pISSN 1997-3438
eISSN 1997-3446
Indexed in
Index Pakistan (IP/016)
WHO Index Medicus (IMEMR)
EMBASE
EBSCO
Clavirate
IMEMR
Asian Digital Library (ADL)
Elsevier
Pakmedinet
NETMEDICS
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QUARTERLY

JOURNAL OF MEDICAL SCIENCES

PESHAWAR - PAKISTAN

Recognized by Higher Education Commission of Pakistan

J Med Sci 2020 April; 28(2)

KHYBER MEDICAL COLLEGE, PESHAWAR - PAKISTAN

JOURNAL OF MEDICAL SCIENCES

Printed at:
Khyber Printers
E-mail: khyberprinters@yahoo.com

J Med Sci 2020 April;28(2)
http://www.jmedsci.com

Journal of Medical Sciences (Peshawar, Print/Online) is a peer reviewed open access journal that publishes biomedical public health and educational research on quarterly basis.

Editorial correspondence should be addressed to:

Prof. Dr. Arif Raza Khan
Vice Dean Khyber Medical College.
Chairman of Otorhinolaryngology,
Khyber Teaching Hospital,
Peshawar - Pakistan
Tel: +92-91-9224400
Fax: +92-91-9216213
E-mail: arifraza_k@yahoo.com

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Journal of Medical Sciences is published on controlled circulation basis and distributed among the faculty of all national medical colleges, main libraries throughout the province, Pakistan Medical Research Council, PMDC, HEC and Tertiary Referral Centers.

The publisher and the members of the Editorial Board can not be held responsible for errors or for any consequences arising from the use of information contained in this journal.

Journal of Medical Sciences is published quarterly, composed and printed at Khyber Printers, Peshawar KP, Pakistan.

Annual Subscription
Pakistan: Rs. 5000/-
Overseas: US $ 500/-

Printed at:
Khyber Printers
E-mail: khyberprinters@yahoo.com

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CHILD PSYCHIATRY: CHALLENGES AND THE WAY FORWARD

Pakistan is a nation with about 220 million people, ranking fifth largest population of the world[1]. Documenting a growth rate of about 2.4, the number of children and adolescents is significantly high. Psychological problems are found equally in children as well like adults. There are many problems which are specific to this age group and majority of them if treated in childhood, would lead to significant reduction in mental illnesses in adults. If we look at the statistics, it would help in better understanding of the problem and would help in devising strategies for possible solutions. To begin with the analysis of developed countries like America, there are more than eight thousand (8000) Child Psychiatrists for a population of 330 million, comprising 16% of them are children and adolescents below the age of 19 years[2]. Contrary to that, Pakistan has less than five (5) Child Psychiatrists for a population of 220 million. It is worth to mention here that the number of children and adolescents under 14 years is 34 percent of total population in Pakistan, which means that we have more than 64 million of child population out of 220 million total[1]. General Adult Psychiatrists can give some basic services to children but even their number is also fewer than 500 throughout the country. The situation is further complicated by huge Brain Drain from the country as evident by the fact that hundreds (if not thousands) of Pakistani Psychiatrists are working in USA and UK only. The reasons for migration of medical professionals from Pakistan to other countries are: best medical practices, attractive salaries and conducive working scenarios in these countries[3]. Further reasons for this migration may be lack of employment, general negative attitude of policy makers, lack of advance technology and increasing violence against doctors in Pakistan.

Child mental health in Pakistan is adversely affected by additional factors like child labor, child abuse and out of school children which again are highest in Pakistan for this region, unfortunately better only than Afghanistan[4]. A stable and supporting family is the best nursery for a child to gain self-confidence and ability to make and maintain trust and relationship with others. Lack of Parenting skills, sibling rivalry, gender discrimination and domestic violence, on the other hand, are some of the factors in home leading to psychological problems in children. Similarly, the schools are considered to play an important role in nurturing the hidden potentials of a child. The same school can work like a double edge sword for some students leading to shatter their personalities because of unrealistic expectations, lack of assessment of their aptitudes and good grades being the only parameter of checking the competence of students. School Teachers are even not well versed with emotional problems of children although they have some knowledge about learning difficulties and behavioral problems. Teachers usually think that it is the home environment which needs to be addressed and they have very little insight of the role of Teachers[5]. School mental health is the area where we need tremendous work to promote positive mental health in children and prevent childhood psychiatric illnesses. Bullying in schools is another big problem which is mainly done by the Teachers as most of them are not trained for the purpose. These are few of the factors which are happening without any evil intention but because its significance is not known and they are leading to escalate mental health problems in children[6, 7].

