31 to 40 month	4 (25.0%)	5 (31.25%)

DISCUSSION

Celiac disease was first described by Samuel Gee in 1888, in a report entitled "on the celiac affection", although a similar description was given by a Turkish scholar in second century. The cause of celiac disease was not clear until a Dutch pediatrician William K Dicke, described an association between the consumption of bread and cereal and recurrent diarrhea. The celiac lesion in the proximal small intestine was first described in 1954.15 Classically, celiac disease is a disease of infants but may see in later ages between 10-40 years. The primary finding includes mucosal inflammation, crypt hyperplasia and villous atrophy.[16,17] For many years, celiac disease was defined by a set of classic symptoms including malabsorption. But there are patients with atypical disease presenting with anemia, dental enemal defects, osteoporosis, arthritis, elevated transaminases, neurologic symptoms or infertility. Even few patients diagnosed incidentally upon screening for antibodies against gliden, and they do not exhibit any symptoms.[18]

Iron deficiency anemia is a known entity worldwide with prevalence of 2–5% among adult men and post-

menopausal women in the developed world.[19] Often it happens that of undiagnosed cases of IDA or refractory cases to iron therapy, studies have pointed out gluten sensitive enteropathy (Celiac Disease) as the culprit of iron deficiency anemia. Hershko C et al (2005) show presence of celiac disease in almost all cases of Iron deficiency anemia refractory to iron treatment.

Iron deficiency anemia is commonly present in patients with celiac disease and in one study reported to be the most frequent extra intestinal sign of atypical celiac disease with presentation up to 6% in adult.[7]

In other studies (Unsworth DJ et al 1999) [21] celiac disease was the cause of IDA up to 10% and (Corazza GR 1995)[22] up to 8.5% with unresponsiveness to oral iron therapy.

Physician often fail to consider Gluten Sensitive Enteropathy (GSE) as a cause of IDA when gastrointestinal symptoms are absent or nonspecific, where in GSE patients hemoglobin level have been inversely correlated with the severity of histological injury. Also patients who developed celiac disease or refractory iron therapy respond to gluten free diet for correction of anemia[23]

In our study we have only used serology for the diagnosis of celiac disease, however the high specificity of IgA endomysial (or TTG) may led to debate as to whether a positive result in the appropriate clinical setting can be considered diagnostic and eliminate the need for small bowel biopsy. It is recommended both IgA endomysial (or TTG) and small bowel biopsy prior to dietary treatment should be performed. This approach provides the best means of making a definitive diagnosis of celiac disease from the outset.

CONCLUSION

In conclusion, celiac disease has a major burden on community due to its different presentations. To overcome these challenges, it is advisable to improve awareness not only among patients but also health professionals.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Outcomes of Fibrinolytics in Patients of Acute Myocardial Infarction

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ABSTRACT

Objective: The aim of our study was to determine outcomes of fibrinolytics in patients of acute MI in a setup where streptokinase is the sole fibrinolytic used and where the facility of primary PCI is not available.

Study Design: Descriptive cross sectional study

Place and Duration of Study: This study was conducted at the Department of Cardiology, Mardan Medical Complex Teaching Hospital, Mardan from January 2011 to December 2014.

Materials and Methods: This study included 3,000 patients using non probability purposive sampling technique. The study was approved by the Hospital Ethical Committee. An informed written consent was obtained. Out of these, 2100 (70%) were non diabetic and 900 (30%) diabetics.

Results: Those who presented within 6 hours of the index chest pain, streptokinase therapy was successful in 1709 (57%) patients and unsuccessful in 197 (6.6%) patients. Streptokinase was successful only in 771 (25.7%) patients and unsuccessful in 323 (10.8%) patients who presented in 6-12 hours of the index pain. Reinfarction occurred in 193 (6.4%) patients whereas 2807 (93.6%) were free of reinfarction. Hemorrhagic Stroke occurred 50 (1.7%) patients whereas 2 (0.1%) developed ischemic stroke.

Conclusion: Our study convincingly showed that intra cranial hemorrhage was relatively low with this fibrinolytic.

Key Words: Fibrinolytics, Acute Myocardial Infarction, Patients

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INTRODUCTION

Acute myocardial infarction (MI) remains a leading cause of morbidity and mortality worldwide. The Mortality of Acute MI is higher in women than in men (11% Vs 9%).[1] Fibrinolytics are highly effective when the door to needle time is less than 30 min in patient who cannot be shifted to PCI facility within 90 minutes.[2] Streptokinase given in the first hour saves 65 lives/1000 patients treated as compared with only 10 lives/1000 patients treated within 6-12 hours.[3] After 12 hours, the risk associated with thrombolytic therapy outweighs any benefit.[4] Streptokinase is a cost-effective thrombolytic strategy with lower incidence of stroke than alteplase.[5]

Reperfusion success is assessed by resolution of chest pain and ST segment on ECG. ST-segment resolution by >50% or 70% within the first 60-180 minutes after therapy provides excellent insight into the ultimate infarct size, left ventricular function, and survival.[6]

Reocclusion of the culprit artery is an important issue seen in 5-30% of patients after successful fibrinolysis.[7] Seventy eight percent of reocclusions are not associated with clinically overt symptoms or apparent reinfarction.[8] Reinfarction rates are the same for different fibrinolytics like 4.1% for streptokinase and 4.3% for alteplase. Advanced age, prior MI or angina, female sex, anterior MI, and lower systolic blood pressure are associated with a higher rate of reinfarction.[9] Twenty percent of patients who continued smoking developed reinfarction as compared to only 5.1% in those who stopped so.[10]

Stroke is another complication of fibrinolytics carrying a worst outcome. Previous trials showed an extra 4 strokes/1,000 patients with fibrinolytics versus placebo.[4] An excess risk of intracranial hemorrhage was observed with tissue-type plasminogen activator compared with streptokinase.[11] Hemorrhagic stroke with fibrinolytics carries 60% mortality whereas it is 17% with ischemic stroke.[12,13]

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MATERIALS AND METHODS

This was a descriptive cross sectional study from January 2011 to December 2014 conducted in the Department of Cardiology, Mardan Medical Complex Teaching Hospital, Mardan. This study included 3,000 patients using non probability purposive sampling technique. The study was approved by the Hospital Ethical Committee. An informed written consent was obtained.

Inclusion Criteria: Patients of any age and gender with acute myocardial infarction

Exclusion Criteria:

- Severe hypertension (>180/110)

- Cerebral neoplasm, Previous stroke
- Recent history of surgery (<3 weeks), Peptic ulcer disease,
- Coagulation defects, Active internal bleeding, Ulcerative colitis
- Hypersensitivity, Pregnancy

Acute Myocardial Infarction patients who presented to our unit were given aspirin (300mg), clopidogrel (75-300mg) and IV streptokinase (1.5MU) ± Subcutaneous Enoxaparin. Data regarding successful fibrinolysis, reinfarction over a period of 1 month and stroke during the index hospitalization were documented.

Outcomes of fibrinolytics were defined as successful fibrinolysis, reinfarction and stroke.

Acute myocardial infarction was defined two out of three of the following:

- Central chest pain for more than 30 minutes ±radiating to arms or jaws
- ST segment elevation of ≥1mm in 2 consecutive ECG leads with reciprocal ST depressions
- Increased cardiac enzymes (troponin I or T or CK-MB)

Successful fibrinolysis was defined as relief of chest pain associated with ST segment resolution by ≥ 50% from the baseline in ECG performed after 90 minutes of starting the fibrinolytic therapy.

Reinfarction was defined as least 2 of the following 3 criteria:

(1) Recurrent ischemic symptoms lasting >20 minutes or longer after resolution of symptoms of the index myocardial infarction,

(2) Occurrence of new ST-T wave changes, new left bundle branch block or new Q waves,

(3) A second elevation in cardiac enzymes to over the normal upper limit (or by a further 20% if already over the normal upper limit) [14]

Stroke was defined as sudden new onset neurological deficit with radiological evidence of hemorrhage or ischemia on CT brain

The statistical analysis was performed using the statistical software for social sciences (SPSS Ver. 16).

RESULTS

A total of 3000 patients of Acute Myocardial Infarction who were eligible for streptokinase were enrolled in the study. There were 1875 (62.5%) males and 1125 (37.5%) females. The mean age of the patients was 59.93±10.21 years. The age of the study population ranged between 38 years to 87 years and majority of the patients were between 55-70 years (Fig.1). Out of these, 2100 (70%) were non diabetic and 900 (30%) diabetics.

Those who presented within 6 hours of the index chest pain, streptokinase therapy was successful in 1709 (57%) patients and unsuccessful in 197 (6.6%) patients. Streptokinase was successful only in 771 (25.7%) patients and unsuccessful in 323 (10.8%) patients who presented in 6-12 hours of the index pain (Fig.2).

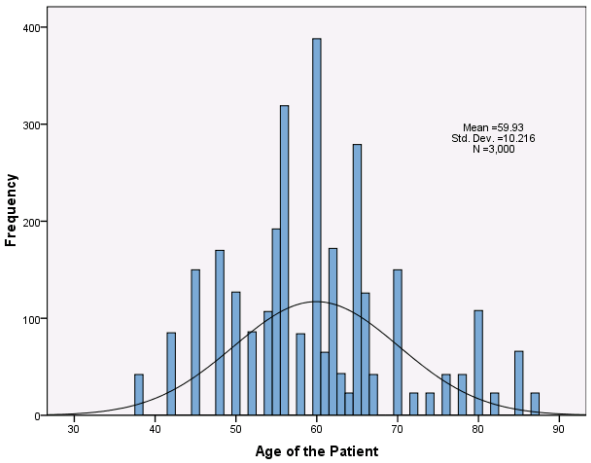

Figure No.1: Age Distribution of the Patients Fibrinolysed

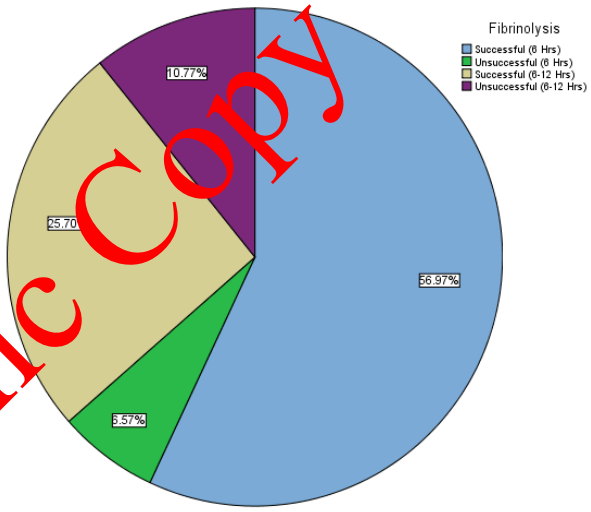

Figure No.2: Results of Fibrinolysis

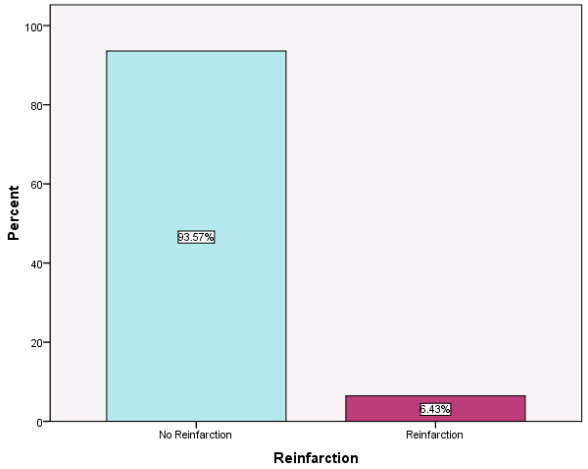

Figure No.3: Reinfarction with Streptokinase

Reinfarction occurred in 193 (6.4%) patients whereas 2807 (93.6%) were free of reinfarction (Fig.3). Hemorrhagic Stroke occurred 50 (1.7%) patients whereas 2 (0.1%) developed ischemic stroke (Fig.4).

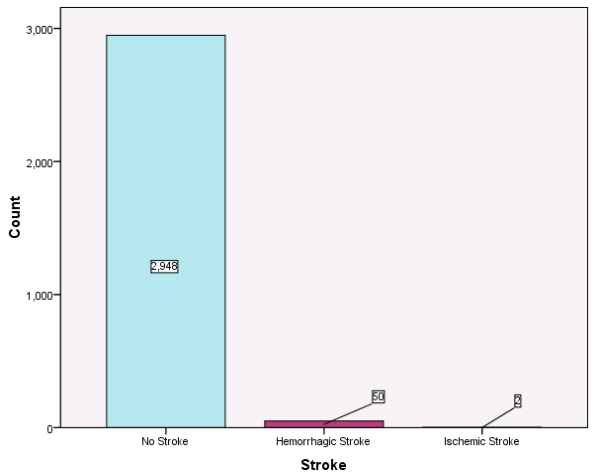

Figure No.4: Stroke with Streptokinase

DISCUSSION

Primary PCI has revolutionized clinical outcomes in STEMI patients but it is not readily available everywhere. The first generation fibrinolytic Streptokinase is still commonly used in the developing nations for the treatment of acute myocardial infarction.[15] This improves survival in patient of ST elevation myocardial infarction but complications like failure of therapy, reinfarction and minor or major bleeds are still matters of concern.[16,17]

ST segment is a better indicator of prognosis and successfulness of therapy.[18] Using this tool in our study, Fibrinolysis was successful in 57% patients who presented within 6 hours of the chest pain. The results were almost similar to those quoted by GUSTO-I trial which was 54% and Goldhammar et al which was 56.4%.[19,20] In our study, expectedly the success rate was low, that is 25.7% in patients who presented within 6-12 hours of the index pain. Despite late presentation, the success rate is still reasonably good as the necrosis of myocardium in animal model is almost 71% complete at 6 hours of the infarction.[21]

One quarter of all myocardial infarction patients suffer reinfarction within 10yrs.[22] The incidence has dropped down to an average of 4.7% as reported by Donges et al.[23] This is because of the early use of Aspirin, Clopidogrel, Beta-blockers and fibrinolytics. The rate of reinfarction in our study was 6.4% almost the same as reported by Rivers et al where it was 5.7% and Malacrida et al who reported it to be 3% in men and 4.6% in females.[24,25] The reinfarction rate in patients with primary PCI is 2.1% which is quite lower than with the fibrinolytics.[26] Most of the reinfarction in our study occurred within a week's time. The previous studies like the GUSTO I and ASSENT 2 showed that reinfarction is more prevalent in diabetics and inferior myocardial infarction patients although no such correlation is shown in our study.[27] Six month mortality with reinfarction is 16% and this can be lowered with reperfusion therapies without increasing the incidence of hemorrhagic strokes.[26,28]

Hemorrhagic stroke is the deadliest complication feared the most with the fibrinolytics. The conventional risk factors are a low BMI, elderly patients and those presenting with hypertension as reported by Simoon et al.[29] The incidence of hemorrhagic stroke in our study was 1.7% a bit higher than reported by Gore et al. They reported an incidence of 1.19% irrespective of age.[30] Most of hemorrhagic strokes occurred in our study in those above the age 70 years. White et al showed the incidence of hemorrhagic stroke to be 0.8% in patients <65 years of age and 3.4% in patients aged 75-84 years.[31] This incidence is quite higher than that of our study. Although age is not a barrier to the use of fibrinolytics nowadays, we need to be careful in the elderly patients.[16] There occurred only 2 ischemic strokes in our study. Two percent of patients with myocardial infarction develop LV thrombus formation. Ischemic strokes in our study might have occurred from the embolization of this LV thrombus to the brain.

CONCLUSION

We found streptokinase to be an effective drug in a setup where primary percutaneous intervention facility is not available and where it is the sole agent available to us. The reinfarction rates were within an acceptable range. Above all, our study convincingly showed that intra cranial hemorrhage was relatively low with this fibrinolytic.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Comparison of Felodipine and Propranolol in the Treatment of Hypertension

Treatment of Hypertension

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ABSTRACT

Objective: To compare the efficacy of felodipine and propranolol in the treatment of essential hypertension.
Study Design: Randomized controlled study
Place and Duration of Study: This study was conducted at Accident and Emergency Department, Bahawal Victoria Hospital Bahawalpur and Ansari Private Clinic Model Town B, Bahawalpur from March 2013 to May 2013.
Materials and Methods: Total 90 patients of mild to moderate essential hypertension both male and female between the ages of 30 to 55 years were enrolled to this study, for 90 days patients were randomly divided into three groups Group I, II and III. Efficiency of felodipine, propranolol and placebo tablets in the treatment essential hypertension was compared.
Results: Felodipine and propranolol both reduces the systolic blood pressure was highly significant (P<0.001) between day 0-15, day 0-30, day 0-45, day 0-60, day 0-75 and day 0-90. The placebo exhibited a non-significant effect on systolic blood pressure.
In case of diastolic blood pressure patients treated with felodipine and propranolol the decrease of blood pressure was also significantly (P<0.001) for all time intervals. In placebo administered group the effect of diastolic blood pressure was non-significant at all-time intervals
Conclusion: Result of this study showing that both felodipine and propranolol significantly reduces blood pressure at all time of intervals. In addition felodipine has got an edge on propranolol that it is administered once daily.
Key Words: Essential Hypertension, Felodipine, Propranolol, Placebo

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INTRODUCTION

Felodipine is the member of second generation dihydropyridine class of calcium channel antagonists (calcium channel blockers) and is insoluble in water[1,2]. Felodipine possesses pronounced arteriolar dilating capacity and free from negative inotropic activity[3]. This drug suggested to exert its vasodilating effect in part by interaction with intracellular calcium. Unlike other calcium antagonist (e.g. Verapamil and Nefedipine) felodipine has been shown to have more pronounced selectivity for vascular smooth muscle than the heart muscle[4,5,6]. The mean systolic and diastolic blood pressure is decrease significantly by felodipine[7,8]. Moreover, felodipine rendered the blood pressure to normal levels in most patients who were not controlled on standard triple therapy[9].

Propranolol, a non-selective beta blocker[10,11] is the most widely used beta blocker in the management of cardiovascular disorders including hypertension, ischemic heart disease and certain arrhythmias[12] and bronchio-constriction[13]. The mechanism by which blood pressure is lowered by propranolol is the primary reduction in the cardiac output resulting from negative inotropic and chronotropic action of the drug[14,15,16]. It is reported that propranolol was most likely to produce fall in blood pressure in the patients with high plasma renin activity then in the patients with normal or low plasma renin activity[17]. Propranolol a non-selective beta blocker without ISA was the first and still most widely used in the treatment of hypertension. They further indicate that propranolol significantly reduced the systolic and diastolic blood pressure[18].

Various studies have been carried out to demonstrate the effects of these two types of drugs individually, but these have not been compared. Thus, the present study was undertaken to compare the effects of felodipine and propranolol in the patients of essential hypertension.

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MATERIALS AND METHODS

Ninety patients of mild to moderate essential hypertension were selected. Their systolic blood pressure reached from 160-200 mmHg and the diastolic blood pressure was in range of 95-114 mmHg[19]. The patients were of either sex (male and female) between the ages of 30 to 55 years. These patients

were then divided randomly into three groups each comprising of thirty (30) patients.

Group I was given felodipine 5mg tablets once daily Group II was given propranolol 40mg tablets twice a day and Group III was given placebo tablets once daily.

All patients are withheld from any hypertensive medication for at least two weeks prior to their inclusion in the study. Blood pressure, both systolic and diastolic was recorded on the day of registration (day 0) and then on biweekly basis for three months. Blood pressure was recorded three times, the mean of three values was calculated and taken as blood pressure through standard sphygmomanometer[20].

The values of blood pressure are given as mean ± SEM, and the values within the same group at different time intervals were compare with paired 't' test. Group comparison was done by applying student's t test.

RESULTS

Table 1 shows the variation in the levels of systolic blood pressure for the patients treated with felodipine, propranolol and placebo at day 0, 15, 30, 45, 60, 75 and 90.