There is lack of awareness about mental health and psychiatric illnesses in general population but this issue is even more important when we talk about childhood psychiatric illnesses like childhood depression and anxiety, attention deficit disorders, school phobias etc; where a significant controversy exists in the etiology of the illnesses[8]. Stigma is another factor playing its role as barrier against taking treatment from a Psychiatrist. People would generally prefer to go to spiritual healers and magicians rather than seeking treatment from mental health professionals.

The situation is definitely challenging and would need effective policies to start with. Mental health professionals would need to work together with policy makers, parents, school teachers, and children specialists. The huge gap can be addressed by adopting public health model of prevention and promotion of mental health. Parallel to that, capacity building of skilled personnel and allocation of services are mandatory. As a first step, a six months mandatory rotation in established child psychiatry units should be included in MCPS and FCPS training in Psychiatry. Another suggestion would be that the College of Physicians and Surgeons Pakistan (CPSP) should take urgent steps to start second fellowship in Child Psychiatry on priority basis. In the meantime, it would be fruitful if government arrange scholarship program for young Psychiatrists to do post-graduation in Child Psychiatry from developed countries along with written agreement that these fellows would come back to their parent institutions and would work here to establish services and impart training to achieve long term goals.

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Dr. Imran Khan

Assistant Professor

Department of Psychiatry Khyber Medical College
Peshawar - Pakistan

Contact: +92-333-9127440

Email: drimrankth@gmail.com

EFFECTS OF CAFFEINATED ENERGY DRINK WITHDRAWAL ON HISTOLOGICAL AND BIOCHEMICAL PARAMETERS OF ADULT ALBINO RAT KIDNEYS

Syeda Sara Bano[1], Shabana Ali[2], Saddaf Ayub[3], Ali Ahmed[2], Imran Bajwa[3]

[1]Department of Anatomy, Shifa College of Medicine, Islamabad - Pakistan

[2]Department of Anatomy, Riphah international University, Rawalpindi - Pakistan

[3]Department of Biochemistry, Riphah international University, Rawalpindi - Pakistan

ABSTRACT

Objective: The present study investigated withdrawal effects of caffeinated energy drink on renal histological and biochemical parameters of adult albino rats.

Material and method: Thirty adult male rats weighing 250±10gm were equally divided into 3 groups. Rats in control group I received normal diet and water for 8 weeks. Rats in energy drink group II received 3.57ml/kg body weight red bull daily by gavage for 8 weeks. Withdrawal group III received 3.57ml/kg body weight red bull for 4weeks daily, followed by normal diet and water for next 4 weeks. Blood samples were taken through tail vein at end of 4 and 8 weeks for determination of serum urea and creatinine levels. After completion of 8 weeks' rats were sacrificed, kidneys were removed and slides were prepared using Periodic acid-Schiff stain. Readings were taken through image j software and results were analyzed by SPSS.

Results: On histological examination decrease in diameter of glomerulus along with widening of bowman capsule space was observed. In withdrawal group, the histological changes were not reverted to normal since no significant difference was observed when compared to energy drink group with P≥0.05. Amongst the biochemical parameters, serum urea levels were increased significantly in the energy drink group. In the withdrawal group, serum urea levels were not reduced at the end of 8 weeks, results were significant when compared with control group with p value 0.000. The results were not significant in case of serum creatinine levels.

Conclusion: Histological and biochemical changes in adult albino rats kidneys are not reversible after withdrawal of caffeinated energy drinks.

Keywords: caffeinated, energy drink, withdrawal, glomerular, biochemical parameters

This article may be cited as: Bano SS, Ali S, Ayub S, Ahmed A, Bajwa I. Effects of caffeinated energy drink withdrawal on histological and biochemical parameters of adult albino rat kidneys. J Med Sci 2020 April;28(2):107-111

INTRODUCTION

Energy drinks are soft drinks that contains sugar along with stimulant, usually caffeine, besides other ingredients[1]. Attitudes and practices concerning energy drink consumption and the prevalence of side effects among medical students. Twenty-two percent of respondents were regular users, particularly men (p <.0005. They are advertised in providing energy, physical and mental alertness. Due to their high caffeine levels these drinks have been associated with adverse health effects [2]. Kidneys are one of vital organs of our body, having excretory function in removal of toxic and metabolic compounds. Overload of toxins from certain compounds can lead to inflammation that can affect kidney function leading to renal damage and failure[3].

Nowadays trends are changing and we are moving from fresh juices towards fizzy drinks and energy drinks are widely used by youth during different routine activities. Red bull is pioneer and most widely used brand among youth[4]. Red bull contains caffeine, taurine, guarana and vitamin B12 series[5]. Amount of caffeine present in 250ml of a can of red bull is 150 mg/L. Data proves that if beverage contains amount of caffeine in doses of 150 mg/L the message of high caffeine content must appear on label[6]. In Pakistan youth is more towards use of these drinks, majority of the users are male and they are unaware of amount of caffeine contained in energy drinks[7]. Pakistan regulatory food authority banned the sale of caffeinated energy drinks, in spite of that these are freely available in stores without age group limitations.

Correspondence
Dr. Syeda Sara Bano
Shifa college of Medicine, Islamabad - Pakistan
Email: banobokhari@hotmail.com
Cell: +92-335-4047736
Date received: 25-02-2020
Date revised: 02-05-2020
Date accepted: 05-05-2020

Caffeine is socially acceptable psychoactive drug, having addictive properties[8]. Physical and psychological dependence of caffeine occurs with persistent consumption of caffeine-containing drinks or foods[9]. Children and adolescents are group that is more sensitive to effects of caffeine contained in these caffeinated energy drink[10] the Internet, MD Consult, and CINAHL. The popularity of energy drinks and the rapid growth of their excessive consumption among adolescents and young adults have brought about great concern in regards to overall health and well-being. Caffeine, which is readily available to minors, is the most commonly used psychoactive substance in the world and imposes a potentially harmful influence on health, academic performance, and personal adjustments. Teens and young adults account for nearly $2.3 billion of energy drink sales. Adolescents and young adults are often unaware that various products, such as energy drinks, herbal medications, and various other medications that promote alertness, contain caffeine. When these products are taken together, caffeine toxicity and severe adverse effects can occur. Practitioners need to be aware of the consequences of energy drink consumption and be prepared to provide appropriate patient education. ©2012 The Author(s. Active component in red bull, that is caffeine, disrupts redox homeostasis and leads to production of reactive oxygen species (ROS). These reactive oxygen species inhibits different cellular antioxidants and can lead to oxidative stress in renal parenchymal cell besides other organs of body[11]. Damage by this oxidative stress can also lead to histological as well as biochemical alterations in kidneys that deteriorate kidney functions and can lead to acute renal failure[12,13] including a recent hypoglycemic episode. Rechallenge was not attempted.

MATERIAL AND METHODS

Thirty healthy adult male, albinos, Sprague Dawley rats, weighing 250±10 grams, selected by simple random sampling were used in this experimental study. Female rats and animals with disease and pathology were excluded. The animals were kept in metallic cages at animal house Islamabad with suitable laboratory environment and were acclimatized for four weeks. Thereafter they were equally divided into three groups with ten rats in each group.

Dose calculation: Dose of energy drink used in this study were equivalent to 250-ml can ingested by a 70-kg individual. Dose of 3.57 ml/kg corresponds to 3.75 ml/1000gm or 0.00375m/gm of rat. The weight of rat was 250gm so dose for one rat was almost equal to 0.94ml. Doses were measured by 5cc plastic syringe and were given orally by gavage.