Felodipine and propranolol both reduces the systolic and diastolic blood pressure the differences (as mean + S.E.M.) is the systolic blood pressure at different time intervals effected by the drugs are shown in the table 2. For felodipine and propranolol the decrease was highly significant (P<0.001) between day 0-15, day 0-30, day 0-45, day 0-60, day 0-75 and day 0-90. The placebo exhibited a non-significant effect on systolic blood pressure.

The mean values of corresponding differences in systolic blood pressure at different time intervals in the three groups are compared in table 3.

The comparison of felodipine with propranolol showed a significant difference only for day 0-30 and a non-significant difference at other time intervals i.e. (day 0-15, day 0-45, day 0-60, day 0-75 and day 0-90). When felodipine was compared with placebo the difference was highly significant (P<0.001) for all times interval. Similarly comparison of propranolol with placebo, also showed a highly significant differences, (P<0.001) for all three intervals.

Diastolic Blood Pressure: Table 4 shows the variation in the levels of diastolic blood pressure for the patients treated with felodipine, propranolol and placebo at 0, 15, 30, 45, 60, 75 and 90. A significant reduction was noticed in the diastolic blood pressure in patients treated with felodipine as well as with propranolol.

The comparative effects of the drugs at different time intervals are shown as difference (mean ± S.E.M) in the diastolic blood pressure in table 5. For felodipine the decrease was highly significant (P<0.001) for day 0-15, day 0-30, day 0-45, day 0-60, day 0-75 and day 0-90. In propranolol treated group, the decrease was also highly significant (P<0.001) for all time intervals.

In placebo administered group, the effect on diastolic blood pressure was non-significant at all-time intervals.

The mean values of corresponding differences in diastolic blood pressure at different time interval in the three groups are compared in table 6.

The comparison of felodipine with propranolol showed a non-significant difference for all three interval when felodipine was compared with placebo, the difference was highly significant (P<0.001) for all time intervals. Similarly comparison of propranolol with placebo, also showed a highly significant difference (P<0.001) for all time intervals.

Table No.1: Variation in systolic blood pressure before and during treatment Mean ± S.E.M.

Systolic Blood pressure in mmHg							
Drugs	Before treatment	During treatment					
	Day 0	Day 15	Day 30	Day 45	Day 60	Day 75	Day 90
Felodipine(n=30)	161.06±2.45	135.86±1.50	130.98±1.30	127.26±1.25	124.86±1.32	123.13±1.22	123.06±1.27
Propranolol (n=30)	163.06±2.03	138.20±1.70	127.13±1.37	123.60±1.24	124.06±1.26	124.13±1.47	123.53±1.36
Placebo (n=30)	159.46±1.71	159.13±1.82	159.20±1.65	159.40±1.60	159.06±1.75	158.86±1.51	159.00±1.66
S.E.M: Standard Error of Mean					n: number of patients		

Table No.2: Effect of Felodipine and Placebo on systolic blood pressure before at different time intervals

Drugs	Day 0-15	Day 0-30	Day 0-45	Day 0-60	Day 0-75	Day 0-90
Felodipine	***-25.20±1.73	***-30.13 ±2.11	***-33.80 ±2.34	***-36.20 ±2.18	***-37.93 ±2.41	***-38.06 ±2.32
Propranolol	***-24.86±1.56	***-34.93 ±1.86	***-39.46 ±1.82	***-39.00 ±1.85	***-38.93 ±1.78	***-39.53 ±1.80
Placebo	-0.40±0.68	-0.26±0.61	-0.33±0.61	-0.40±0.61	-0.60±0.87	-0.46±0.67
S.E.M: Standard Error of Mean				***=P<0.001		

Table No.3: Levels of significance of systolic blood pressure on conversion of drugs at different time intervals

Drugs	Day 0-15	Day 0-30	Day 0-45	Day 0-60	Day 0-75	Day 0-90
Felodipine vs Propranolol	N.S	P<0.05	N.S	N.S	N.S	N.S
Propranolol vs Placebo	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001
Felodipine vs Placebo	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001

Table No.4: Variation in Diastolic blood pressure before and during treatment Mean ± S.E.M

Diastolic Blood pressure in mmHg							
Drugs	Before treatment	During treatment					
	Day 0	Day 15	Day 30	Day 45	Day 60	Day 75	Day 90
Felodipine (n=30)	103.40±0.84	91.26 ±1.15	86,46 ±0.67	86.13 ±0.68	85.40 ±0.62	85.40 ±0.67	84.66 ±0.61
Propranolol (n=30)	103.46±0.67	92.33 ±0.80	85.53 ±0.75	84.93 ±0.67	84.33 ±0.68	85.40 ±0.60	84.13 ±0.62
Placebo (n=30)	103.26±0.59	102.13 ±0.69	102.33 ±0.84	102.53 ±0.59	102.06 ±0.63	102.26 ±0.61	102.86 ±0.54
S.E.M: Standard Error of Mean						n: number of patients	

Table No.5: Effect of felodipine, propranolol and placebo on diastolic blood pressure at different time intervals.

Drugs	Day 0-15	Day 0-30	Day 0-45	Day 0-60	Day 0-75	Day 0-90
Felodipine	***-12.13 ±0.77	***-16.93 ±0.72	***-17.13 ±0.72	***-17.95 ±0.72	***-17.86 ±0.58	***-18.60 ±0.63
Propranolol	***-11.13 ±0.55	***-17.93 ±0.69	***-18.53 ±0.69	***-19.13 ±0.83	***-18.00 ±0.62	***-19.26 ±0.76
Placebo	-1.13±0.76	-0.93±0.62	-0.73±0.41	-1.20±0.61	-1.00±0.54	-0.26±0.48
S.E.M: Standard Error of Mean				***=P<0.001		

Table No.6: Levels of significance of diastolic blood pressure on conversion of drugs at different time intervals

Drugs	Day 0-15	Day 0-30	Day 0-45	Day 0-60	Day 0-75	Day 0-90
Felodipine vs Propranolol	N.S	N.S	N.S	N.S	N.S	N.S
Propranolol vs Placebo	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001
Felodipine vs Placebo	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001
N.S: Non-significant						

DISCUSSION

This study signifies that significant changes occurred in blood pressure both systolic and diastolic, as a result of three months regimen of the administration of felodipine and propranolol.

Felodipine lowers the blood pressure by having pronounced selectivity on vascular smooth muscle than the heart muscle[5]. Frohlichital, (1968)[21] has reported that propranolol lowered the blood pressure by primary reduction in cardiac output resulting negative inotropic and chronotropic action of the drug.

Present study revealed that felodipine and propranolol significantly reduced both systolic and diastolic blood pressure. Propranolol reduced the level of systolic blood pressure by 15% in the initial 15 days, by another 7% in the next 15 days and by further 2% by the 45th day while in case of felodipine the reduction was 16% in the initial 15 days, by another 3% in the next 15 days. by another 2% in the next 15 days, by another 2% in the next 15 days and by another 1% by 75th day and there was no further reduction in blood pressure even though the treatment was being continued. Similar finding for both drugs were noticed on the diastolic blood pressure but up to 45th day pf treatment only.

The results of the present study match with the study of Collste and colleagues (1985)[9] and Liul Zhangy (2005)[22] in which the mean systolic and diastolic blood pressure were decrease significantly with felodipine. The statement of (Wahl et al. 1985)[18] accords with present study that propranolol significantly reducing sitting blood pressure, the reduction in blood pressure was noted after 2 weeks of treatment and was maintained throughout the study of 24 weeks.

Propranolol introduced 25 years ago is still widely used drug and is effective in patients of essential hypertension[13]. The present study concludes that like propranolol, felodipine is also an effective antihypertensive and is well tolerated. It is therefore, recommended that felodipine can be used as a monotherapy in patients suffering from mild to moderate essential hypertension.

CONCLUSION

Result of our study are showing that felodipine is as effective as an antihypertensive as propranolol in treatment of essential hypertension. In addition felodipine has got an edge over propranolol that it is administered once daily and is not contraindicated in diabetic and asthmatic subjects.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Effects of GO1 on Blood Elements

Effects of George Ohsawa One (Macrobiotic) on Biochemical and Haematological Parameters other than Prothrombin Time and Activated Partial Thromboplastin Time in Rabbits

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ABSTRACT

Objective: To determine the effects of George Ohsawa One (GO1) on sodium, potassium, calcium, hemoglobin and platelet count in rabbits with and without anticoagulated blood.

Study Design: Interventional study

Place and Duration of Study: This study was conducted at the Department of Pharmacology, Federal Post Graduate Medical Institute and National Health Research Complex, PMRC, Shaikh Zayed Hospital Complex, Lahore from January 2010 to August 2011.

Materials and Methods: Forty eight (n=48) male rabbits were included in the study. They were divided into two groups which were further divided into two subgroups each. About 700 grams of GO1 was used in the study.

Results: The effect of GO1 on platelet count, hemoglobin, serum sodium, potassium and calcium were found to be insignificant.

Conclusion: This work on the effect of GOI is first of its kind on biochemical and hematological parameters other than prothrombin time and activated partial thromboplastin time in rabbits measured quantitatively. Although the use of herbal products may not be dangerous per se, further research work is required to explore the benefits of GO1 on biochemical and hematological parameters before it can safely be used in humans as an anti-hemorrhagic agent.

Key Words: George Ohsawa One, Macrobiotic, Solanum Melongena

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INTRODUCTION

George Ohsawa One (GO1) is a macrobiotic (natural product) made with powdered carbonized aubergine and unrefined sea salt and is extremely easy to make and very economical. It is claimed that GO1 is an anti-hemorrhagic agent that can be used in accidents, trauma, rectal and internal hemorrhages, etc. Considering that GO1 is very economical, easy to prepare and simple to use, it is believed that it could represent a 'simple, economic and effective' solution to treat serious hemorrhagic emergencies, and the attendant electrolyte imbalances, offering a concrete possibility of saving millions of human lives.

The widespread use of plants and herbs in the treatment of disease is shown by their use in all the major systems of medicine, irrespective of their underlying philosophical basis.[1] The medicinal use of natural and unrefined plants and herbs undoubtedly began when the first intelligent animals perceived that certain food plants modified particular body functions.[2] The eggplant, aubergine, brinjal or baingan (Solanum Melongena) belongs to the family Solanaceae (also called night shades) and genus Solanum. It carries a fruit by the same name and is mostly used as a vegetable in cooking. As a nightshade, it is closely related to the tomato and potato plants.[3,4] GO1, the natural product used in this study is part of the ancient Oriental tradition, is a natural product (macrobiotic) made up of powdered carbonized aubergine and unrefined sea salt in a ratio of 3:1 (in powdered form). The proposed use of G.O.1 is as an anti-hemorrhagic agent in accidents, trauma, rectal and internal hemorrhages. It is already being marketed as a natural tooth powder all over the world (Mitoku Dentie Tooth Powder). It is claimed that this tooth powder keeps the gums and teeth healthy by stimulating the circulation in the mouth and maintaining a healthy, alkaline mileu in the oral cavity. It is (as claimed) excellent for serious tooth problems and bleeding gums. It is also claimed that it can be used on bee stings and to stop bleeding

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from minor cuts.[5-8] Considering that G.O.1 is extremely inexpensive to make, easy to prepare and very simple to use, it is believed that it could represent a 'simple, economic and effective' solution to treat serious hemorrhagic emergencies, offering concrete possibility of saving millions of human lives. G.O.1 was tested in Ghana, in patients with excessive bleeding as a result of snakebite and also during delivery and its related hemorrhages.[9]

Therefore, the present study has been undertaken with the aim of realizing clinical studies with animals (rabbits) using G.O.1 as an anti-hemorrhage and haemostatic treatment and for localizing / highlighting its area of effect, so that further narrowed down, specifically aimed studies, if needed, may be carried out. The following biochemical and hematological parameters were studied: Levels of Sodium, potassium, calcium, haemoglobin and platelet count.

MATERIALS AND METHODS

This interventional study was carried out in the Department of Pharmacology, Federal Post Graduate Medical Institute and National Health Research Complex, PMRC, Sheikh Zayed Hospital Complex, Lahore from January 2010 to August 2011. .Initially 8 rabbits were selected to see the effect of G.O.1 for PT and APTT separately. Rabbits were divided into two equal Groups. Group 1 was given Warfarin and was further divided in 1 A (intervention group given G.O.1) and 1 B (control group given Normal saline) to see effect on PT. Group 2 was given Heparin and was further divided in 2A (intervention group given G.O.1) and 2B (control group given Normal saline) to see effect on APTT. Male rabbits, aged between 6–10 weeks and average weight of 1200 to 1500 grams were included in this study. Female rabbits and rabbits suffering from any skin disease were excluded.

After clearance from the Ethical Review Board, 48 rabbits were divided into two study groups as follows: Group 1 having 18 rabbits and Group 2 having 30 rabbits. Each group was further sub divided equally into two subgroups each, i.e., group 1A and 1B, group 2A and 2B. Initially, blood from all the rabbits was checked for the required parameters in order to get the baseline values, i.e. Hemoglobin, Platelets, serum sodium, serum calcium and serum potassium levels. Group 1 (n=18) was given Warfarin orally, once daily, in the morning as a single dose, for an average of seven days[10]. Each dose was 2.5 mg/day and group 2 (n=30) was given heparin 12 hourly, subcutaneously, in the morning and evening for seven days. Each dose was 120 units / kg body weight. Group 1 treated with Warfarin and Group 2 treated with Heparin till the desired values (three times the normal) of the above mentioned parameters, i.e., Prothrombin time for rabbits given Warfarin and the Activated partial thromboplastin time for rabbits given Heparin, were obtained. After achieving the optimum levels of the required tests, 50% of the rabbits in each group (group 1A, and group 2A) were treated with 05 ml of G.O.1, (contains 5 mg G.O.1), given orally (by a feeding syringe) and repeated twice with an interval of 15 minutes between each dose, and each time the respective parameters (hemoglobin, platelets, Na^+ K^+ and Ca levels) for each group were noted, whereas the other 50% of the rabbits in each group (group 1B and group 2B) were given 05 ml of normal saline (as placebo), and their respective parameters, as mentioned above were noted simultaneously as controls.

Data collected was entered and analyzed using SPSS version 15. Data for the animals given heparin was analyzed in the same way except that for this group, APTT was used instead of PT. Post–hoc (Boneferroni) was used for multiple comparisons, wherever needed. P value of <0.05 was considered statistically significant.

RESULTS

Sodium level of animals were recorded at the beginning of study and then repeated for three times. The average sodium levels of group 1A at the start of study were 145±6, for 1B it was 137±4. The average baseline sodium level in rabbits was 140±4.2 mg/dl. There was no change in the sodium level, at any stage, in all groups of rabbits (Fig.1). The potassium levels of animals were recorded at the beginning of study and then repeated for three times. The average potassium level of group 1A at the start of study was 4.6±1.2 gm/dl, for 1B it was 3.6±0.3 gm/dl.

The average potassium level in both groups of rabbits was 3.9±0.65. The rabbits in group 1A had slightly higher normal values of potassium as compared to the other groups. Apart from this, there was no significant change in the potassium level at any stage in any group (Fig.2). The Calcium levels of animals were recorded at the beginning of study and then repeated for three times. The average Calcium level of group 1A at the start of study was 13.8±0.7 gm/dl, for 1B it was 13.1±1.8 gm/dl. The average baseline calcium level in the rabbits was 12.6±0.9. No major change was observed in the calcium level in any group at any stage of the study (Fig 3).

It was interesting to note that when compared, most normal haematological and biochemical values in rabbits, quoted internationally were almost the same as found in this study except for serum calcium. Calcium levels were slightly higher in our study as compared to the international reference values. The haemoglobin levels of animals were recorded at the beginning of study and then repeated for three times. There was a decrease in haemoglobin level in rabbits from the average normal baseline of 12.75±0.98 g/dl. This was slightly more in group 1 than 2.

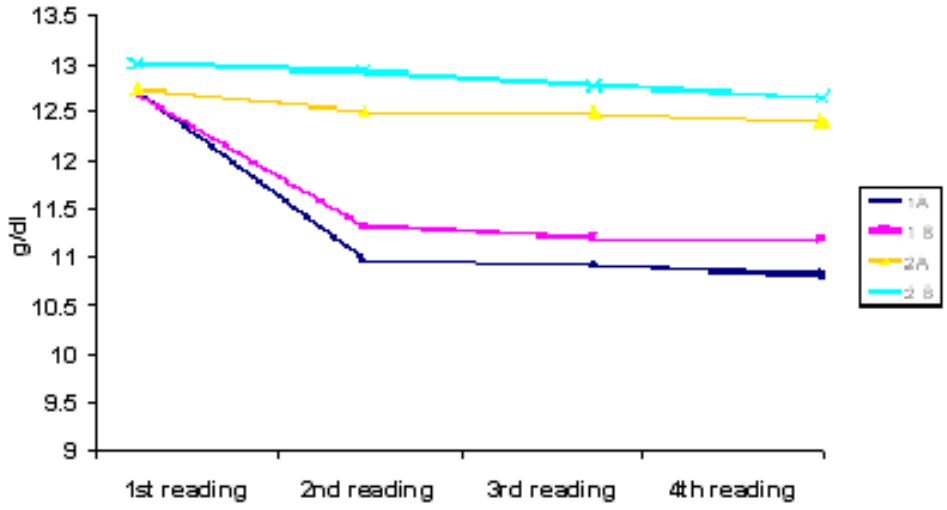

Figure No.1: Haemoglobin levels for groups 1A, 1B and 2A, 2B at four distinct time intervals

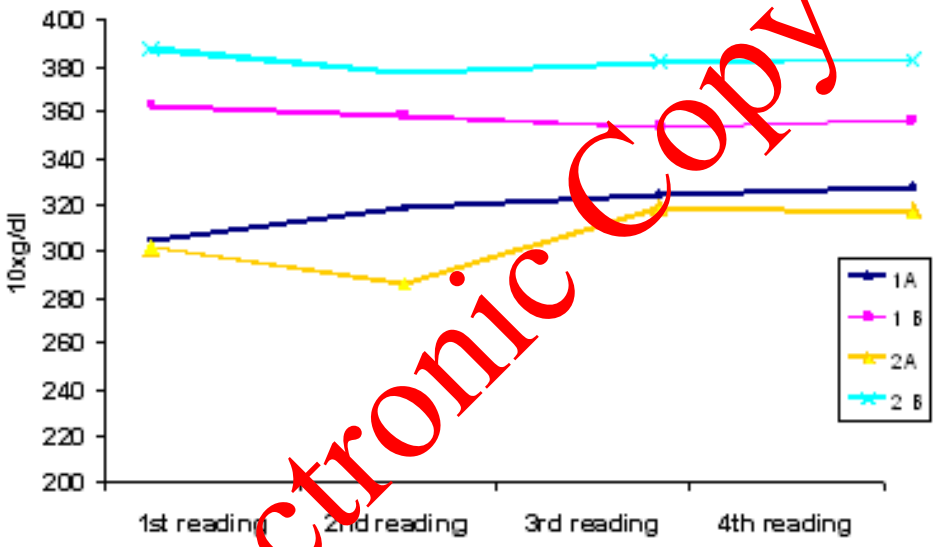

Figure No.2: Platelet counts for groups 1A, 1B and 2A, 2B at four distinct time intervals.

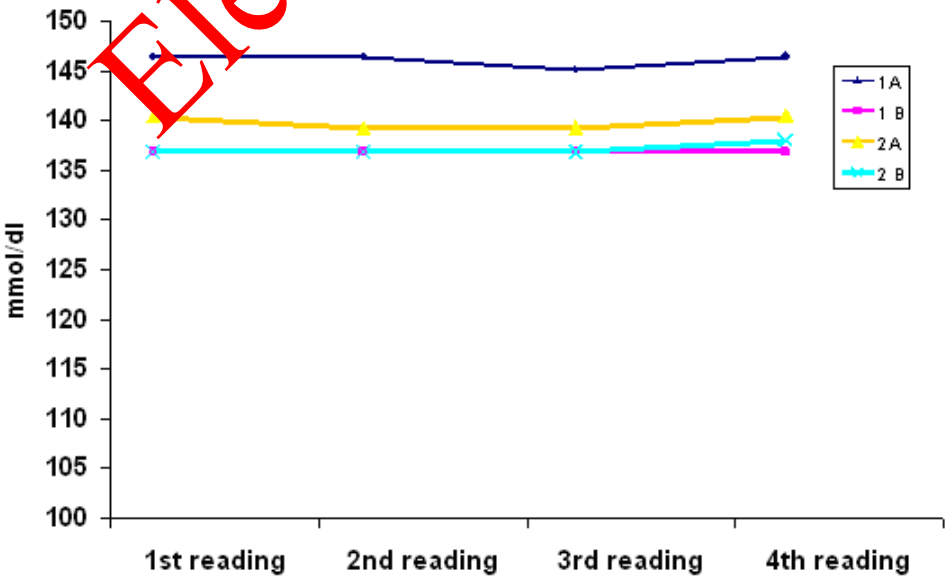

Figure No. 3: Sodium levels for groups 1A, 1B and 2A, 2B at four distinct time intervals

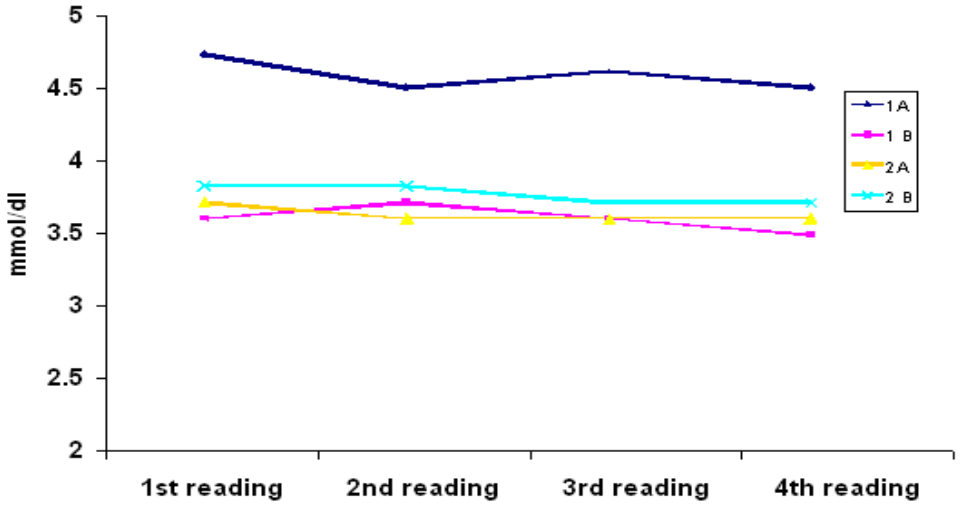

Figure No. 4: Potassium levels for groups 1A, 1B and 2A, 2B at four distinct time intervals

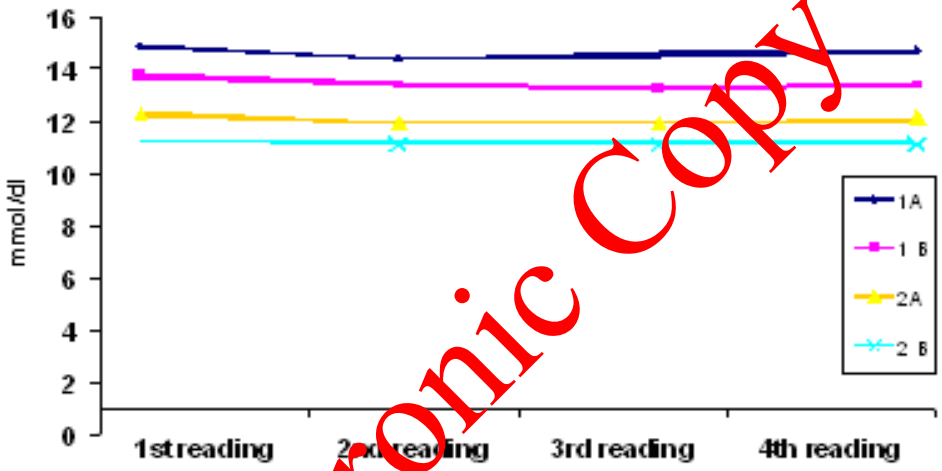

Figure No. 5: Calcium levels for groups 1A, 1B and 2A, 2B at four distinct time intervals

This may be is because of mild bleeding in rabbits, more so in group one, because of the narrow therapeutic index of Warfarin (Fig. 4).

The Platelets counts of animals were also recorded at the beginning of study and then repeated for three times. The average platelets counts of group 1A at the start of study were 330±79, for 1B it was 368±28. The average baseline platelet count in rabbits was 352±73. Other than minor changes, there was no marked difference in the platelet count in any of the groups, i.e., 1A, 1B, 2A, 2B (Fig. 5)

DISCUSSION

The authors' already published work on the effect of G.O.I (George Ohsawa one) on prolonged coagulation parameters in rabbits measured quantitatively, is first of its kind in the field. Already published data shows evidence that suggests G.O.1 to have statistically significant effect on the Prothrombin time prolonged by Warfarin in group 1 rabbits.

The current paper highlights its effect on biochemical and hematological parameters other than Prothrombin time and Activated partial thromboplastin time, and this work, like the previous published results, is also first of its kind

This study did not find significant differences in these parameters but does point to the feasibility of larger studies on the subject.

Limited information about the pharmacokinetics, pharmacodynamics, and manufacturing properties of herbal and dietary supplements leads to difficulty in characterizing and predicting interactions and understanding their mechanisms. Although the use of herbal products may not be dangerous per se, however further research work is required to explore the benefits of G.O.1 in prolonged coagulation parameters and to exactly determine its mechanism of action before it can safely be used in humans as an anti-hemorrhagic agent.

CONCLUSION

This work on the effect of GOI is first of its kind on biochemical and hematological parameters other than

prothrombin time and activated partial thromboplastin time in rabbits measured quantitatively. Although the use of herbal products may not be dangerous per se, further research work is required to explore the benefits of GO1 on biochemical and hematological parameters before it can safely be used in humans as an anti-hemorrhagic agent.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Workshop on Learning Approach

Impact of Faculty Development Workshop on Faculty Performance - A Problem Based Learning Approach

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ABSTRACT

Objective: To evaluate the impact of faculty development workshop on faculty performance - a problem based learning approach

Study Design: Interventional study

Place and Duration of Study: This study was conducted at Foundation University Medical College for a period of 08 months during the year 2013-2014.

Materials and Methods: Total number of participants was thirty. The participants were faculty members selected on the basis of their previous experience of mentoring .The intervention was a faculty development workshop having pre and post tests, interactive sessions and small group discussion. It was followed by 03 and 06 months feedback from the faculty. Approval from ethical committee was received.

Results: There was significant difference between pre and post tests results. Discussion forums generated themes and proposals regarding challenges faced in mentoring, improvement in existing mentoring program, design of mentoring program as per institution requirement and evaluation of mentoring program. Feedback regarding the implementation of revised program was very positive.

Conclusion: The study has evaluated the impact of intervention on mentoring program and faculty performance. The proposal forwarded by faculty was more successfully implemented as it had the ownership of faculty. Hence it is concluded that blend of faculty training, motivation and ownership on part of faculty can make any program a success.

Key Words: Mentoring, Faculty Development, Motivation, Feedback

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INTRODUCTION

"Be the one to make a difference in someone's life." The statement given in the beginning of mentoring manual highlights the importance of having "Mentor" in one'slife[1].Effective mentorship is among one of the most important factors of success in academic medicine and research[2].Lot of research has been done to establish the effectiveness of mentoring programs for youth[3].

Mentoring is a well established entity as many organization have taken up the task of guiding the individuals who are interested in this program , guidelines have given on how get most out of your mentee ,how to communicate with them ,how to give them feedback[4]. It is established in literature that mentorship for undergraduate medical students enhances personal and professional development[5].

The barriers to mentoring include lack of organizational support, false expectation of mentee regarding their performance assessment, mismatch mentors and mentee. There is also possibility of bias or perception of nepotism for those involved in mentoring, dependency on mentors, difficulty in maintaining professional boundaries and gender issues[6].

A formal mentoring program was introduced at Foundation University Medical College after the implementation new integrated modular teaching program. There was lot of apprehension and stress among students regarding the new system of teaching which made the need of a mentoring program more essential for students' support[7]. Mentoring program was implemented in the year 2013.Faculty was briefed about the running of the mentoring program through lectures and discussion but had no previous hands on experience of such program. The feedback regarding the effectiveness of mentoring program from the students and faculty was not that encouraging. A need for quality improvement of the program was felt by the organization and certain steps were taken for it. One of the first steps was faculty development workshops and then changes made in the program keeping in view the suggestions and feedback from the faculty .Regular feedback and monitoring system was also implemented. The objective of the study was to evaluate the impact of

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these interventions on mentoring program and faculty performance .

MATERIALS AND METHODS

It was an Interventional Study with mixed method approach .The study was conducted at Foundation university medical College in year 2013-2014. The study was of 08 months duration. Total numbers of participants were thirty. The participants were senior faculty members and were selected on the basis of their previous involvement in mentoring program. Approval from ethical committee was received.

As an initial step, a workshop on mentoring skills was planned and conducted by department of medical education (DME). It consisted of pre-post tests, two interactive sessions by DME faculty which were regarding important concepts of mentoring. The interactive sessions were followed by small group discussion. The participants divided in four groups and were asked to present their plans/proposals on various mentoring related issues in the light of their past experience, after discussion and mutual agreement.

In the next step, at an interval of three months and six months feedback was collected from faculty to evaluate the impact of workshop on mentoring activities at FUMC.

Data was generated from pre-post test of workshop, themes/proposals generated from small group discussions and from feedback Performa's collected from faculty at the interval of 03 months and 06 months.

RESULTS

The data was analyzed for descriptive and inferential statistics .SPSS 17 was used for data analysis. The demographic characteristics of mentors were analyzed for gender and age. Gender analysis showed that 80% were females and 20 % were male. The mean ± S.D of mentor's age was 42.5 ± 2.7 years with range (36-49). There was no difference in the results on the basis of gender and age. The pre and post test of the workshop were analyzed and significant difference was found between pre (40%) and post (90%) test results ($p< 0.05$).

The discussion in small groups focused on the issues faced by the faculty during mentoring sessions. Themes and proposals generated during discussion included challenges faced in mentoring, improvement in existing mentoring program, design of mentoring program as per institution requirement and evaluation of mentoring program.

The next step of the study was faculty feedback at an interval of three and six months regarding the impact of workshop on their mentoring responsibilities. It was revealed in feedback that 58 % of mentors felt motivated to continue mentoring as their mentees had shown much improvement in academics. Mentors (62%) showed self satisfaction regarding mentoring activities as they were able to guide their mentees better . After workshop, increased level of confidence was reported by 75% of mentors in their feedback as they were well aware of the scope of their responsibilities and their limitations. Eighty percent (80%) of the faculty members appreciated the continuous support provided by administration as well as senior faculty in carrying out the responsibility of mentoring (shown in figure 1).

Figure No.1: Feedback Faculty

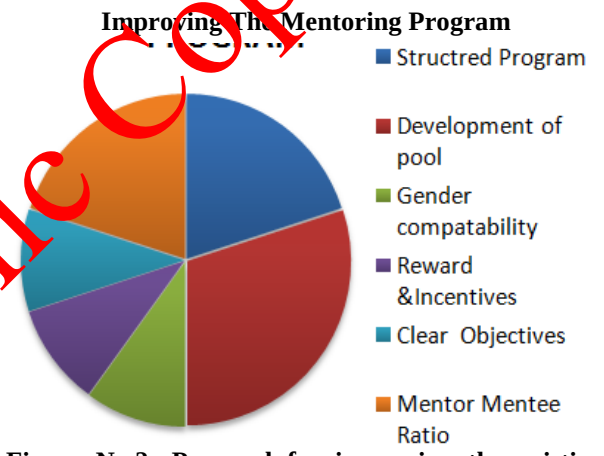

Figure No.2: Proposal for improving the existing program

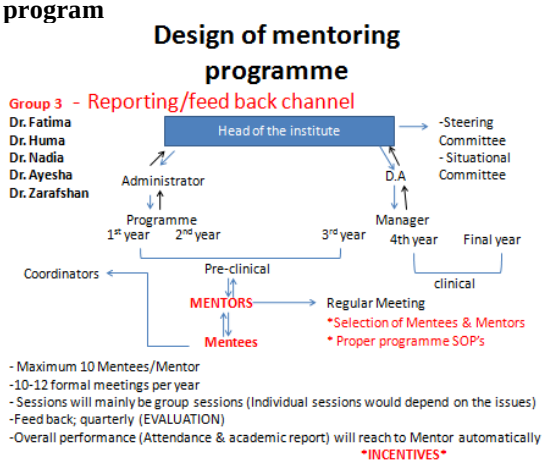

Figure No.3: Monitoring program

DISCUSSION

In this study a holistic revision of the existing mentoring program was done by getting valuable input

from the faculty who was actually involved in this process and a revised mentoring program was implemented keeping in view the proposals generated by the faculty during the workshop . The feedback of the revised program was collected at certain predefined interval.

The distribution of gender and age was also considered among the participants. The statistics analysis showed that gender and age of mentors did not affect the results of pre and post tests .The consideration of age and gender is important as there were more females in the group .There are evidence that gender incompatibility does affect the success of mentoring[8].Similarly the age also affects the personal motivation of mentors and compliance from mentee. There was no difference in results among the two groups in this study[9]. Pre and post test questionnaire was on the items , definition of mentoring, understanding of different models of mentoring, scope of mentoring, dos and don'ts of mentoring. The results of pre and post test of mentoring workshop showed significant difference between pre (40%) and post (90%) test .This difference signifies that there was indeed a requirement of faculty training regarding mentoring. There are various models of mentoring and their understanding is important for getting more benefits from the program. The concept of secrecy regarding mentee's personal issues, level of engagement by the mentor and gender issues were also sensitized in pre and post tests.

The small group discussion was the most informative session during the workshop which gave the insight about previous faculty experience and also proposed a remarkable plan for reframing the mentoring program.

One of the small group of faculty identified challenges faced in mentoring which included lack of structured mentoring program, mentor mentee ratio, gender issues, and continuity of mentorship for longer duration, space and time availability and unrealistic expectations from mentors. All these challenges are very valid and are also supported by literature[10, 11].

The next group worked on the improvement of existing mentoring program. Twenty percent of the participants proposed to have a structured program while the rest of the suggestions were , development of mentor pool by 30% of participants , gender compatibility by 10% of the participants, having clear objective of mentoring by 10% of the participants ,reducing the ratio of mentor and mentee by 20% of the participants , and reward/incentives to mentors by 10% participant[12] as shown in figure 2.

The third small group proposed the design of mentoring program as per institution requirement as shown in fig 3. According to their proposal, program is required to have a well defined hierarchy. They identified that the responsibilities can divided to administrative and academic areas. Head of the program , program managers for each class and then the pool of mentors was proposed .Administrative support identified for the program included recognition of formal mentoring program ,availability of SOP of program ,availability of students academic record to respective mentors ,coordination of mentoring time slots , certification and appraisal to mentor [13].

The last group worked on the evaluation of a mentoring program. Input received included evaluation of each and every aspect of mentoring program comprising mentor mentee ratio , resources allocated ,frequency of meeting , observation of corrective measures taken ,indirect assessment of improvement in mentee performance , discipline and attendance record , monthly and annual report generation[14,15] .

The proposal generated in the small group discussions were forwarded to administration and after minimal adjustment these proposals were implemented. The response of the feedback from the faculty was hundred percent even after 03 and 06 months which reflected value of workshop to the faculty. The feedback revealed increased motivation, confidence and self satisfaction among the mentors. The reason for this feedback could be attributed to the fact that faculty after going through training workshop was well aware of the various aspects of mentoring and hence developed motivation and self confidence . Motivation led to improved performance which in turn was apparent in students performance .A formal mentoring program with administrative support is also documented as important factor of success of mentoring program.

CONCLUSION

The study has evaluated the impact of intervention on faculty performance. It can be can identified as problem based faculty development approach where faculty development workshop provided a platform to the faculty who were facing problems with mentoring program and they were more responsive towards the development of effective program. The proposal forwarded by faculty was more successfully implemented as it had the ownership of faculty. Hence it was concluded that blend of faculty training, motivation and ownership on part of faculty can make any program a success.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Aloae Vera on Lipid in Diabetic

Effect of Aloe Vera Whole Leaf Extract on Lipid Profile Status in High Fat Diet and Low Dose Streptozotocin Induced Type 2 Diabetic Rats

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ABSTRACT

Objective To determine the effect of Aloe vera whole leaf extract on lipid profile in type 2 diabetic rats.
Study Design: Randomized control trail
Place and Duration of Study: This study was conducted at the Department of Physiology Army Medical College, Rawalpindi in collaboration with National Institute of Health (NIH) Islamabad from April 2009 to Oct 2010.
Materials and Methods: Type 2 DM was induced in 45 healthy rats by feeding high fat diet for 2 weeks and injecting a low dose (35mg/kg) of streptozotocin intra peritoneally. Type 2 diabetic rats were randomly divided into three groups, each group having 15 rats and were labeled as diabetic group, Aloe vera group and rosiglitazone group. The diabetic group was injected normal saline, Aloe vera group was treated with Aloe vera whole leaf extract in dose of 300mg/kg body weight and rosiglitazone group was given 5mg/kg body weight of rosiglitazone I/P for 21 days.
Results: A significant reduction resulted in triglycerides (50%), total cholesterol (49%), low density lipoprotein (57%),, very low density lipoprotein (50%), and increase in high density lipoprotein (50%). The results of present study provide a scientific basis of using Aloe vera whole leaf extract as lipid lowering drug to reduce the complication and mortality associated with DM.
Conclusion: The maximum impact was recorded in rosiglitazone group followed by Aloevera group
Key Words: Lipid Profile, Aloe Vera, Type 2 diabetes

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INTRODUCTION

The core defects in type 2 diabetes mellitus are insulin resistance and beta cell dysfunction which causes chronic hyperglycemia, dyslipidemia and oxidative stress.[1] During the year 2000 globally 2.8% (171 million) people were suffering from diabetes and incidence will increase to 4.4% (366 million) by the year 2030.[2] Diabetes mellitus is more common in developed countries. However, changing lifestyle and fast increasing urbanization have contributed to its increased prevalence in the developing countries.[3] Pakistan ranks sixth in the world's top ten countries with the highest number of diabetics. Diabetes mellitus has affected around 6.9 million people in Pakistan. By a conservative approach, this number may grow up to 13.9 million by the year 2030. [2]
Though oral hypoglycemic drugs are used widely, these treatments have their own drawbacks.[4] Due to chronic nature of disease and associated complication with it DM is causing a huge burden on world's economic resources. There is increasing use of complementary and alternative medicine (CAM) among the general public. With increasing incidence of diabetes mellitus in rural population, its chronic nature and due to adverse effect of synthetic medicine it is a need of an hour to look for indigenous, inexpensive botanical source with antidiabetic and antilipidemic effects. Substantial work has been carried out across the globe regarding hypoglycemic and hypolipidemic effects of plant extracts.[5] Many pharmaceuticals used in conventional medicine today also have natural plant origin. Among them, metformin was derived from flowering Plant, Galega officinalis, which is a common remedy for diabetes. [6]
Aloe vera comes from a family called Aloaceae. The Aloe vera plant has fleshy leaves which consist of gel, latex and outer green rind. Numbers of studies are carried on gel and latex parts but controversial reports are reported. This may be due animal model used, differences in method of extraction and differences in parts used. We used the animal model of T2DM developed by Srinivasan,[7] because it closely resembled the natural course and metabolic characteristics of the

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disease. DM with hyperglycemia and alteration in lipid metabolism leads to the production of reactive oxygen specie (ROS), responsible for development of late complication[1]. So in addition to control blood glucose, normal lipid profile is also necessary to avoid the negative outcomes of DM. Therefore the present study is designed to analyze the effect of Aloe vera on lipid profile in type 2 diabetic rats.