Control group I: Rats in this group were given normal diet and water daily for a period of eight weeks

Energy drink group II: Rats in this group received daily doses of red bull for eight weeks

Withdrawal group III: Rats in this group received daily doses of red bull for first four weeks, followed by normal diet and water for next four weeks

Blood sample collection: Blood samples were taken through tail vein at day 1 and day 28. Thereafter, samples were taken by cardiac puncture at end of experimental study (day 56). Blood samples were centrifuged and serum extracted was used for biochemical analysis of serum urea and creatinine levels.

Histological analysis: At end of experimental study all animals were sacrificed. Kidneys were removed and immediately fixed in 10% formalin for 48hrs. Dehydration was done with graded series of alcohol; tissue was cleared in xylene and embedded in paraffin. Transverse sections of 5 μm thickness were stained with Periodic acid-Schiff (PAS) stain. All slides were examined under light microscope at 40X. Glomerular parameter measurements were taken by zooming in image 50% in image j software.

Statistical analysis: Data was analyzed in SPSS version 22. One-way analysis of variance (ANOVA) was applied for mean comparison of quantitative variables followed by Post hoc Tukey test for multiple comparisons of these groups. A p value of equal or less than 0.05 was considered as significant.

RESULTS

Assessment revealed that serum creatinine was elevated at 5.5 mg/dL, from a baseline of 0.9 mg/dL. An interview revealed a 2- to 3-week history of daily ingestion of 100 to 120 oz of Red Bull energy drink. Resolution of renal dysfunction occurred within 2 days of discontinuation of Red Bull and persisted through 10 months of follow-up.

The mean diameter of glomerulus in control group was 161±0.94 μm, which was reduced to 121±1.02 μm in energy drink group, showing a significant difference (p value = 0.000). In withdrawal group, mean diameter of glomerulus was 134.1±1.00 μm after 8 weeks. There was significant difference in the mean diameter of glomerulus in the withdrawal group when compared with the control group with p value 0.000 (fig:1). Bowman space was increased significantly from 13.7± 0.26 μm in the control group to 43.8±0.75 μm in the energy drink group. In withdrawal group, mean bowman space was 34.4±0.70 μm, result was significant when compared to control group (table 1 and 2). Serum urea levels were increased significantly in energy drink group at day 56. Serum urea levels were reduced in withdrawal group at day 56, results were significant when compared with control group with p value 0.000, no significant difference was observed in case of creatinine levels in withdrawal group at day 56 when compared with control group (table 3 and 4).