MATERIALS AND METHODS

Preparation of Aloe vera whole leaf extract: A whole leaf process was employed in making the Aloe juice according to previously published procedure with slight modification.[8] Leaves were cut into sections and were pulverized into a soup like structure by placing them in a grinding unit. Cellulose was allowed to dissolved in a digestion liquid containing amine, phosphorous ions and potassium ion under U.V radiation.[9] Aloe emodin as well as aloin was removed by passage through activated charcoal column.[10] The effective dose of 300mg/kg body weight (find through pilot study) was administered once daily by intragastric tubing.

Animals used: Forty five healthy Sprague Dawley rats' about 90 days old were taken from National Institute of Health (NIH), Islamabad. Animal house facility of National Institute of Health (NIH), Islamabad was used. This animal house has a setup according to international standards for breeding and housing of experimental animals. High fat diet (HFD) was specially prepared at NIH according to the standard used elsewhere. [7]

Induction of experimental diabetes: Forty five animals were fed with high fat diet for 2 weeks after which a single intra-peritoneal injection of streptozotocin (available as 1 gram vial, Bioworld Pharmaceutical) in the dose of 35 mg/kg body weight was given.[7] For confirmation of T2DM fasting blood glucose levels along with total lipid profile were measured after 72 hours. The cut off value for hyperglycemia was of >11.11mmol/l in accordance with the criteria laid down in study.[11] The development of insulin resistance was measured by using the surrogate marker of TG: HDL ratio. The cut off value of TG: HDL ratio >1.8 was used[12]

Experimental procedure: After induction of T2DM, Sprague Dawley rats were randomly divided into three groups, diabetic control group, Aloe vera, rosiglitazone group. Diabetic control group were administered 0.1ml normal saline intraperitonealy (I/P) daily, Aloe vera group were given Aloe vera whole leaf extract in daily dose of 300 mg/kg body weight by gastric tubing, rosiglitazone group treated with 5mg/kg body weight of rosiglitazone I/P for next 21 days. After 21 days of treatment, overnight fasted rats were anesthetized with ether for collecting intra-cardiac blood. 2.5ml of collected blood was put in a serum gel separator for the estimation of lipid profile.[12]

Analysis of samples: Analysis of samples was done at Centre for Research in Experimental and Applied Medicine (CREAM) at Army Medical College, Rawalpindi, Pakistan. Triglycerides, Total cholesterol and HDL were estimated simultaneously on automated chemistry analyzer (Vitalab Selectra E). An enzymatic colorimetric method GPO-PAP (Glycerol phosphate oxidase) was used for serum triglycerides estimation.[13] Total Cholesterol (TC) was measured by CHOD-PAP (Cholesterol oxidase phenol ampyrone), an enzymatic quantitative colorimetric method. The direct method for quantifying cholesterol in high-density lipoproteins (HDL) was done.[14] Both LDL and VLDL were calculated by using Friedewald formula. [15]

Data Analysis: Data was entered into SPSS version 17.0. Mean and standard deviation was employed for all the values. Data within the groups were analyzed by using one-way analysis of variance (ANOVA) followed by Tukey HSD. The "p value" <0.05 was considered statistically significant.

RESULTS

At the end of study the TG level in diabetic control rats was 2.16 ± 0.14 mmol/l, however it decreased in Aloe vera treated group (1.08 ± 0.10 mmol/l), in rosiglitazone treated group (0.95 ± 0.13 mmol/l) as compared to the diabetic control group significantly when all groups were compared by one way ANOVA.

The serum cholesterol level in diabetic rats was found as 4.83 ± 0.21 mmol/l, while in Aloe vera treated group it is reduced to 2.52 ± 0.13 mmol/l and in rosiglitazone group to 2.33 ± 0.21 mmol/l.

The serum LDL levels of diabetic control group was 4.01 ± 0.23 mmol/l, whereas serum LDL levels in Aloe vera and rosiglitazone the levels reduced to 1.72 ± 0.14 mmol/l and 1.49 ± 0.22 mmol/l respectively as compared to the diabetic control.

Table No.1: Comparison of lipid profile between diabetic control, Aloe vera, rosiglitazone and combined groups by one way ANOVA

Parameter	Diabetic control group (n=15)	Aloe vera group (n=15)	Rosiglotazone group (n=15)	p Value
Triglyceride (mmol/l)	2.16 ± 0.14	1.08 ± 0.10	0.95 ± 0.13	<0.001
Cholesterol (mmol/l)	4.83 ± 0.21	2.52 ± 0.13	2.33 ± 0.21	<0.001
HDL (mmol/l)	0.39 ± 0.08	0.58 ± 0.06	0.65 ± 0.07	<0.001
LDL (mmol/l)	4.01 ±0.23	1.72 ± 0.14	1.49 ±0.22	<0.001
VLDL (mmol/l)	0.98 ±0.07	0.49± 0.05	0.43 ±0.06	<0.001

Values are expressed as mean ± standard deviation for 15 animals in each group P<0.001 compared with diabetic control rats

Table No.2: Statistical difference of serum TG, cholesterol, HDL, LDL and VLDL levels between different groups using Post-Hoc (Tukey) test

Group comparison	Triglyceride (mmol/l)	Cholesterol (mmol/l	LDL (mmol/l)	VLDL (mmol/l)	HDL (mmol/l)
Diabetic Vs Aloe vera	<0.001	<0.001	<0.001	<0.001	< 0.001
Diabetic Vs rosiglitazone	<0.001	<0.001	<0.001	<0.001	<0.001
Aloe vera Vs rosiglitazone	0.039	0.049	0.019	0.039	0.047

The serum VLDL level indicates hepatic insulin resistance and its level in the diabetic control group was found; 0.98 ± 0.07 mmol/l however in Aloe vera, rosiglitazone the VLDL levels decreased to 0.49 ± 0.05 mmol/l and 0.43 ± 0.06 mmol/l respectively as compared to diabetic control.

The serum HDL levels of diabetic control group was 0.39 ± 0.08 mmol/l, while in Aloe vera, rosiglitazone treatment groups revealed serum HDL levels; 0.58 ± 0.06 mmol/l and 0.65 ± 0.07 mmol/l respectively.

Statistical significance of difference between the mean level of all lipid parameters were assessed by one way ANOVA, which revealed significant difference ($p<0.001$) amongst the groups as shown in table 1

All variables of lipid profile with significant p-values were analyzed by Post-Hoc (Tukey) test. The comparison revealed that mean serum TG, cholesterol, LDL and VLDL were significantly decreased ($p<0.001$) in Aloe vera, and rosiglitazone supplemented groups as compared to diabetic control group while HDL levels were significantly (($p<0.001$) raised in Aloe vera, and rosiglitazone group as compared to diabetic control group (table 2).

Post-Hoc (Tukey) test applied between interventional groups revealed that mean serum TG, cholesterol, LDL, VLDL were significantly (<0.05) lowered in rosiglitazone group as compared to Aloe vera group. HDL level were significantly raised in rosiglitazone group as compared to Aloe vera group table 2.

Table No.3: Percent reduction in lipid profile levels in different treated groups in comparison to the diabatic control.

Parameter	Control	Alovera	Rosiglitazone
TG mmol/l	2.16	50 % ↓	56 % ↓
Cholesterol mmol/l	4.83	49 % ↓	51 % ↓
LDL mmol/l	3.98	57 % ↓	62 % ↓
VLDL mmol/l	0.98	50 % ↓	56 % ↓
HDL mmol/l	0.39	50 %↑	66 %↑

DISCUSSION

In our study Sprague Dawley rats were used as experimental animal model. The rodents had been considered the most appropriate and oftenly used models for anti diabetic drug testing due to their easy handling, low price and resemblance with human metabolic characteristics of diabetes mellitus.[16] We used the animal model of T2DM developed by Srinivasan,[7] because it closely resembled the natural course and metabolic characteristics of the disease. Other animal models conceptually deviate from the pattern of T2DM in humans.[17]

In the present study, the plasma lipid profile in diabetic control rats showed severe derangement at the end of three weeks. Hyperlipidemia is one of the established major risk factors of coronary heart disease and cerebrovascular disease. Type 2 DM is associated with increased morbidity and mortality due to cardiovascular disease (CVD) as both share common antecedent; the insulin.[18] Aloe vera and rosiglitazone administration significantly influenced the outcome of high fat diet and advancing age on aforementioned parameters. Aloe vera supplementation in the present study has resulted in statistically significant ($p<0.001$) improvement in plasma TG, cholesterol,

LDL, VLDL and HDL levels when compared with diabetic control group. Aloe vera reduced the levels of TG's by 50%, cholesterol 49%, LDL 57%, VLDL 50% and increased HDL by 50% as compared to diabetic rats at the end study. These findings are supported by the published data of different studies.

A study by Rajesekaran revealed a significant reduction in parameters of lipid profile in streptozotocin induced diabetic rats by giving Aloe vera gel in the dose of 300mg/kg bodyweight extract for 21 days[19]. Our study results were slightly different than Rajesekaran's results. This may be due to the difference in type of experimental animal used and method of induction of diabetes in these experimental animals. A study by Kim revealed that processed Aloe vera gel in a dose 100 mg/kg showed statistically significant result on triglycerides level. They attributed this effect to reduced lipogensis and which was assessed/analyzed by the decrease in adipocyte size. [20]

Sood et al reviewed that effect of glucomannan, one of the major constituents of Aloe vera, on TG, cholesterol, LDL was statistically significant.[21] Glucomannan decreases the ingestion of food, reduces the post prandial rise in plasma glucose, suppresses hepatic cholesterol synthesis and increase fecal elimination of cholesterol containing bile acids. The reason behind glucomannan's ability to preferenntially lower triglycerides may be related to its higher viscosity and

its greater ability to alter the metabolic pathways of hepatic cholesterol and lipoprotein metabolism.[22] Thus antihyperlipidemic effect of Aloe vera extract may be due to number of constituents present in it.

Rosiglitazone is a known antidiabetic drug of thiazolidinediones family. It has been used for the treatment of type 2 DM since 1991. [23] It increases insulin sensitivity and improves glycemic control. It also acts as a ligand for the gamma subtype of peroxisome proliferators activated receptor (PPAR-gamma), which is directly involved in the regulation of genes controlling glucose homeostasis and lipid metabolism.[24] In our study the plasma glucose levels are reduced by 68%, insulin 25%, TG 56%, cholesterol 51%, LDL 62%, VLDL 56% with concomitant increase in HDL by 66%. These findings of rosiglitazone group are similar to many clinical trials carried in the past.

A study was conducted on 18 months old Spargue Dawley rats, in which rosiglitazone was given in a dose of 3mg/kg for 21 days which resulted in significant decrease TG (59%) and insulin (61%). However the changes were associated with increase in body weight.[25] The difference in result may be due to the type of model used and route of administration of rosiglitazone in our study.

The data of our study has revealed encouraging results which could help evolve new strategy of treatment for T2DM especially in a country like Pakistan, where socio economic conditions of people are not strong enough to cope with chronic diseases like DM. In our study the treatments effects highlighted in percentage terms had recorded maximum impact in lowering TG, cholesterol, LDL and VLDL in rosiglitazone treated group followed by Aloe vera. However, the side effects associated with prolong use of rosiglitazone such as weight gain, congestive heart failure and left ventricular dysfunction make it an unlikely drug to be used despite its significant results on plasma glucose and TG.[24] Aloe vera in our study has beneficial effect on normalizing the lipid profile in type 2 diabetics. It also leaves a room to explore new combination of treatment by using natural herb with synthetic drug (rosiglitazone half their effective dose) for their synergistic effects and to minimize their side effects associated with synthetic drug.

CONCLUSION

The maximum impact was recorded in rosiglitazone group followed by Aloevera group

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Maxillary Teeth

Evaluation of Golden Proportion Between Maxillary Anterior Teeth

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ABSTRACT

Objective: The study has been made to scrutinize the occurrence of Golden proportion between maxillary anterior teeth in a group of Pakistani population.

Study Design: Cross sectional study

Place and Duration of the Study: This study was conducted at the Oral Biology Department at Dr. Ishrat ul Ebad Khan Institute of Oral Health Science Dow University for a period of 6 months from August 2014 to January 2015.

Materials and Methods: This study comprised 500 volunteers of satisfactory aesthetics, out of which 394 were females and 105 were males between 21 to 30 years of age.

First the impression of the subjects was taken with Alginate and cast was made with hard plaster. This was followed by measuring the width of maxillary anterior teeth of both quadrants at the mesio-distal contact point using a Digital caliper. Next, the Golden proportion for all subjects was calculated by multiplying the width of the larger factor by 62% and compared with the width of the smaller factor for proportion to be evaluated.

Results: The data highlighted the statistical significant result in the ratio of Golden proportions depending upon gender. 11.2% of the samples have the width of their central incisors in golden proportion to the width of their lateral incisors.9.6% of the subjects had the width of their lateral incisors in golden proportion to the width of their canines. Age showed no significant difference.

Conclusion: It is not always correct to assert that golden proportion exists between widths of maxillary anterior teeth in a subject of Pakistani population.

Key Words: Golden Proportion, Aesthetics, Maxillary Anterior Teeth

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INTRODUCTION

Maxillary anterior teeth stand an important influence in aesthetic dentistry because of their noticeably visible facial view during smiling. Creating harmonious relationship is one of the critical tasks in aesthetic dentistry while dealing with restorations or replacement of these teeth[1]. During treatment planning of missing and grossly damaged anterior, operator must determine the tooth shape and size proportion to achieve favorable aesthetics[2]. The golden ratio is a coefficient that exists amongst the larger and a smaller component. This geometric proportion has been recommended as standard in creating harmonious restorations. The constant value for golden ratio is almost 1.618:1, i.e. if the relationship between B and A is in golden proportion, then B is 1.618 times wider than A. This explains that the smaller sized tooth is almost 62% of the size of the larger tooth. For instance, if we compare the ratio of a maxillary central incisor to a maxillary lateral incisor, the central incisor is 0.618 times wider or 62% greater in the dimension than that of the lateral incisor[3]. In restoring maxillary anterior teeth this constant proportion helps to achieve aesthetic outcomes. It was described back in 1973 that the proportional width of lateral incisors compared to central incisor and width of lateral incisor to the canines follows a constant ratio[4], and proposed the use of the golden ratio in dental sciences. Levin is also of the opinion that the golden proportion could be used to correlate the successive width of maxillary anterior teeth when viewed facially[5]. According to Levin's concept the width of the central incisor to the width of the lateral incisor and likewise, the width of lateral incisor to the width of the canine should be in golden proportion.

However, it was observed that only a minor percentage of people having aesthetic smiles had the golden proportion[6]. The prevalence of the golden proportion among the widths of maxillary anterior teeth varies among different populations and ethnic groups[7-11]. As only a few studies have evaluated this relationship in Pakistani subjects[12]. The objective of this study was to determine the prevalence of the golden proportion in a set of Pakistani subjects.

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MATERIALS AND METHODS

The current study was performed at Department of Oral biology in Dr. Ishrat ul Ebad Khan Institute of Oral Health Science Dow University. Study sample for this cross-sectional study comprised 500 volunteers of satisfactory aesthetics, out of which 394 were females and 105 were males, with ages ranging from 21 to 30 years. Informed consent was taken. The inclusion criteria was set as the participating subjects must have all their natural anterior i.e both maxillary and mandibular teeth. Teeth with any history of orthodontic intervention, restoration for alteration in tooth size, spacing or crowding and restoration or any periodontal condition were excluded from the study.

Irreversible hydrocolloid impression was obtained from all the selected subjects and dental cast was prepared using dental stone. The digital Vernier caliper with the accuracy of 0.01mm was used for measuring the mesiodistal widths of maxillary central incisor, lateral incisor and canine. The perceived dimensions of the teeth were assessed at the mesiodistal contacts of teeth. Each measurement was made three times by the single calibrated examiner and the mean value was calculated for accurate results.

The golden ratio was evaluated for each cast by multiplying the mesiodistal width of the maxillary central incisor with 0.618. Likewise the width of the maxillary lateral incisor and maxillary canine were checked for golden proportion.

The obtained data was managed and analyzed using SPSS version No. 16. Descriptive statistical analysis was performed to calculate the mean perceived mesiodistal width of maxillary anterior and for gender distribution.

Chi square test was applied in order to find the relationship between gender and different golden proportions.

The golden proportion for maxillary central, maxillary lateral and maxillary canines was calculated by multiplication of perceived mean mesiodistal width with 0.618.

RESULTS

The data collected from 500, 349 females and 141 male subjects revealed that 11.2% of the samples have the width of their central incisors in golden proportion to the width of their lateral incisors. 12.05 % of males and 7.80% of females have the width of their central incisors in golden proportion to the width of their lateral incisors. 9.6% of the subjects had the width of their lateral incisors in golden proportion to the width of their canines. 4.9% of males and 30.4% of females have the width of their lateral incisors in golden proportion to the width of their canines.

The mean value for central incisor, lateral incisors, and canine is listed in Table: 1 while 62% of central incisors and 62% of lateral incisors and 62% of canine is listed in Table 2. Frequency and percentage of Golden Proportion between Maxillary Central to Lateral Incisor is shown in Table 3 and Frequency and percentage of Golden Proportion between Maxillary Canine to Lateral Incisor is shown in Table 4.

Table No.1: Mesiodistal diameter of maxillary anterior teeth

N=500	Rt_ Canine	Rt_ Lateral	Rt_ Central	Lt_ Central	Lt_ Lateral	Lt_ Canine
Mean(mm)	7.86	6.67	8.22	8.46	6.75	7.51
Median (mm)	8.00	6.50	8.00	8.50	7.00	7.50
Mode(mm)	7.00	6.00	8.00	8.00	6.00	7.00
Std. Deviation (mm)	0.97	0.69	0.74	0.69	0.71	0.77
Min(mm)	6.00	5.20	7.25	7.25	5.20	6.00
Max(mm)	11.00	8.75	09.12	10.96	8.80	11.00

Table No.2: Computed proportion for central and lateral incisor and canine:

N=500	Min (mm)	Max (mm)	Mean (mm)	Std Deviation (mm)
62% of M-D width of central incisor	4.50	5.57	5.08	0.42
62% of M-D width of lateral incisor	3.22	5.42	4.12	0.46
62% of M-D Canine	3.72	6.51	4.86	0.5

Table No.3: Frequency and percentage of Golden Proportion: Maxillary Central to Lateral Incisor

Ratio	N	%age
1.1	79	14.2
1.2	33	6.6
1.3	22	4.4
1.4	21	4.2
1.5	30	6
1.6	28	11.2
1.7	37	7.4
1.8	33	6.6
1.9	28	5.6
2.0	35	7.0
2.1	10	20

Table No.4: Frequency and percentage of Golden Proportion: Maxillary Canine to Lateral Incisor

Ratio	N	%
1.1	59	11.8
1.2	18	3.6
1.3	23	4.6
1.4	29	5.8
1.5	20	4
1.6	48	9.6
1.7	5	1
1.8	27	5.4
1.9	12	2.4
2.0	25	5
2.1	28	5.6

Chi square-test showed that there was a statistically significance difference between male and female means

of lateral incisors (<=0.00) and 62% of central incisors as well as between the canines and 62% of the lateral incisors (p <0.00). Age showed no significant difference (p>0.00).

DISCUSSION

The literature has described the golden proportion as a useful tool for accomplishing aesthetics. This golden proportion is a constant (1.618: 1.0) relating the two measurements with a greater and a lesser length. Many previous researches have explained both against and in the favor of this concept along with the use of geometric this ratio in dentistry.

The statistical finding from this paper revealed that golden proportion was not the common occurrence in most of the populace i.e. 11.2% of the samples have the width of their central incisors in golden proportion to the width of their lateral incisors among which 12.05 % of males and 7.80% of females. 9.6% of the subjects had the width of their lateral incisors in golden proportion to the width of their canines among which 4.9% of males and 30.4% of females. However it is the second most common occurrence after 1.1.

The ratio of 1.1 was more frequently perceived that was in maxillary central to lateral incisor is 14.2% and in maxillary canine to lateral incisor is 11.8% of the sample than 1.618. While the literatures give similar finding with ratio of 1.2 was most commonly observed[13-17]. In American subjects it was evaluated that only 17% of the orthodontic casts showed golden proportion among the width of maxillary anteriors**Error! Bookmark not defined.**. Another study demonstrated that the golden proportion is not significant among the widths of maxillary anterior teeth in the Iranian population**Error! Bookmark not defined.**. A recent study conducted on Arabs concluded that the golden proportion was not a suitable technique for relating the succeeding width of maxillary anterior teeth**Error! Bookmark not defined.**. It was also demonstrated that there was no correlation between any ratio studied (length: width: width: width and length: length) to the golden proportion between the width of maxillary anterior teeth**Error! Bookmark not defined.**. One study showed that when the golden ratio was considered, the lateral incisor appeared too slender and masks the dominance of canine**Error! Bookmark not defined.**. However, another study conducted in Pakistan population which is parallel to the findings of the present study, concluded that golden proportion should not be considered as a critical feature in formation of the dental aesthetics. It exists as a range to a certain extent than a particular value**Error! Bookmark not defined.**.

In the present study there was a statistically significance difference between male and female means of lateral incisors (<=0.00) and 62% of central incisors as well as between the canines and 62% of the lateral incisors (p <0.00). Hence it showed that golden proportion is more common in females than males. Analysis from this study was parallel to other investigations in relation to gender differences[18,19]. Age showed no significant difference (p>0.00).

Golden proportion being a micro component of aesthetics is not a major principle to play a important role in regulating esthetics[20]. And hence linking to a specific ratio universally for all individuals is unreasonable.

CONCLUSION

The interpretation of the outcomes from this paper has concluded that golden ratio is not a major occurrence in the study sample of Pakistani Population. However the measurements of anterior teeth widths were prepared to clinical accuracy, there could be a 0.5 mm or more deviation exists in the contact area which can be a constraint in the research. The golden ratio was not observed among maxillary anterior teeth in most of the study samples while the ratio of 1.1 was most frequently observed. There was statistical significant difference in the golden proportions between genders of teeth in the study population.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Transabdominal and Transvaginal Repair of Vesicovaginal Fistula

Vesicovaginal Fistula

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ABSTRACT

Objective: To evaluate the results of surgical repair of VVF through transabdominal and transvaginal routes.

Study Design: Prospective study

Place and Duration of Study: This study was carried out in Teaching Hospital, Ghazi Khan Medical College, DG Khan from June 2009 to May 2014.

Patients and Methods: Total 26 patients of VVF with age range of 22-60 years were included in the study. Fistulas had two types, simple and complex, according to site, size and aetiology . Simple VVFs were repaired through the vaginal route and complex ones through abdominal route. Patients were assessed at an interval of two to three weeks to start with , twice after three-months and thereafter depending on complaints.

Results: Sixteen (61%) patients had simple fistulas, while 10 (38%) patients had complex fistulas and one of the patients had complex fistula associated with rectal communication who was excluded . The most common cause was trauma during obstructed labour in 12(47%) patients, whereas the other common cause was hysterectomy .Sixteen(61%) patients were approached through transvaginal route, out of them 8 had supratrigonal and 7 trigonal fistulas. Ten (38%) patients with complex fistulas were approached by abdominal route. Duration of the surgery, blood loss, pain after surgery and stay in hospital was found to be shorter in transvaginal surgery. Two patients have failed repair with significant complications, a success rate of 92% was achieved . At a follow-up of one year 24 women had uneventful, active sexual life while 2 of them had some degree of pain during sexual intercourse

Conclusion: It's concluded that both the routes of VVF repair has a similar success rate

Key Words: Vesicovaginal, Fistula, Simple, Complex, Management

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INTRODUCTION

Vesicovaginal fistula is a type of female urogenital fistula which is an abnormal communication between bladder and the vagina and results in continuous involuntary drainage of urine into the vagina.[1] The simple fistulas can be repaired through vagina route whereas complex fistula need to be approached transabdominally to achieve a successful repair. Vesicovaginal fistula (VVF) is difficult clinical entity which needs some special skill to have a successful repair.[2] Traditionally, they are approached through a vaginal route but at times it is inevitable to approach the high and complex fistulas through abdomen. VVF is not only a fistula between the bladder and the vagina with continuous dribbling of the urine into the vagina.[3,4] In addition to this troublesome dribbling of the urine , it often have an affect on the patient's psychological well being.[5] A number of methods are available to deal the VVF, to the surgeons.[6] Vesicovaginal fistulas are associated with necrosis, swelling, tissue loss and cicatrisation. The incidence of VVF is mostly under reported in the third world countries.[7,8] Continuous leakage of the urine into the vagina is the main symptom of the patients with urogenital fistulas, postoperative pain abdomen , ileus and fever usually indicate possibility of urinary leakage, urinoma or urinary ascites and needs prompt evaluation and diagnostic work-up.[9].

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MATERIALS AND METHODS

This descriptive study was carried out in Teaching Hospital, Ghazi Khan Medical College, DG Khan from June 2009 to May 2014.Total 26 patients of VVF with age range of 22-60 years were included in the study. Fistulas had two types, simple and complex, according to site, size and aetiology . Simple VVFs were repaired through the vaginal route and complex ones through abdominal route. Patients were assessed at an interval of two to three weeks to start with , twice after three-months and thereafter depending on complaints. At the time of diagnosis, all patients had a local examination, basic bio-chemical profile. The IVU and an ascending cystogram with anteroposterior and lateral views were taken. Three-gauze test with gention violet instilled in the bladder to detect the Fistulae undetected on the cystogram was also used as a tool. In the transabdominal approach, we used a mid line infra-umbilical incision and transvesical approach, whereas, in transvaginal approach we identified the Fistulous

opening using a vaginal retractor, a small caliber Foley's catheter was placed in the tract and whole of the fistulous tract excised, with a two layered repair of the bladder and vaginal mucosa. Only those patients were considered to have a success who remained continent.

RESULTS

The age of patient was from 22-60 years. In 12(47%) patients, aetiology was transabdominal hysterectomy at periphery in less than Ideal circumstances, 12 patients (47%) had VVF due to prolonged obstructed labour. Non-Qualified Health care providers at Sub-Urban Areas and villages mishandled them. One patient (3%) had VVF after vaginal hysterectomy at a tertiary care hospital and One patient (3%) had it after lower segment *C*-Section at periphery (Table 1). Sixteen patients had urinary incontinence and came to us from one month to 2 years after the happening. 5 patients belonging to far flung areas presented to us after four years of occurrence. 5 patients had a unsuccessful repair by inexperienced Surgeons . The usual defect seen in our experience was between 0.5 to 4.0 centimeters. After Investigations, 16(61%) patients were found to have sub-trigonal fistulae and were repaired by transvaginal route. 10 patients (38%) were having Supra-trigonal and complex fistulae and were repaired transabdominaly. We faced 2 (6%) failures in transvaginal repair and 1 (3%) failure through transabdominal approach. Foleys was placed for an average of two weeks. We had some postoperative complications in our patients shown in Table 2.

Table No.1: Frequency of aetiology (n=26)

Aetiology	No.	%
Transabdominal hysterectomy	12	47.0
Obstructed labour	12	47.
Transvaginal hysterectomy	1	3.0
Post *C*-Section	1	3.0

Table No.2: Postoperative complications

Complaint	Transabdominal repair	Transvaginal repair
Hematuria	4	2
Bladder spasm	5	3
Lower abdominal pain	8	3
Prolonged ileus	5	-
Recurrence	1	2

DISCUSSION

There are different methods of fistula repair like, transabdominal, transvaginal, laparoscopic endoscopic and urinary diversion according to the presentation of the fistula.[10] Vesicovaginal fistula in developed countries are often due to pelvic surgery like abdominal hysterectomy, which occur in 0.05-0.5/100 cases.[11,12]

In our study16 patients were operated through vaginal rout and 10 patients with trigonal fistulas needed traction by catheter placed through the fistula to helps us in bringing the fistula closer to view thus making the vaginal approach convenient. When the fistula is complex or high vaginal exposure of the fistula is difficult, which may compromise the repair and ureters are also endangered . In this situation abdominal approach should be preferred. In our study 10 cases of complex VVFs were managed through abdominal approach.

In addition, to have a successful repair of fistula different grafts and flaps have been placed between the bladder and vagina to enhance healing and decrease the recurrence of fistula[1]. As some of the patients were malnourished, failed repair done elsewhere and complicated fistulas, so we interposed labial pad of fat as a flap in vaginal repair, while in abdominal approach omentum was found to be the best option .In comparasion of the two approaches i.e. transabdominal versus transvaginal, the results were more or less similar. However vaginal approach has relatively less morbidity and less postoperative pain, with prompt recovery and short hospital stay.

Now a days, laparoscopy has been used for the repair of VVF, surgical principles are same as of trans abdominal rout, but a limited number of studies are reported to date. Largest series had 17 cases with mean operative time of 2.5hrs, hospital stay of 3-5 days and success rate of 91% at mean follow-up of 24.5 months.[13,14] However, a number of studies are required to recommend this approach, limited skill and high failure rates with cost-effectiveness of this procedure, remains an issue considering that VVF is a disease of third world countries.

Indeweling, uninterrupted bladder drainages is a need in both transvaginal and transabdominal repairs. Urethral Foley's catheter drainage was kept upto 2 weeks . The period of bladder drainage reported in various studies is 7-35 days.[13] The follow up period in our study was 12-24 months. In different studies duration of follow up varies from 7-35 months.[15-17] Success rates are considered in the form of uneventful closure at first attempt and one should predict 85% cure with 15% failure rates.[18]

CONCLUSION

Majority of the simple fistulas are easily approached transvaginally where as in complex fistulas we recommend transabdominal approach. Depending on the clinical expertise both the approaches had similar success rates.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Mandibular Bone Plates

Comparison of In-Vitro Conditioning of Two Types of Mandibular Bone Plates in Modified Simulated Body Fluid Characterization with Scanning Electron Microscope and Energy Dispersive X-Ray Spectroscopy

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ABSTRACT

Objectives: In this study the conditioning of two mandibular mini plates was done in modified simulated body fluid at 37^0C.

Study Design: An experimental study

Place and Duration of Study: This study was conducted at in the laboratory of National University of Science and Technology from March to Mach 2013.

Materials and Methods: The two brands of mini bone plates were selected, one imported from Germany while other was manufactured in local industry. The modified simulated body fluid (m-SBF) was prepared by dissolving reagent in deionised water. The conditioning was done at 1, 7, 14, 21 and 28 days. The surface changes produced after conditioning were analyzed under scanning electron microscope (SEM). The energy dispersive X-ray (EDX) analysis was also used to identify compositional variations of the MPP and MPG surfaces.

Results: The SEM revealed almost similar changes in body fluid environment in both plates however the surface of MPG was anodized while no anodization was done on MPPs while in EDX analysis the main elements found were Ti (Titanium) and O (Oxygen) in MPP and MPG. O was more initially then gradually decreases with passage of time in case of MPG while in MPP the O was in low concentration in early conditioning time and then it decreased.

Conclusions: The surface of MPG was anodized while no anodization was done on MPPs.

Key Words: Scanning electron microscope, bone plate, conditioning, simulated body fluid

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INTRODUCTION

The fixation of open mandibular fractures is usually done through bone plates.[1] In Pakistan two types of bone plates are used, one imported from abroad and other is manufactured in local industry. All the aspects of both these bone plates have been extensively studied except conditioning in modified stimulated body fluid. In in-vitro conditioning, it is examined what type of changes are produced on the surface of plates when provided with same body temperature, ph and fluid medium outside the body. Scanning electron microscope (SEM) is very useful equipment for analysis of surfaces of materials placed in organic environment. SEM image has higher resolution than optical microscope.[2,3,4] It has multiple benefits such as no complex preparation for studying samples, wide magnification range. While the disadvantages of SEM are difficult to identify cellular types and sometimes after sample preparation artifacts may appears.[5,6,7] The aim of this study is to compare two types of plates on the bases of periodic conditioning in modified simulated body fluid at body temperature and body ph through SEM.

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MATERIALS AND METHODS

This experimental study was conducted at the laboratory of National University of Science and Technology from March to Mach 2013.

Bone plates: Bone plates used in this study were made of commercially pure titanium of ASTM F67 grade ll. Two types of plates were used, Mini Plate Germany (MPG) and Mini Plate Pakistan (MPP). The MPG was supplied by Surgiline Company Berlin, Germany. While the MPP were purchased from Moin International Company Sialkot, Pakistan. The dimensions of plates were 1mm×3mm×6mm.

Modified simulated body fluid: The modified simulated body fluid (m-SBF) was prepared by dissolving reagent in deionised water.[8]

All the reagents and compounds were purchased from Sigma USA. All reagents were first measured on analytical weight balance. The apparatuses (glass beaker, pipette, electronic stirrer and glass flask) were washed with 1.0 M of HCl, neutral detergent, and deionised water. Initially, approximately 700 ml of deionised water were poured into a 1000 ml glass beaker, and this was stirred using an electronic stirrer. The reagents were added one by one after each preceding reagent had completely dissolved (Table 2).

The HEPES was previously dissolved in 100 ml of aqueous 0.2 M NaOH. The solution was adjusted to a pH of 7.4 by titring aqueous 1.0 M of NaOH into the dissolving solution. The solution was cooled to room temperature (23°C), and the total volume adjusted to 1000 ml by adding deionised water. It was poured into electrochemical cell.

Methods

Sample preparation: All the apparatus (beakers, silk, scissor and specimens) used in this study were washed thoroughly with distilled water and acetone. All specimens which were six of MPP and six MPG of dimensions (1mm thickness, 3mm width and 6mm length) were tied with silk wire. Silk was used in sterilized form. It was cut into pieces of similar length with sterilized scissor. Six specimens of MPP were suspended with silk in a 250 ml capacity beaker filled with m-SBF and six specimens of MPG were suspended with silk in another 250 ml capacity beaker filled with m-SBF.

Periodic conditioning: All the specimens were hanged in middle of beakers so that they would not touch bottom of beaker and all the surfaces of specimens were exposed to the m-SBF. The beakers were placed in water bath (digital constant temperature tank HH-4 China) with temperature settled at 37 °C. One sample from each of the beakers was removed at intervals of 1 day, 7th day, 14th day, 21st day and 28th day.

Scanning electron microscope analysis: Scanning electron microscopic examination (JSM-6490A, Jeol, Japan) of plates was done to periodically analyze changes in surface topography of bone plates.

RESULTS

The chemical composition of Ti used is given in Table 1. And composition of modified simulated body fluid is given in Table 2.

Scanning electron microscope analysis: In SEM analysis the main elements found were Ti (Titanium) and O (Oxygen) in MPP and MPG (Table 3, 4). O was more initially then gradually decreases with passage of time in case of MPG while MPP the case was reversed. F (Fluoride) appeared on 1st, 7th and 14th day both in MPP and MPG.

Table 1: Chemical composition of cp Ti

Titanium	nitrogen	Hydrogen	Carbon	iron	Oxygen
Balance	0.03	0.0125	0.08	0.30	0.25

Table No.2: composition of modified simulated body fluid

Compounds	Reagents	Amount
Sodium Chloride	NaCl	5.403g
Sodium Bicarbonate	$NaHCO_3$	0.504g
Sodium Carbonate	Na_2CO_3	0.426g
Potassium Chloride	KCl	0.225g
Potassium DiHydrogen Phosphate	NaH_2PO_4. $3H_2O$	0.230g
Magnesium Chloride hexahydrate	$MgCl_2.6H_2O$	0.311g
Sodium hydroxide	0.2 M—NaOH	100ml
Calcium Chloride	$CaCl_2$	0.293g
Sodium sulphate	Na_2SO_4	0.072g
Sodium hydroxide	1.0 M—NaOH	15ml
2-(4-(2-hydroxyethyl)-1-piperazinyl) ethanesulfonic acid	HEPES	17.892g

Table No.3: EDX of MPG

Element	0 day	Ist day	7th days	14th days	21st days	28th days
Carbon	0.82	0	1.82	0	2.16	0
Oxygen	22	17.27	17.19	15.21	0	18.3
Fluoride	0	0.84	0.42	1.32	0	0
Sodium	0	0.16	5.34	0	5.25	0.26
Aluminium	0	0.03	0.19	0	0	0
Chloride	0	0.11	3.64	0	2.64	0
Potassium	0	0	0	0	0	0
Calcium	0	0	0.03	0.11	0.02	0
Magnesium	0	0	0	0	0.04	0
Nitrogen	0	0	0	0	0	0
Titanium	76	81	70.68	83	89.39	81

Carbon was visible in MPG before conditioning, 7th day and 21st day while in MPP Carbon was absent before conditioning and appeared on 14th, 21st and 28th day. Apart from this sodium, Aluminium, Calcium and Chloride started to appear after 24 hours but on the 28th day only sodium was present in both MPG and MPP. Nitrogen was totally absent in MPG while it was present in MPP in quantity of 0.84 while Mg was appeared on 21st day on MPG while it appeared on MPP on 28th day.

Table No.4: EDX of MPP

Element	0 day	Ist day	7th days	14th days	21st days	28th days
Carbon	0	0.29	0	3.74	2.45	0.21
Oxygen	9.73	16.14	17.27	21.38	23.91	18.15
Fluoride	0	1.13	0.84	0.65	0	0
Sodium	0	0.09	0.16	8.77	1.85	0.42
Aluminium	0	0.06	0.03	0.26	0	0
Chloride	0	0.16	0.11	7.09	0	0
Potassium	0	0.14	0	2.64	0	0
Calcium	0	0.18	0	0.21	0	0
Nitrogen	0	0	0	0	0	0.84
Magnesium	0	0	0	0	0	0.03
Titanium	90.27	81.77	81.37	54.16	71.79	79.27

DISCUSSION

In this study two types (locally manufactured and imported from Germany) of commercially pure titanium mini plates were compared. Energy dispersive X-ray (EDX) analysis was used to identify compositional variations of the MPP and MPG surfaces. SEM analysis indicated no perceptible difference in the surface characteristics of the MPP and MPG at all time intervals. Matthew et al analyzed surface topography of titanium mini plates and screws and found out no considerable changes on EDX analysis up to 24 weeks after implantation.[9]

The difference in surface characteristics of bone plates may also be result of the manufacturing process. The craters, pits, surface cracks and depressions probably arise during production of the sheets from which the miniplates are cut. The fine scratches on the surfaces of all miniplates probably occurred during final polish.

At X1500 magnification small number of surface irregularities and score marks were visible on the surfaces of MPP and MPG before conditioning. The MPG surface showed on EDX analysis the more quantity of oxygen, which means it, contained large quantity of titanium oxide which makes it more resistant to corrosion.

SEM examination after 24 hours of conditioning (immersion in mSBF at 37^{O}C) showed an organic growth on MPP which was mainly composed of carbon and oxygen with trace amount of sodium, fluoride and Chloride. While MPG revealed no such growth however oxygen concentration decreases from 22% (unconditioned) to 17% after 24 hours examination by EDX analysis.

After 7 days of conditioning , the MPG surface analysis retained same level of oxygen (17%) and quantity of sodium and chloride ions was increased, while in case of MPP the oxygen concentration was same as that of MPG but sodium and chloride ions were present on surface in lesser quantity as compared to MPG.

The SEM examination of MPP after 14 days of conditioning revealed characteristic flower like appearance with increased oxygen and chloride concentration of 21% and 7% mainly, while MPG showed no chloride and oxygen amount was also less than MPP that is 15%.

After 21 days of conditioning there is more deposition of calcium, sodium and chloride ions on surface of MPG however oxygen quantity was reduced while in case of MPP oxygen concentration was increased and less deposition of sodium ions and revealed no signs of presence of calcium and chloride ions on surface.