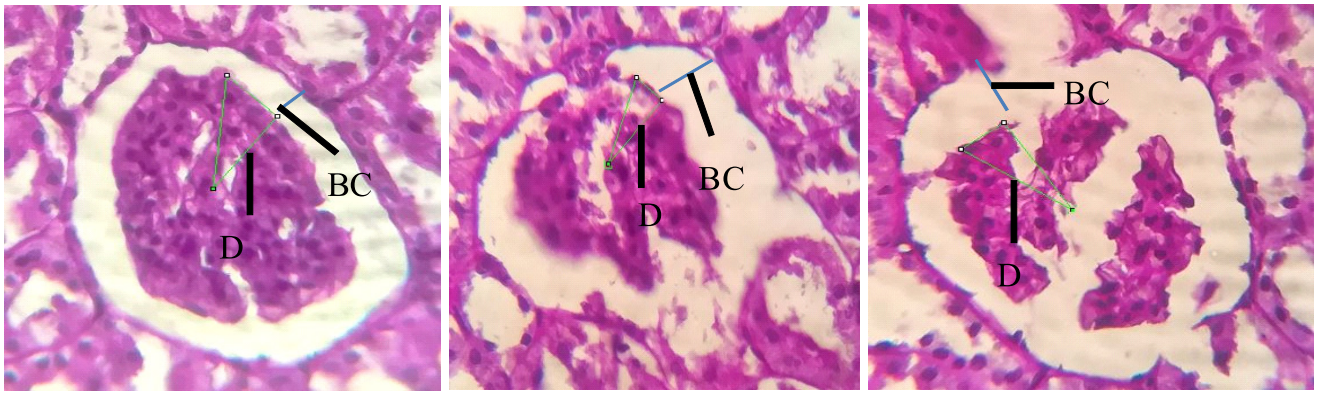

Figure 1: Photomicrograph of histological section at 40X on PAS staining showing normal diameter of glomerulus(D)and bowman space(BC) in control group I, energy drink group II showing shrinkage of glomerulus and widening of bowman space, withdrawal group III also showing shrinkage of glomerulus and bowman space widening.

Table 1: Comparison of mean diameter of glomerulus and bowman space among control and experimental groups of albino rats (N=30)

Groups	Diameter of glomerulus (μm)		Bowman space (μm)	
	Mean	SEM	Mean	SEM
Control	161.5	0.94	13.7	0.26
Energy drink	121.0	1.02	43.8	0.75
Withdrawal	134.1	1.00	34.4	0.70
P value	0.000*			

Table 2: Multiple comparison of mean diameter of glomerulus and bowman space among control and experimental groups of albino rats

Groups	Diameter of glomerulus in μm		Bowman space in μm	
	Mean difference	p value	Mean difference	p value
control vs energy drink group	40.5*	.000*	30.1*	0.000*
Control vs withdrawal group	27.4*	0.00*	20.7*	0.000*
Energy drink vs withdrawal group	13.1	.000*	9.40	0.000*

Table 3: Comparison of mean levels of serum urea (mg/dl) in albino rats (N=30) at day 28 and day 56.

Groups	Serum urea levels at day 1	Serum urea levels at day 28	Serum urea levels at day 56
Control	0.52± 28.50	0.52± 28.50	1.2± 34.10
Energy drink		0.00± 29.00	0.67± 41.40
Withdrawal		1.57± 31.40	0.57± 39.20
P-value	0.00		

Table 4: Comparison of mean levels of serum creatinine (mg/dl) in albino rats (N=30) at day 28 and day 56

Groups	Serum creatinine levels at day 1	Serum creatinine levels at day 28	Serum creatinine levels at day 56
Control	0.00 ± 0.28	0.00 ± 0.28	0.00 ± 0.29
Energy drink		0.00 ± 0.28	0.01 ± 0.31
Withdrawal		0.00 ± 0.30	0.01 ± 0.31
P-value	0.00		

DISCUSSION

It could be presumed from results of this study that high caffeine content in energy drinks is having damaging effects on histological and biochemical parameters of adult albino rats' kidneys. Administration of red bull for period of 8 weeks resulted in shrinkage of glomerulus and widening of bowman space. This was evident that these histological alterations were not reversible at end of

8 weeks. The histological alterations in present study are consistent with results of Sajjad et al, who used soft drinks in his experimental study and observed widening of bowman space and shrinkage of glomerulus on kidneys of albino rats[14]. Taiwo observed similar adverse effects of red bull on histological and biochemical parameters of liver and kidneys of rabbits[15].

The present study showed that serum urea levels increased progressively till 8 weeks by the use of red bull. Changes observed were not reverted to normal after withdrawal of energy drink, although no significant difference was observed in case of serum creatinine levels. Similar increase in serum urea and creatinine levels has been reported when rats were given energy drink in different doses[16]. Ugwuja used energy drinks in low and high doses alone and in combination with alcohol, observed effects were alterations in renal and hepatic biochemical parameters[17].

According to Mansy et al, chronic consumption of energy drinks for 12 weeks increases creatinine and uric acid levels besides alterations in liver function tests, the observed effects were due to free radical production and oxidative stress[18]. Study conducted by Ogunlabi et al. suggested that chronic energy drink intake alters liver and kidney functions of rats[19]. The results of this study are consistent with results of another study conducted on red bull that showed significant increase in urea and creatinine levels after administration of drink[20].