EDX analysis after 28 days of conditioning of MPG showed oxygen of 18% and trace amount of sodium salt deposition only while MPP revealed deposition of diverse ions on its surface such as nitrogen and magnesium along with carbon and sodium however oxygen concentration was same as that of MPG. These results were comparable with study done by Balakrishnan et al .[10] He also examined deposition of same ions on surface of commercially pure titanium implants in simulated body fluid.

CONCLUSION

Surface topography analysis done by SEM in simulated body fluid environment at 37^{0}C and pH revealed almost similar changes in body fluid environment in vitro. The surface of MPG was anodized while no anodization was done on MPPs.

Recommendations: The conditioning of bones plates in other types of solutions such as artificial saliva is highly recommended.

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Organ Failure

Sequential Organ Failure Assessment (SOFA) Score as a Predictor of Outcome in Patients Admitted in a Medical ICU

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ABSTRACT

Objective: To assess the efficacy of Sequential Organ Failure Assessment score (SOFA) as a determinant of outcome in critically ill medical patients.

Study Design: Prospective observational cohort study

Place and Duration of Study: This study was conducted at Medical ICU of Civil Hospital Karachi from June 2014 to December 2014.

Materials and Methods: The study was conducted on 152 patients admitted in the Medical ICU. The SOFA score was calculated on admission and thereafter daily until ICU discharge or death. The primary outcome measure was ICU mortality. The initial SOFA score, the SOFA scores at 48 and 72 hours, the mean and highest SOFA scores and the trend of SOFA score during the initial 48 hours were correlated with mortality.

Results: The overall ICU mortality rate was 35.5 % (n=54). Patients with an initial SOFA score of ≤ 9 had a mortality rate of 28.9%, while patients with an initial SOFA score of ≥ 10 had a mortality rate of 88.2 %. The SOFA scores at 48 and 72 hours also showed significant association with mortality. The mortality rates of patients having a score of ≤9 at 48 and 72 hours were 25.6% and 20% respectively while the mortality rates of those with a score of ≥10 at 48 and 72 hours were 91.3% and 93.8% respectively. A sharp rise in mortality was seen when the Highest SOFA score during the entire ICU stay exceeded 7. Patients having a mean SOFA score of greater than 5 had a mortality rate of 66.7% regardless of length of stay. Univariate Logistic Regression Analysis revealed that the Highest SOFA score had closest correlation with mortality followed by Mean SOFA score, SOFA at 48hours, and SOFA at 72 hours. The biggest area under the receiver operating characteristic curve (AUROCC) was seen for the Highest SOFA score followed by SOFA at 72 hours, Mean SOFA score and SOFA at 48hours. Analysis of the changes in SOFA score during the first 48 hours depicted a mortality rate of 54.9% when the score increased, 27.6% when the score decreased and 23.3% when it did not change.

Conclusion: The serial evaluation of SOFA score proved to be a convenient and efficient tool to predict mortality in the critically ill ICU patients.

Key Words: SOFA score, ICU mortality, Outcome

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INTRODUCTION

While managing critically ill patients, the clinician's decisions are frequently based upon the predicted outcome of the patient. Outcome prediction is also utilized to perform clinical studies and to assess ICU performance.[1] Such information can also be useful to counsel the patients' relatives. For this reason several scoring systems have been developed to assess the severity of illness in critically ill patients. Some of the commonly employed scoring systems are Acute Physiology and Chronic Health Evaluation (APACHE II & III),[2] Multiple Organ Dysfunction Score (MODS),[3] Simplified Acute Physiology Score (SAPS II),[4] Mortality Prediction Model (MPM)[5] and Sequential Organ Failure Assessment Score (SOFA).[6]

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The *Sepsis-related Organ Failure Assessment score* (SOFA) was originally devised in 1994 to describe the degree of organ dysfunction associated with sepsis by the European Society of Intensive Care Medicine.[6] However later studies demonstrated comparable efficacy of this scoring system in non-septic patients as well. Hence the acronym "SOFA" was changed to *Sequential Organ Failure Assessment Score*.[7] The SOFA score is calculated by assessing the function of six organ systems, namely the cardiovascular, respiratory, hepatic, renal, coagulation and the central nervous system. Each system is assigned a score from 0 (normal) to 4 (most abnormal). Thus a patient can have a total score ranging from 0 to 24. The SOFA score is calculated upon admission to the hospital and thereafter daily until discharge or death. Although SOFA was originally not designed to predict outcome, several studies have demonstrated a clear relationship between

organ dysfunction and mortality.[8] Hence the SOFA score was also validated to predict mortality in critically ill patients.[9-13]

A lot of research has been done internationally on the efficacy of SOFA scoring system but very scarce data has been reported on this subject from Pakistan. The aim of this study was to validate the efficacy of SOFA scoring system in our population and to compare the results with internationally published data.

MATERIALS AND METHODS

This was a prospective observational study conducted in the Medical ICU at Civil Hospital Karachi from June 2014 to December 2014. We included all the patients admitted in the Medical ICU during the study period. Patients who were admitted in the ICU for less than 24 hours and those who were transferred from other hospitals were excluded. The SOFA score was calculated for each patient on admission and then daily until discharge from ICU or death. For sedated or intubated patients the assumed GCS value was taken as judged by the clinician. Out of the total 9162 values 49 were missing. These missing values were replaced by the mean of the preceding and subsequent values.

The Mean SOFA score was calculated by dividing the total score of all ICU days by the duration of stay. The change in SOFA score in the first 48 hours (Delta SOFA 48) and the Highest SOFA score during the entire ICU stay were also noted. The primary outcome measure was the survival status after 28 days of ICU admission. Based on their survival status the patients were divided into two categories; survivors and non-survivors. All the data was recorded on a pre-designed proforma by the primary investigators with the help of post-graduate students.

Statistical analysis was performed through SPSS version 16.0 and a *p* value <0.05 was considered statistically significant. For various SOFA parameters the odds ratio with 95% confidence interval was calculated using univariate logistic regression model with ICU outcome as the dependent variable. The chi-squared test was used to evaluate the statistical significance of categorical variables. The results are presented as mean (SD). The area under the receiver operating characteristic curve (AUROCC) was calculated for the different SOFA variables to evaluate their efficacy to predict mortality.[14]

RESULTS

Table 1 shows the calculation of SOFA score. The demographic characteristics of the study population are summarized in Table 2. The study included 152 patients with a mean age of 38 ±16.36 years. There were 86 male and 66 female patients. The overall mortality was 35.5% (n=54) and the mean ICU stay was 10.75 days (range 1-97).

Figure 1 shows the correlation between the mortality rate and the various SOFA derivatives. The initial SOFA score was significantly related to the survival status (Figure 1A). Patients with an initial SOFA score of ≤ 9 had mortality rate of 28.9%, while patients with an initial SOFA score of ≥ 10 had mortality rate of 88.2 %. The SOFA scores at 48 and 72 hours of admission correlated almost identically with mortality (Figure 1B & 1C). At 48 hours of admission, patients with a SOFA score of ≤ 9 had mortality rate of 25.6%, while patients with a score of ≥ 10 had mortality rate of 91.3%. At 72 hours of admission, patients with a SOFA score of ≤ 9 had mortality rate of 20%, while patients with a score of ≥ 10 had mortality rate of 93.8 %. The mortality association of Highest and Mean SOFA score was also analyzed. A sharp rise in mortality can be seen when the Highest SOFA score exceeded 7 (Figure 1D). A mean SOFA score of >5 correlated with a mortality rate of 66.7% (Figure 1E). The mortality association of change in SOFA score during the initial 48 hours showed that the mortality rate was 54.9% when the score increased, 27.6% when the score decreased and 23.3% when it did not change (Figure 1F).

Table No.1: Sequential Organ Failure Assessment (SOFA) score calculator.

SOFA score	0	1	2	3	4
Respiration PaO_2/FIO_2 SaO_2/FIO_2	>400	<400 221–301	<300 142–220	<200 67–141	<100 <67
Coagulation Platelet count $10^3/mm^3$	>150	<150	<100	<50	<20
Liver Bilirubin (mg/dL)	<1.2	1.2–1.9	2.0–5.9	6.0–11.9	>12.0
Cardiovascular[b] Hypotension	No hypotension	MAP <70	Dopamine ≤5 or dobutamine (any dose)	Dopamine >5 or norepinephrine≤0.1	Dopamine >15 or norepinephrine>0.1
CNS Glasgow Coma Score	15	13–14	10–12	6–9	<6
Renal Creatinine (mg/dL) or urine output (mL/d)	<1.2	1.2–1.9	2.0–3.4	3.5–4.9 or Urine output<500	>5.0 or Urine output<200

MAP, mean arterial pressure; CNS, central nervous system; PaO_2, partial pressure of oxygen; FIO_2, fraction of inspired oxygen; SaO_2, peripheral arterial oxygen saturation. [a]PaO_2/FIO_2 ratio was used preferentially. If not available, the SaO_2/FIO_2 ratio was used; [b]vasoactive mediations administered for at least 1 hr (dopamine and norepinephrine dose in ug/kg/min).

Table 3 lists the results of Univariate Logistic Regression Analysis, with ICU death as the outcome variable of interest. The Highest SOFA score was found to correlate most closely with mortality followed by Mean SOFA score, SOFA at 48hours, and SOFA at 72 hours. The trend of SOFA score in the first 48 hours and initial SOFA score also correlated significantly but to a lesser extent. The Length of Stay in ICU did not significantly affect mortality.

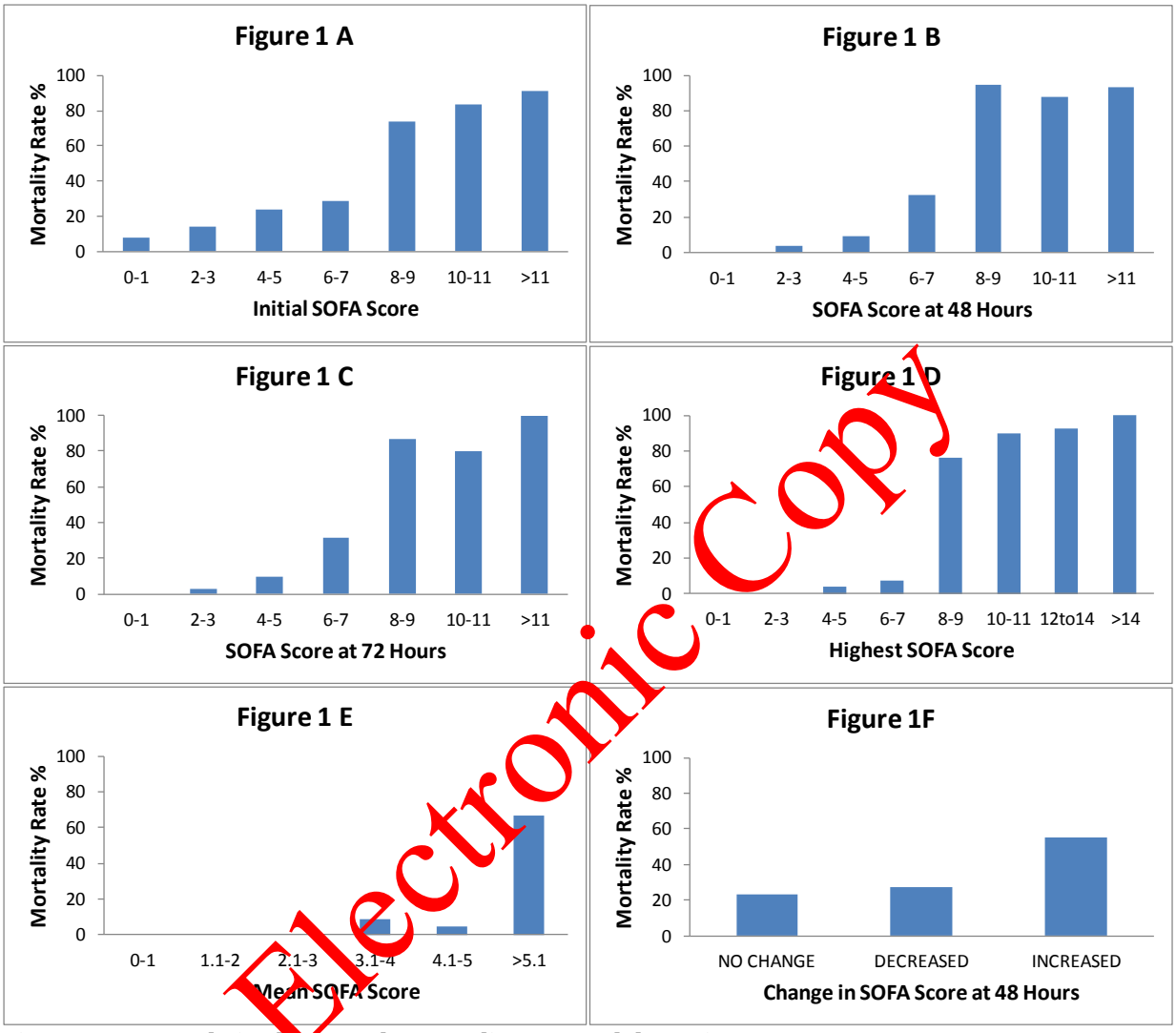

Figure No.1. Correlation between the Mortality Rate and the various SOFA scores

Table No.2. Demographics of the study population

Characteristics	Values
Total No. of patients	152
Gender	
Males	86 (56.6%)
Females	66 (43.4%)
Age (years)	
Mean(SD)	38 (16.36)
Range	18-75
Length of stay in ICU (days)	
Mean	10.57
Median	7.00
Range	1-97
No. of Deaths	54 (35.5%)

The discriminative power of the various SOFA derivatives was further analyzed by the area under receiver operating characteristic curve (AUROCC) (Figure 2). The AUROCC was largest for the Highest SOFA score (0.960, SE 0.016) followed by SOFA at 72 hours (0.950, SE 0.019), Mean SOFA score (0.946, SE 0.018) and SOFA at 48hours (0.927, SE 0.023).Finally a comparison of initial SOFA score and SOFA score at 48 and 72 hours among the survivors and non survivors was done using student t-test (Table 4). Non-survivors had significantly higher SOFA scores both initially and at 48 and 72 hours of admission when compared to survivors ($p<0.05$).

Finally a comparison of initial SOFA score and SOFA score at 48 and 72 hours among the survivors and non survivors was done using student t-test. Non-survivors

had significantly higher SOFA scores both initially and at 48 and 72 hours of admission when compared to survivors (p<0.05, Table 4).

Table No.3: Univariate Logistic Regression Analysis

Variables	Coefficient Mean (SE)	Odds Ratio	95% CI	p Value
Highest SOFA Score	0.961 (0.173)	2.615	1.864-3.669	<0.001
Mean SOFA Score	0.924 (0.154)	2.519	1.864-3.405	<0.001
SOFA Score at 48 hrs	0.842 (0.144)	2.322	1.751-3.079	<0.001
SOFA Score at 72 hrs	0.782 (0.126)	2.185	1.707-2.798	<0.001
Delta SOFA 48	0.453 (0.106)	1.572	1.277-1.935	<0.001
Initial SOFA Score	0.411 (0.079)	1.509	1.292-1.762	<0.001
Length of Stay in ICU	0.003 (0.011)	1.003	0.982-1.025	0.776

Table No.4: Comparison of Initial SOFA score, SOFA score at 48 hours and SOFA score at 72 hours among survivors and non-survivors

Characteristics	Survivors	Non-survivors
Initial SOFA score, Mean (SD)	4.49 (2.37)	8.13 (3.74)*
SOFA Score at 48 hrs, Mean (SD)	4.12 (2.25)	9.37 (3.18)*
SOFA Score at 72 hrs, Mean (SD)	3.52 (2.18)	10.67 (3.60)*

*p<0.05 compared to survivors (Student t-test)

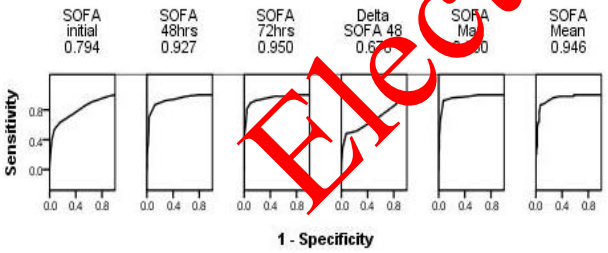

Figure No.2. AUROCC for various SOFA scores

DISCUSSION

The findings of this study confirm that worsening organ dysfunction, as assessed by the serial evaluation of SOFA score, is closely related to ICU mortality. The SOFA score on admission provides an initial guide towards the prognosis while serial evaluation of SOFA score on daily basis can be used to assess patient's progress and response to treatment and help the physician to decide further management.

In our study the initial SOFA score as well as the scores at 48 and 72 hours of admission, and the trend of SOFA score in the first 48 hours correlated significantly with mortality. Similar findings were reported by Moreno et al[15] in their prospective multicenter study. Other researchers have reported that mortality prediction of the initial SOFA score quantified by the AUROCC, ranged between 0.67 and 0.82.[9, 16, 17] Our study showed a similar predictive value of the initial SOFA score with an AUROCC of 0.794 (SE 0.040).

In a prospective study of 352 patients, Ferreira FL et al[9] reported that when the SOFA score increased during the first 48 hours of admission the mortality rate was at least 50%, while decreasing score predicted a mortality rate of only 27%. Another study by Russell JA et al [18] showed similar results. Our study also depicted a higher mortality in patients whose SOFA score increased during the initial 48 hours. Researchers have shown that organ failure can occur quite early in the ICU patients.[19] Hence a worsening SOFA score in the initial 48 hours can help to detect organ failure early and aid in crucial decision making.[20]

For patients who survive the initial phase of ICU stay the highest and mean SOFA scores can provide further insight into the possible outcome. In a prospective analysis of 1,449 patients Vincent JL and colleagues[7] reported a mortality rate of 90% in patients with a maximum SOFA scores greater than 15. Similarly in our study the highest SOFA score during the ICU stay correlated most closely with mortality and presented the largest AUROCC. In another study Cabrè and colleagues[8] reported that in patients above 60 years of age, a maximum SOFA score more than 13 and a rising or unchanged SOFA score during the first 5 days of admission was associated with 100% mortality.

The performance of SOFA scoring system has also been compared with various other organ failure scores.[21, 22, 23, 24] In a retrospective study of 110 patients Su-Jung Chen et al[21] concluded that SOFA and APACHE II scores have comparable efficacy as predictors of mortality. In another study Halim DA et al[22] reported that SOFA and Modified SOFA scoring system performed better than APACHE II to predict ICU mortality.

The results of our study confirm that SOFA scoring system is an effective and reliable tool to predict outcome of ICU patients. Since ICU is a dynamic medical environment where patients' condition can change rapidly in either direction, SOFA scoring system may be a better prognostic tool as compared to other commonly used scoring systems such as APACHE II, SAPSII and MPM which utilize the parameters recorded within the first 24 hours of ICU admission to predict outcome. As critical care is a costly business, the implementation of such scoring system in the resource constrained ICUs of the developing countries may help to allocate their limited resources to those patients who have a better predicted outcome.[25]

CONCLUSION

Serial evaluation of the SOFA score is a convenient and effective indicator of the prognosis of critically ill

patients as depicted by internationally published data. The current study aptly proves its efficacy in our population as well but larger multicenter studies are recommended locally to further emphasize its effectiveness and its implementation.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

OTC Medicines

Assess the Attitude and Practices of Pharmacists regarding Selling of Various Over-the-Counter Medicines in Mirpurkhas District

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ABSTRACT

Objective: This study was done to see the pharmacist practices in rural areas where no account is taken for doses, side effects and administration of OTCs. This study provides evidence of mishaps being done with poor and uneducated population of remote areas regarding unsafe practices of non-prescription medicines, and to assess the knowledge of pharmacists regarding the indications, contraindications, doses and side effects of various over-the-counter medicines in District Mirpurkhas.

Study Design: An analytical cross-sectional study

Place and Duration of Study: This study was conducted in District Mirpurkhas from June 2011 to July 2012.

Materials and Methods: This study was carried out to collect data on pre-structured self-administer questionnaire asking questions regarding demographic variables, qualifications/ experience of pharmacists in the field, license of pharmacists, knowledge of pharmacists regarding indications, contraindications, side effects, doses, route of administration of various OTC medicines.

Result: The current study was undertaken in district Mirpurkhas 97 pharmacies/medical stores/ general stores/ super stores where chosen randomly. The person who used to sell medicine there was asked to fill the questionnaire. Beyond this point this study will use term pharmacist for all the respondents who used to sell medicine and consented for this study. The mean age of respondent was 34.93%, their attitude and type of qualification of seller as well as type of shop and availability of license and their experience of selling the medicine.

Conclusion: Pharmacist in district Mirpurkhas are less knowledgeable regarding the indications, contraindication, side effects, doses and routes of administrations of OTC medicines. They neither take care while selling these OTC medicines to addiction patients nor advise the safety measures to their customers.

Key Words: Practices of Pharmacists, Counter Medicines, Attitude, Mirpurkhas District

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INTRODUCTION

Over the counter medicine or non-prescription medicine are defined as drugs that are safe and effective for use by the general public without seeking treatment by a health professional

These are called so because these are sold over the counter, which means they are sold directly to the consumers/ patients without a prescription from a doctor as compared to prescription drugs, which may be sold only to consumers possessing a valid prescription.[3].93% of American adults desire to treat their negligible illnesses with OTC medicines before looking for health care. 85% of U.S. parents choose to treat their children's slight complaints with an OTC medicine before going to health professionals.[4] The Substance Abuse and Mental Health Services Administration's (SAMHSA) National Survey on Drug Use and Health [2] exposed that more than 2 million teenagers misused OTC & prescription drugs in 2005[5]. In the United States, the Food and Drug Administration decides whether a medicine is safe enough to sell over-the-counter[6]. In Pakistan currently there is no such effective institution working which could decide and monitor this issue. Because after the enactment of the 18th Amendment the issue of regulating manufacturing, licensing, registration and sale of drugs remained suspended Prior to that the Drugs Control Authority was monitoring all the issues of pharma industry[8]. There is much communal and professional distress about the illogical use of drugs.[2] The frequency proportions are great all over the world; up to 68% in European countries, while much higher in the developing countries[3] with rates going as high as 92% in the youths of Kuwait.[4] Our neighboring countries have prevalence rates of 31% in India and 59% in Nepal.[3] Very few studies regarding self- medication have been conducted in Pakistan which have also

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confirmed high rates of prevalence of around 51%.[6] It is also shocking that the occurrence rates are on the increase in spite of struggles to limit this problem.[5] Various earlier studies have revealed that self-medication observes are more common in women and in those; who live alone, low privilege status, have more chronic ailments, have psychiatric conditions, are of younger age and in students.[3,8,9]

Pakistan has one of the poorest safety records when it comes to pharmaceuticals. Several charges of indecent doings by the pharmaceutical companies surface each year but they all strangely vanish after a period. The government of Pakistan does not officially sustain any facts concerning unjust deaths and serious damages that rise in the general public due to the intake of doubtful medicine. This is not due to deficiency of equipment for data collection, but a conscious and suitable plan to not deal with the problem at all.[5,6]

The statistics of drug inspectors, drug controllers who efficiently lookout or observer thousands of retail chemist shops are inadequate and hence small towns and rural areas are unnoticed. Abuse recommendation of medicine and OTC drugs can often lead to psychological and physical dependence. People use greater than before amounts of drugs to confirm a sense of wellbeing while treating dissimilar illnesses or health problems, or for non-medical purposes. Many medications contain alcohol and narcotics such as codeine, which can be addictive and life-threatening. There is a lengthy list of side effects and health concerns.[11]

In Pakistan, nearly every pharmacy sells drugs without a instruction; a occurrence seen in many developing countries. Consequently, antibiotics and potentially habit forming medicines are easily available to the common man. This together with poor awareness leaves the layman uninformed about the potentially fatal properties of some of these drugs.[5] Also, the lack of a good primary health care system together with cost matters causes the general public to attitude various other doors instead of a doctor's to seek help for a problem. In Pakistan there is practically no difference between recommendation of drug and OTC products. The nonmedical use of drug drugs in the past month among young adults aged 18 to 25 increased from 5.4% in 2002 to 6.3% in 2005, primarily because of an increase in the abusive use of pain relievers.[13]

Patients in drug-addiction recovery may be even more vigilant than the physician. They are acutely aware of the significances of decline and do not want to experience the problems of addiction again. For that reason, some people in retrieval may for go opioid medications even in the phase of severe trauma.[12]

MATERIALS AND METHODS

A Descriptive cross sectional study was carried out in the District of Mirpurkhas during a period of one Year.

Sample size: Taking the prevalence of knowledge of pharmacists at 50% in Pakistan, level of significance 90%, margin of error 10%, and using single proportion formula the sample size calculated is 96.4, rounded off to 97.

Sampling technique: Simple Random Sampling.

Sample selection: A list of pharmacies/ medical stores and general stores where OTC medicines are sold was obtained from the Drug Inspector's office of District Mirpurkhas. Pharmacists/ Sellers of medicine of randomly selected pharmacies were approached by researcher himself.

Inclusion criteria:

- Pharmacy or a General store where only prescription medicine are sold over the counter.
- A person who is selling the over the counter medicine in his shop.

Exclusion criteria:

- Pharmacy or a General store where nonprescription medicine are sold over the counter.
- Unwilling to participate in the study.

Data Collection Procedure: Data were collected on pre-structured, self-administer questionnaire asking questions regarding demographic variables, qualifications/ experience of pharmacists in the field, license of pharmacists, knowledge of pharmacists regarding indications, contraindications, side effects, doses, route of administration of various OTC medicines. Attitude of pharmacists towards the patient or the buyer type of different OTC groups, average number of buyers of OTC were asked. Age, gender of the patient or the buyer whom pharmacists sell medicine, prescription, commonly asked OTC medicines, queries of the patient or the buyer & instructions given by pharmacists were asked.

Data Analysis Procedure: After entering the data in SPSS version 16, descriptive statistics like mean, median, were calculated for numerical variables. Results were displayed in frequency tables, bar graphs, pie charts etc.

Ethical Consideration: Study was started after approval from Baqai Institute of Health Sciences, Baqai Medical University. An informed consent was taken from the participants.

RESULTS

The current study was undertaken in district Mirpurkhas. 97 pharmacies/ medical stores/ general stores/ super stores where chosen randomly. The person who used to sell medicine there was asked to fill the questionnaire. Beyond this point this study will use term pharmacist for all the respondents who used to sell medicine and consented for this study.

A. General characteristics of the respondents:

i. Age of respondent

Table: 1. Descriptive Statistics

n=97	Minimum	Maximum	Mean	Std. Deviation
Age of respondent (Years)	18	55	34.93	12.07

Table No.2: Age categories of respondents

Age categories	Frequency	Percent
Below 20 Years	10	10.3
21- 40 Years	49	50.5
41 and above	38	39.2
Total	97	100

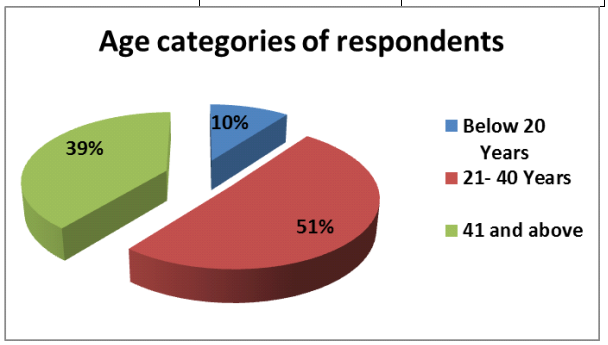

Figure No.1: Age categories of respondent

ii Qualification of respondent

Table No. 3: Qualification of respondent

Qualification	Frequency	Percent
B. Pharm	4	4.1
B. Sc.	6	6.2
Intermediate	17	17.5
Matriculation	41	42.3
Primary	21	21.6
None	8	8.2
Total	97	100

Type of shop of selling OTC medicine

Table No.4: Type of shop

	Frequency	Percent
Pharmacy	4	4.1
Medical Store	51	52.6
General Store	30	30.9
Super store	2	2.1
Other	10	10.3
Total	97	100.0

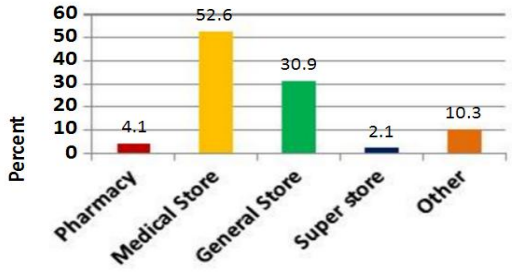

Figure No.2: Type of shop

iv . Availability of License

Table No.5: Availability of License

License	Frequency	Percent
Yes	47	48.5
No	50	51.5
Total	97	100

V. Experience of selling medicine

Table No. 6. Work experience of pharmacist

Working as pharmacist since	Frequency	Percent
Upto 10 years	53	54.6
11 to 20 years	35	36.1
21 to 30 years	9	9.3
Total	97	100.0

B. Knowledge of regarding the indications, contraindications, doses and side effects of various over-the-counter medicines:

Table: 7. Knowledge of generic names, trade names, different indications and contraindication of OTC medicine

n=97		Frequency	Percent
Knowing the difference of generic and trade name	Yes	72	74.2
	No	25	25.8
Knowing different trade names of OTC medicine	Yes	62	63.9
	No	35	36.1
Knowing the indications of different OTC medicine)	Yes	50	51.5
	No	47	48.5
Contraindication	Yes	51	52.6
	No	46	47.4

Table No. 8. Knowledge of doses, side effects and potential addiction of OTC medicine

n=97		Frequency	Percent
Knowing doses of medicines in children <2 years of age	Yes	31	32.0
	No	66	68.0
Side effects	Yes	34	35.1
	No	63	64.9
medicine which you think pts can become addict	Yes	60	61.9
	No	37	38.1

DISCUSSION

In response to demands for more consumer choice and reduced health care costs, there has been a movement worldwide to make prescription drugs available as over-the-counter (OTC) products.[2,4] .The availability of drugs on an over-the-counter basis, including those previously available only by prescription, provides patients with improved access to effective therapies. In Pakistan there is practically no distinction between prescription and OTC products.[5] Pakistan has been impressing upon the MOH that like in UK, USA and other developed countries or even in any developing country separate lists of OTC products and prescription products should be maintained. Under our Drug Act all drugs are meant to be prescribed. [5,6] But, unfortunately,

it is not taken into account by these authorities despite of cry. The law is there. But no one to enforces it. Anyone can just go to a chemist shop and buy whatever medicine he wants; and the chemist would not say no, because there is no check.[5]

Many studies conducted on the subject of OTC drugs have examined the users' understanding of the cause of symptoms and of indications for using the drug but saw the knowledge, attitude and practice of those who are selling this OTC medicine to the consumers.[5,6,17,20,23] To the best of our knowledge this is first study at local level to understand pharmacist perspectives regarding OTC medicine

It was seen that in district Mirpurkhas there is lack of proper lawful selling of over the counter medicines. We counted all the shops where medicine was sold as a pharmacy in order to understand the actual situation of pharmacy practices which was aim of this study. More than half of pharmacies did not have a license of selling medicine. Among these 44% were general stores, super stores and other shops. It was also important to note that even at some medical stores the license of selling the medicine was not available. For getting a license to sell medicine or run a pharmacy one must be qualified and have at least an education till intermediate. In this study it was observed that only 28% people had a educational level of intermediate or above. While the rest of 72% people who used sell OTC medicine in district Mirpurkhas had education till matriculation or below matriculation. . At these shops the owner had hired the license from someone else that had a diploma in pharmacy and was licensed to sell medicine. Simultaneously it was interesting to note that about 8% of the respondent, who were selling OTC medicine, were completely illiterate

Further it was also seen that the knowledge of these pharmacist was not sufficient regarding the generic names, trade name, indication, contraindications and side effects of OTC medicine. Twenty five percent of pharmacists could not differentiate between the generic and trade names of OTC medicine. Nearly one third of the respondent pharmacist could tell us at least three different names of similar generic name OTC medicine. About 1/3 could answer the side effects of selected OTC medicine while only two thirds had knowledge about OTC medicine to which one can become addict like Avil, Diazepam and codeine etc.[22-25]

Thus it is great public health issue in our society and must be taken care of because due to the difficulty in accessing health care services, self-medication is often the simplest option for the patient. Upon stratified analysis it was observed that age was significantly associated with knowledge about generic/ trade names of OTC medicine (P value <.0001), their indications (P value 0.005) and side effects (P value =0.035).

The role of district drug inspector in prevention of irrational and unlawful selling of OTC medicine is of critical importance.

This study has some limitations. Firstly due to time and financial limited resources small number of pharmacist were selected. Secondly if the perspective of consumers could be recorded that it would have increased the internal validity of this study. Still the study has identified many weaknesses of the pharmacy sell system in the studied area. The study also had identified areas of further research among which most important is consumer perspective.

CONCLUSION

Pharmacist in district Mirpurkhas are less knowledgeable regarding the indications, contraindication, side effects, doses and routes of administrations of OTC medicines. They neither take care while selling these OTC medicines to addiction patients nor advise the safety measures to their customers. Pharmacists, being active members of the healthcare team can play an important role in providing patients proper OTC medicine and counseling so as to improve patient compliance and hence the therapeutic outcome and quality of life. It also helps in many ways to improve the quality of healthcare system with better patient care and therapeutic outcomes. There is need to increase and tighten the monitoring and vigilance mechanism of these medicines in order to impose the safe pharmacy practices and to prevent any kind of misconduct.

Recommendations:

- Rules should be revisited and amended by the policy makers in order to stop the unlawful selling of any kind of medicine in Pakistan
- Strict monitoring by the drug inspectors of the area should be implemented by doing regular as well as secret and sudden visits of pharmacies
- OTC medicine should be sold only on medical stores and pharmacies
- Only qualified persons should have the license and authority to sell these medicine
- No unqualified person should be allowed to open a pharmacy or medical store
- Underage selling and purchase of OTC medicine should also be banned
- Pharmacist should inform the law & order system about the addict person who tries to purchase these OTC medicines
- Prescription only medicine should not be sold as OTC medicine at any cost
- Heavy fines and punishment should be imposed on those who do not abide by the rules

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

ECT

The Indications of Electroconvulsive Therapy in Pakistan

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ABSTRACT

Objective: To determine the indications and contraindications of electroconvulsive therapy (ECT) among psychiatrist working in Pakistan.
Study Design: Cross-Sectional Study.
Place and Duration of Study: This study was conducted at the Department of Psychology DOW International Medical College, Karachi, from May 2013 to May 2014.
Materials and Methods: A semi structured questionnaire was mailed to Psychiatrist through emails, the questionnaire consisted of questions and the participants were required to choose one out of five responses of each question. It measured the issues that were pertinent to our use of ECT covered aspects of its use in its indications and contraindications and frequency of use. It has been used as second line treatment option in majority of cases. It has been used with success in mood and psychotic disorders.
Results: The use of ECT was frequent total of 75% patients and majority showed improvement in their clinical condition Its practice must comply with pre anesthetic assessment to prevent any post ECT complications. There is no absolute contraindication but risk factors like raised intracranial pressure.
Conclusions: ECT is an effective non pharmacologic biological treatment and predominantly for depression, but also for schizophrenia. The practice of ECT is frequent in our country.
Key Words: Electroconvulsive Therapy, Mood Disorders, Schizophrenia

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INTRODUCTION

There has been different studies, internationally, based on surveys conducted to know the patterns of ECT use by psychiatrists in their practice. To our knowledge research on this issue has not been conducted on this issue in our country. This study conducted highlighted the indications and contraindications of ECT in practice in our country.

The use of ECT has been introduced by Carletti and Bini in 20th century. ECT treatment consists in passing a small amount of electric current between electrodes placed on the temples. The current is of such strength that a major convulsion ensues[1]. This sounds much more alarming than it is. And while to throw a patient into convulsions is an extraordinary form of treatment, it can also be a safe and effective[2]. But its use for treatment of Psychiatric disorders has still been controversial. Studies have shown Safe use of ECT in adults and in older ages[3] . The American Academy of Child and Adolescent Psychiatry has published parameters for use of ECT in adolescent populations[4]. Research has documented effective use of ECT in mood and psychotic disorders, catatonia, and intractable seizures[5]. ECT has been found to be safe and effective in severe life threatening depressive disorders as a first-line treatment and a second line treatment for patients with major depressive disorder who do not respond or respond incompletely to antidepressant drugs[6].

Apart from the principle of not to be given in conditions not suggested as indications only few contra-indications of ECT[7] .A few physical contraindications are hypertension, old coronary thromboses, healed or active tuberculosis, peptic ulceration, malignant disease, advanced Parkinsonism, disseminated sclerosis[8]. Psychological contraindications are hysteria with no depression and personality disorders

Despite such debate, ECT is being used in all over world including the United States and endorsed by the professional associations in America[9], Austria, Canada, Australia, Denmark, Netherlands, Germany, and India have guidelines for its use[10,11]

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MATERIALS AND METHODS

It an internet email based questionnaire survey. A semi structured questionnaire was mailed to Psychiatrist through emails address found in directory of Pakistan Psychiatric Association. Inclusion criteria: total 230 qualified and practicing psychiatrists were included belonging to both genders. Those who refused to participate or in study or were not qualified in psychiatry were excluded from study. Non practicing Psychiatrist were also excluded from the study. The demographic variables like age, gender, city of

residence, working place and clinical experience of the participants were also recorded by using a proforma designed for the purpose The questionnaire consisted of questions and the participants were required to choose one out of five responses of each question. It measured the issues that were pertinent to our use of ECT covered aspects of its use in its indications and contraindications and frequency of use. To facilitate the responders, the questionnaire was sent online (by e-mail) to psychiatrists all over the country. Ethical consideration was done. Anonymity and confidentiality was maintained.

The response was the assessed and analysis was done through SPSS version 17.

RESULTS

Those not responding and incomplete response were not included for analysis. Total responses (n= 122)

Both genders responded with major responses from male Psychiatrist.

ECT was used as first line treatment option by only (n=22) 18.2% of the psychiatrist while (n=54) 44.3% used it as second line option while (n=46) 37.5%.use as last remedy. The table 1 shows the pattern of use of CECT in clinical practice by those responded.

The table 2 shows the indications and contraindications of pattern of use of ECT.

Table No.1: The use of ECT in clinical Practice

The use of ECT in clinical Practice?	N= 122
a) Rarely	36 (29 %)
b) Less frequently	52 (43 %)
c) Frequently	23 (19 %)
d) Very frequently	11 (09 %)

Table No.2: Indications and Contraindications in use of ECT(n=122)

Common Indications to use ECT	N	%age
Depression	84	65.4
Mania	14	13.2
Post-Partum	5	5.9
Schizophrenia	14	11.8
Other Indications	5	3.7
Contraindications (N=63)	**63**	**100%**
None	10	16.2
Epilepsy	4	6.1
Intracranial pathology	32	50.5
Fractures	6	10.0
Pregnancy	11	17.2

DISCUSSION

Electroconvulsive therapy (ECT) is well established as a safe and effective treatment for several psychiatric disorders. Responsiveness to ECT does not decrease with age, as indicated that the use of ECT in the treatment of psychiatric disorders. On average eight s ECT was administered per patient.(range, 1-16)[12]. This is similar to findings of study conducted in Asian countries where 7 was mean number of ECT given. It was frequent practice in more than 2/3rd of psychiatrist[13]. The use of ECT was frequent total of 75% patients and majority showed improvement in their clinical condition[14].

Extent of use of ECT was limited as first line treatment option by only (n=22) 18.2% of the psychiatrist while (n=54) 44.3% used it as second line option and (n=46) 37.5%.use as last remedy. It is similar to the survey conducted in USA in different time periods[15].