The results of our study are contrary to Masoud et al who observed no changes in serum urea levels after 35 days of energy drink and khat administration, results might be due to short duration of study[17]. Results of this study are against the results of Akande et al who observed same biochemical findings in kidneys and liver of rats when they were given energy drinks and changes observed were reversible in 14 days duration of study[21]. In another study heavy intake of cola beverages for three months caused no change in urea and creatinine levels, in that study glomerular morphology was also unaltered[22]. Hajra studied withdrawal effects of sting on behavior of male rat pups and observed effects were impaired memory, anxiety and depression[23]. The results of our study demonstrated that renal histological and biochemical alterations are not reversible after withdrawal of caffeinated energy drink in this duration of study.

CONCLUSION

Histological and biochemical changes in adult albino rats' kidneys are not reversible after withdrawal of caffeinated energy drinks. Since these caffeinated energy drinks have deleterious effects on kidney system; therefore, it should be used with caution. There should be check by government of Pakistan on free availability of these drinks especially for youth.

RECOMMENDATIONS

Further studies are recommended to observe long term effects of energy drinks and their reversal with prolong duration.

There should be check by government of Pakistan on free availability of these drinks as they are hazardous and their sale should be limited.

Regarding amount of caffeine in energy drinks and their psychological dependence awareness programs are necessary.

To ban sale of energy drinks especially in children and youngsters, legislations should be made by government of Pakistan.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Bano SS: Manuscript writing, slides examination, experiment conduction

Ail S: Topic selection, guidance in writing and experiment conduction, supervisor

Ayub S: Covered biochemical aspect in manuscript, sample collection, tests, result and data collection

Ahmad A: Data collection, discussion

Bajwa I: Statistical analysis and result interpretation

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

RELATIONSHIP OF VITAMIN D LEVELS WITH SYSTOLIC, DIASTOLIC AND MEAN ARTERIAL PRESSURE IN MALE RESIDENTS OF LAHORE

Saima Mukhtar[1], Iram Qamar[1], Javaria Latif[2], Sobia Niaz[3], Rahat Naseem[4], Mah e Jabeen Sear[1]

[1]Department of Physiology, Rahbar Medical & Dental College, Lahore - Pakistan

[2]Department of Physiology, CMH Medical College, Bahawalpur - Pakistan

[3]Department of Physiology, Fatima Memorial Medical College, Lahore - Pakistan

[4]Department of Physiology, King Edward Medical University, Lahore - Pakistan

ABSTRACT

Objectives: To correlate vitamin D levels with severity of hypertension.

Material and Methods: This study was conducted from September 2016 to December 2016 which comprised seventy-five male subjects from outdoor department of Lahore General Hospital, Lahore Pakistan, and divided into stage I and stage II hypertension groups and healthy attendants were taken as controls. Newly diagnosed hypertensive male patients were included and patients having secondary hypertension, low vitamin D, known kidney, liver, thyroid, parathyroid or cardiac disease were excluded. Blood pressure of subjects was measured using a mercury sphygmomanometer and blood samples for analysis of vitamin D levels were taken.

Results: Subjects included had a mean age of 39.97 ± 8.24 years. Mean vitamin D levels (ng/mL) were 35.99 ± 8.08, 28.71 ± 10.85 and 28.12 ± 9.94 in controls, stage I hypertension and stage II hypertension groups respectively. Mean systolic blood pressure (SBP) and mean diastolic blood pressure (DBP) was 110.72 ± 5.59 mm Hg 73.24 and ± 3.35mm Hg in controls, 131.20 ± 8.83 mm Hg and 91.80 ± 5.86 mm Hg in stage I HTN and 144.28 ± 19.28 mm Hg and 103.40 ± 12.05 mm Hg in stage II HTN group, respectively. Both SBP and DBP were inversely related to low 25 (OH) D levels (r=-0.289 & -0.315) respectively.

Conclusion: There is an association suggestive of increased SBP, DBP and mean arterial pressure with lower levels of Vitamin D.

Keywords: Vitamin D, Systolic, Blood pressure, Diastolic.