In our study depression was the main indication which is found to be similar to a study conducted in a tertiary care hospital of Pakistan.15 and studies conducted in Asian as well as western countries. But other surveys including one conducted in New Zealand and North west England findings showed the most common indication was Schizophrenia[16,17]

Contra indications were similar to those found in other studies with Intracranial pathology in 50% and pregnancy to follow There are no absolute contraindications for ECT. In fact, ECT is often used in patients suffering from medical illness due to its rapid therapeutic onset and relative safety[18]. All patients should undergo thorough pre-ECT. A dental assessment is indicated due to stimulation of jaw musculature by ECT. While not required in all patients, brain imaging studies may be indicated in patients with a sudden, change in their mental status, or who have notable cardiovascular or cerebrovascular risk factors[19].There was no absolute contraindications for applying ECT similar to findings of APA guidelines except for anesthesia contraindications[20].

CONCLUSION

ECT is an effective non pharmacologic biological treatment and predominantly for depression, but also for schizophrenia. The practice of ECT is used frequently in our country.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Hernioplasty

Incidence of Wound Infection Following Inguinal Hernia Tension Free Mesh Repair (Hernioplasty) without Antibiotics

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ABSTRACT

Objective: To see the wound infection incidence post hernioplasty without the use of antibiotics.
Study Design: Observational / Cross-sectional study
Place and Duration of Study: This study was conducted Surgical Unit III, V and VI, Civil Hospital Karachi from January 2006 to December 2013.
Materials and Methods: There were a total of 250 patients. There were no use of antibiotics after hernioplasty. Patients under eighteen years, recurrent hernias, immunosuppressive diseases (like diabetes mellitus), or already on antibiotic were excluded from the study.
Results: Incidence of wound infection was 3.6%, which were then treated conservatively. No mortality observed.
Conclusion: The incidence of post operative wound infection following inguinal hernioplasty without antibiotic use was 3.6%.
Key Words: Inguinal Hernia, Inguinal Hernioplasty, Complications, Infection, Incidence, Antibiotics.

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INTRODUCTION

Hernia is a condition in which part of the viscous bulges through a normal or abnormal openings of the body. An inguinal hernia occurs in the groin (the area between the abdomen and thigh). It is called "inguinal" because the intestines or omentum push through a weak spot in the inguinal canal. Hernia has both economical and medical importance, as it decreases the 6productivity by causing pain, limiting mobility and sometimes simple and strangulated intestinal obstruction. the Inguinal hernioplasty is a clean surgery and benefits of antibiotic prophylaxis in clean surgery is still uncertain.[1] In Europe and America, about one million inguinal hernia repairs are performed in a year.[2-3] Most of the repairs are done by using various mesh techniques[3]. Lots of procedures and prosthetic material have been developed and used in order to reduce postoperative complications and recurrence[5]. Uscher used Marlex mesh (high-density polyethylene) are used for inguinal hernia repair.[6] In 1948 Koontz develop the Tantalum mesh.[4,7,8] Nylon mesh used for inguinal hernia repair by Giraud and colleagues in 1951.[9] In 1964 Lichtenstein introduced the tension free mesh repair of inguinal hernia.[10,11] Lichtenstein "open flat mesh repair" is the most frequently performed procedure all over the world.[11,12] Later in 1975 Stoppa use a tension free mesh repair by using prosthesis preperitoneal.[13] Both Lichtenstein and Stoppa, has change the surgical dynamics of inguinal hernia operations by using tension free mesh hernia repair. For the last 10 years mesh repairs for inguinal hernia repair becomes a substitute for traditional suture repairs.[5,7,8,9,11,13] Recurrence rates in Lichtenstein procedure was very low as compare with those of the Shouldice repair and other conventional procedures.[14,15] Hernial repair is a clean operation and rate of infection is supposed to be lower than 1%.[15] The chances of wound infection has been seen to be increased by the presence of mesh. The use of antibiotic is often recommended for the prevention of mesh infection.[16] The reported incidence of mesh infection is 1.9% to 7.5%.

The present study was conducted to see the incident rate of post-operative wound infection without the prophylactic use of antibiotics.

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MATERIALS AND METHODS

This study was conducted in Surgical Unit III, V and VI Civil Hospital Karachi from January 2006 to December 2013. A total of two hundred and fifty patients were included. In the surgical out patients department patients presenting with inguinal hernia were included. Patients less than 18 years, patients with bilateral,

recurrent, obstructed and strangulated hernias, diabetic patients, chronic hepatitis and who were on antibiotics and steroids were excluded from the study. The selected patients were admitted and went under detailed evaluation preoperatively. The following investigations were done preoperatively: complete blood picture, serum electrolytes, urea, creatinine, fasting and random blood sugar, hepititis B and C profile, X-ray chest, ECG, ECHO inpatients above 60 and who had cardiac history) were carried. In all cases hernioplasty by using a polypropylene mesh. Mesh placed at the posterior wall of the inguinal canal and fixed by 2/0 polypropylene sutures. All operations were performed by consultant surgeons. Ninety percent patients were discharged from the hospital on first post operative day after inspecting the wound. Follow up was done in surgical out patient department on 8th , 16th and 30th post operative day for wound inspection and physical examination On follow up wounds were examined carefully for sign and symptoms of infection like pain, redness around the wound, serous or purulent discharge etc. Patients were followed according to the National Nosocomial Infection Surveillance system (NNISS).[18,19]

RESULTS

All included patients in this study were male. Out of two hundred and fifty patients, one hundred and fourteen patients had right sided hernia and one hundred and thirty seven had left sided hernia. 80 patients had direct ingunial hernias and rest 170 patients had indirect inguinal hernias.

In this study incidence of post operative wound infection was 3.6% (nine patients). Three patients (1.2%) presented with wound infection, wound redness in two patients (0.8%), wound seroma was presented in two patients (0.8%), scrotal edema/haematoma one (0.4%) and One patient (0.4%) presented with residual post operative pain. Patients having infection were then treated with antibiotics and dressing. Drainage of pus was done in 3 patients and delayed primary closure was required. None of the patient required an entire mesh removal.

Table No.1: Age Distribution

Age (years)	Right Side	Infection RIH	Left Side	Infection LIH	Indirect	Direct	Total
21-30	21	0	25	0	44	2	46
31-40	19	1	29	0	45	3	48
41-50	21	2	19	2	30	10	40
51-60	32	0	38	2	30	40	70
>60	20	1	26	1	21	25	45
Total	113(53.2%)	4 (1.6%)	137(54.8%)	5(2%)	170(68%)	80(32%)	250

DISCUSSION

The present study documented the incidence of wound infection which develops after Lichtenstein's tension free inguinal hernioplasty without antibiotics. National Nosocomial Infection Surveillance system (NNISS) defines the surgical site infection (SSIs), as the infection of a wound that occurs within 30 days post-surgery.[18,19] The rate of mesh infection is variable. The reported wound infection is from 0.7% to 15%.[20,21] Estimated incidence in the present study was 3.6% which is consistent with the international and the reported local data. Tzovaras G, et al reported an infection rate of 2.33 % in mesh repair for inguinal hernia without antibiotic use pre and post operatively.[22] Our study predicts that the routine use of antibiotics post operatively does not confer any additional benefit in the elective mesh inguinal hernia repair. 22 Nordin et al[23] reported an infection rate of 4%,[4] Anfenacker and his colleagues[24] reported 1.7% of wounds get infected after Lichtenstein tension free mesh repair and there is no major difference between antibiotic prophylaxis and placebo group. So they also concluded that antibiotic use during surgery is not very much recommended in Lichtenstein tension free repair for inguinal hernia.

CONCLUSION

The incidence of post operative wound infection following inguinal hernioplasty without antibiotic use was 3.6%. Inguinal hernia with Lichtenstein tension free mesh repair can be done safely without antibiotics. It will reduce the economical burden on patients and public sector hospitals.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Oral Submucous Fibrosis in Children

Prevalence of Oral Submucous Fibrosis in School Going Children Who Chew Betel Nut Versus Those Who Do Not: A Cross Sectional Study

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ABSTRACT

Objective: The aim of this cross-sectional study in Central District of Karachi (CDK) was to assess the prevalence of oral soft tissue lesions and to investigate associations which may exist between oral conditions and Betel nut (BN) chewing among the young school going children.

Study Design: Cross-Sectional Study

Place and Duration of Study: This study was conducted at Dental Department, Bagai University, Karachi, from April 2011 to July 2011.

Materials and Methods: Questionnaire based research was conducted. Three hundred and sixty students from 17 different schools participated in the study. The mean age was 13.86 ±1.2 years with the age range of 12 to 16 years. Out of these 360 students, 175 were females and 185 were males.

Results: The results showed a high prevalence of the pre-cancerous lesion, oral submucous fibrosis among BN chewers (BNC) compared to non-chewers (NBNC) (19% and 3% respectively). The high prevalence of BN chewing (59% of the low socio-economic young population studied) should be addressed at local and government level through support for effective preventive programs and health promotion campaigns.

Conclusion: Promotion of oral health and eradication of BN chewing are important goals for the prevention of oral cancer among this population.

Key Words: Oral submucous fibrosis, Betel nut, Betel nut chewing

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INTRODUCTION

The chewing of betel nut (BN) is an old practice in South-Rast Asia, especially in the Indian subcontinent[1]. This tradition is inherited generation after generation and has become a popular cultural activity among people of Pakistan, India, Sri Lanka and Bangladesh[2]. BN is a fruit of areca tree that widely grows in tropical Pacific, Asia and east Africa. It is a small feathery palm that grows to the height of 1.5 m. The most common method of using BN is to chop it into very small pieces with the help of an especial instrument known in local language - Urdu as "sarota". Slurry of slaked lime and catechu boiled in water is applied on a betel leaf and the chopped pieces of BN are rolled in it to be kept in mouth. This leaf package is generally referred to as betel quid (Paan). Some chewers like to add tobacco in it and others use it without tobacco.

Gutkais a new product introduced in early 1990's by tobacco industry in India. It is a preparation of crushed BN, tobacco, catechu, paraffin, slaked lime with sweet and aromatic flavors[3] available in small sachet of 20-50 gm. Gutka is placed in the mouth or chewed and it remains in contact with oral mucosa for variable period of time depending upon the intensity of the habit of the chewer. These products are commonly chewed for their psychoactive effects of well being[4].

It has also been found in a study that the consumption of BN / Gutka / paan is higher in the areas of low socio economic status due to cheap production of unpackaged local manufacturing at home[5]. BN contains the alkaloid arecoline in addition to nitrosamines, which is carcinogenic.Various studies have been conducted to determine the relation of BN and other alternative chewing material to oral and other associated cancers[6,7].It has been proved that BN, Gutka and Paan cause oral cancers[8, 9]and alone in India, out of 700,000 cancers diagnosed each year 300,000 cases relate to tobacco smoking and BN chewing[10]. A study done in

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Pakistan reveals that the use of tobacco with lime has been recognized as a risk major factor for oral and throat cancers[11].The use of these substances induces fibroblast proliferation and collagen production and thus it is strongly associated with oral sub mucous fibrosis, a crippling and precancerousmcondition[12].

It is known that adults are indulged in BN/Paan/Gutka chewing and there is an increasing concern that children are now using these products[13].This chewing habit is posing health problems in children and adolescents[14]. As in adults, this may lead to serious oral health conditions such as oral submucous fibrosis (OSF), mouth ulcers (MU), staining of the teeth and gums, leukoplakia (LPK) and other precancerous lesions which lead to oral cancers[15,16].Several studies have reported that the habit of BN chewing often tends to start at a very young age but none have provided any specific age group[17, 18]. Cause of concern is the intensity of consumption of these products by children. According to findings of a study, 94 % of school goers consume BN and 73 % chew Gutka[13].

MATERIALS AND METHODS

A cross sectional study was conducted in CD, Karachi. A research questionnaire was prepared, and sent along with the parental consent and student assent forms to the Clinical Research Ethics Committee of Baqai Medical University, Karachi for this study. The questionnaire was scrutinized by the subject specialists and was coded for statistical purposes. The sample comprised of 360 students from 17 different schools in CD, Karachi. The age range of sample population was 12 - 16 years. The schools were picked up randomly from low socioeconomic residential areas in CD. Two groups of students were randomly picked (BNC and NBNC) from each school. Parental consent, student assent, and confidential medical history form were also sent to the parents/guardian. They were asked to return all of the completed forms duly signed. The inclusion criteria were: 1. subjects in the age range of 12-16 years, 2.Subjects were able and willing to cooperate in all the study procedures, 3.Subjects were in good general health. 4. Subjects whose parent/guardian signed the informed consent form, 5.Subjects who signed the consent form, and6. Subjects known to be non-allergic to any dental products.

Statistical Analyses: SPSS Version 18 was used for statistical analysis.

RESULTS

The sample comprised of 360 students who were selected from seventeen secondary schools in the CD. This sample size represents the power of the study after comparing with the previous available studies showing the prevalence of BN chewing between 70% and 75%. These schools were randomly selected in a recognized low socio-economic area based on high unemployment and a low educational standard. Out of the 360 students, 51.38% were males (n=185) and 48.61% were females (n=175). The mean age was 13.86 ± 1.2 years with the age range of 12-16 years. The sample is summarized by gender and year of education in Figure 1, and by gender and age in Figure 2.

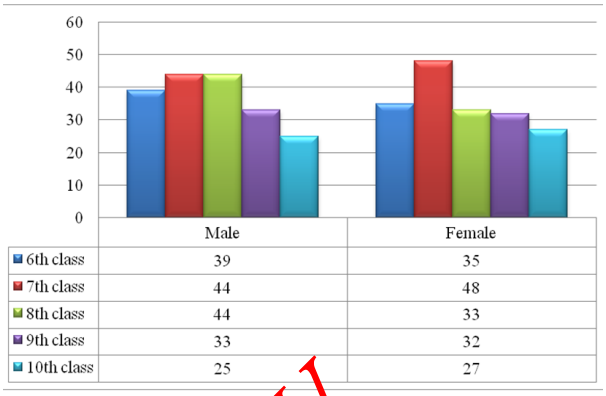

Figure 1.A comparison between gender and the years of education of subjects

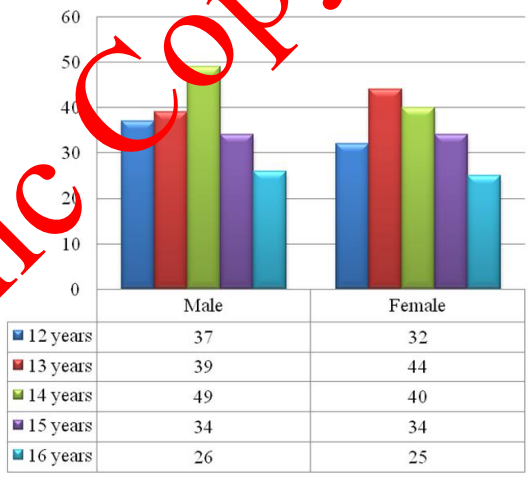

Figure 2.A comparison of Gender and age of the subjects

Number and percentage of BNC and NBNC is given in Table 1 which shows that 58.61% of the examined subjects were in the habit of BN chewing.

Table 1: Percentage (%) of study participants involved in BN chewing

Betel Nut Chewing	n	%
Yes	211	58.61
No	149	41.39

In table 2, BN chewing habit among gender is shown separately which illustrates that 61.61% of males and 38.39% of females chewed BN

Table No.2: BN chewing and gender distribution

Betel nut chewing	Males % (n)	Females % (n)
Yes	61.61 (130)	38.39 (81)
No	36.91 (55)	63.08 (94)

A chi-square test was performed to examine the difference in the habit of BN chewing among males and females. The difference between these variables was significant, $X^2 = 21.32$, df =1, $p<0.001$. Almost twice the numbers of males (61.61%) chewed betel nut as compared to females (38.39%).

The association between oral submucous fibrosis and betel nut chewing: Two types of oral lesion were reported, Oral Submucous Fibrosis (OSF) and Traumatic Ulcers (TU).When OSF was analyzed among BNC and NBNC, it was noted that 19.43% of BNC and 2.69 of NBNC had OSF (Table 3).

Table No.3: Presence of oral OSF between BNC and NonBNC

OSF	Yes % (n)	No % (n)	Total % (n)
BNC	19.43 (41)	80.57 (170)	100 (211)
NonBNC	2.69 (4)	97.31 (145)	100 (149)

A chi-square test was performed to examine the difference in the presence of OSF between BNC and NBNC. There was a significant difference, $X^2 = 22.39$, df=1, $p<0.001$.

Oral submucuous fibrosis among male and female betel nut chewers: Among males, 23.85% of BNC had OSF, compared with 7.27% of NBNC; this difference according to BN chewing also existed for females with 12.34% of female BNC having OSF compared with 0% of NBNC (Table 4)

Table No.4: OSF and Gender Distribution

BNC		Non BNC	
Male % (n)	Female % (n)	Male % (n)	Female % (n)
23.85 (31)	12.34 (10)	7.27 (4)	0 (0)
76.15 (99)	87.65 (71)	92.73 (51)	100 (94)
100 (130)	100 (81)	100 (55)	100 (94)
100 (211)		100 (149)	

A chi square test was performed to examine the difference in the presence of OSF between male gender and BN chewing. The difference between these variables was significant, $X^2 = 6.92$, df=1, $p<0.009$.

DISCUSSION

Habit of chewing BN and Gutka is popular among young students of CDK who belong to financially poor families. According to the results of this study, significantly more males (61.61%) chewed BN than females (38.39%). These findings are similar to the findings of two previous studies[19,20]. A study conducted in United Kingdom by Farrand et al, in a sample of 704 children aged between 11- 15 years, showed a high prevalence of BN chewing among males belonging to the Asian community. In Karachi, males have freedom to go and spend time outside the home, which makes them more exposed to the habit whereas females are restricted to do so. In a study, the majority of students claimed that they often saw BN vendors near their residential areas, and some reported that BN vendors were situated near their schools[21]. Boys have a higher exposure to BN as compared to girls. This may be the possible reason of its higher prevalence among males.

The highest proportion (44.07%) of children chewed BN twice a day, 36.01% once a day and 19.92% more than twice a day. Among them, 50.78% of males as compared to 33.33% of females were chewing BN twice a day, and 25.38% of males and 11.12% of females were chewing BN more than that. The high proportion of children identified as chewing BN may pose difficulties for their future health as Shah and Sharma found in a case control study that an increasing frequency of BN chewing is associated with oral soft tissue problems[13]. These findings are supported by the results of many studies done in past[17,22,23]. Increased frequency of use is directly proportional to the low cost and ease of availability. These two factors should be addressed and appropriate steps should be taken to control the use of BN.

In this study, 19.43% of BNC and 2.69% of NBNC had OSF. These findings are similar to the studies of Trivedy et al[7], Shah & Sharma[13], Sinor et al [22] and Maher et al[24] Ma et al[25]. As mentioned earlier, OSF is a precancerous lesion and can lead to a significant burden of disease requiring expensive and invasive treatment. The findings of this study should help to educate children, parents, teachers and primary health workers and allow the development of preventive strategies against BN chewing.

This cross sectional study examined the prevalence of oral soft tissue lesions among BNC and NBNC from a sample of 360 school children, and produced findings which are consistent with the results of other studies. However, the targeted population belonged to a low socio economic area in a particular district of Karachi. During the data collection period, civil un-rest made recruitment to the study and data collection difficult and therefore the results may not be representative of the whole population of Karachi.

CONCLUSION

The study has provided a considerable amount of basic data and even though the analysis is limited due to short time frame, the author intends to use the data to explore further associations with multiple logistic regressions. As this study expresses a significant prevalence of BN chewing in this group, it is imperative develop an

advocacy and awareness program as an important preventive health initiative.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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RESULTS

Present yours results in a logical sequence in the Text, Tables, Illustrations, figures and Graphs.

DISCUSSION

Emphasize the new and important aspects of the study and conclusions that follow from them.

CONCLUSION

In this link write the goals of the study.

RECOMMENDATIONS

When appropriate may be included.

ACKNOWLEDGMENTS

List of all contributors who do not meet the criteria for Authorship, such as a person who provided purely technical help, writing assistance or department chair who provided only general support. Financial & Material support should be acknowledged.

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