This article may be cited as: Mukhtar S, Qamar I, Latif J, Niaz S, Naseem R, Sear MJ. Relationship of vitamin D levels with systolic, diastolic and mean arterial pressure in male residents of Lahore. J Med Sci 2020 April;28(2):112-116

INTRODUCTION

Blood pressure (BP) is the force exerted by blood on unit area of vessel wall and its normal is taken as 120 mmHg of systolic blood pressure (SBP) and 80 mmHg diastolic blood pressure (DBP). A value of more than / equal to 140 systolic and/or 90 diastolic taken while patient is in seated position on three consecutive visits is considered hypertension or high blood pressure[1].

Correspondence
Dr. Saima Mukhtar
Associate Professor
Department of Physiology, Rahbar Medical College, Lahore - Pakistan
Email: symarb@gmail.com
Cell: +92-300-8263509
Date received: 20-01-2020
Date revised: 05-03-2020
Date accepted: 05-05-2020

Since long, high blood pressure has been considered the reason behind early deaths and acts as a prelude to develop cardiovascular disease (CVD) events like myocardial infarction (MI), stroke, cardiac failure and kidney disease[2].

About 1.13 billion people are affected by high blood pressure world over with the majority belonging to low and middle income countries. In the span of only one year, the adult population suffering from high BP in Pakistan has about risen from 23.8% to 25.4%[3,4].

There is much speculation about the pathophysiology of hypertension. A substantial number of cases have no apparent underlying determinable cause. A number of possible causes like disturbances in cardiac output, peripheral resistance, autonomic nervous system, renin-angiotensin-aldosterone system over-activation, bradykinin and endothelin levels etc are considered causative in in-

creased blood pressure[5].

The sun shine vitamin, more commonly known as vitamin D has long been associated with bone health and calcium homeostasis through kidney, bone, intestine and parathyroid. Low levels of vitamin D are responsible for multiple health issues ranging from minor infections to acceptance of transplant, built up of autoimmunity, multiple sclerosis, inflammatory bowel disease, T-cell regulation.6 There is growing evidence that vitamin D deficiency has some role in the development of cardiac risk factors and elevated BP which is worth investigating[7].

Vitamin D is naturally produced in our body by irradiation of exposed skin by ultraviolet B (UVB) radiations. This leads to conversion of 7-dehydrocholesterol of skin into Cholecalciferol. In liver, 25-hydroxy vitamin D3 is formed and finally inside the kidney, converted into a biologically functional product, calcitriol or 1, 25-(OH)2 D[3-8].

Biologically active 1, 25-$(OH)^2$ D3 binds to vitamin D receptor and couples with retinoid X receptor (RXR) to attach to sequence of deoxyribonucleic acid (DNA) called vitamin D response element (VDRE) which brings about transcription leading to protein synthesis and effects of vitamin D[6]. The cutoff serum level of ≥30-g/mL with regard to 25 (OH) D is taken as sufficient; below 20 ng/ml as deficient, levels of 21–29 ng/ml as sufficient and levels of ≥150 -g/mL are taken as toxicity[9].

Vitamin D deficiency has emerged as a global epidemic with almost one billion people suffering from either insufficiency or deficiency. Low vitamin D status is a problem even in countries with sun exposure all year round. Pakistan also has a considerable population showing low levels of vitamin D[10].

Mc Greevy et al in their review found a strong relation between high systolic blood pressure and low vitamin D level but did not find a contributory link of vitamin D with raised BP[11]. Similarly, other studies suggest certain contributing factors like disturbance in renin angiotensin aldosterone system leading to CVD development subsequent to lowered vitamin D levels[12]. Our study was aimed at finding out any association between low vitamin D levels and blood pressure in our population, taking a cohort from catchment areas of Lahore General Hospital (LGH), Lahore.

MATERIAL AND METHODS

This study was conducted from September 2016 to December 2016 which comprised seventy-five male subjects from outdoor department of Lahore General Hospital, Lahore Pakistan through non probability convenience sampling. The cohort consisted of three groups of Controls, stage I and stage II hypertension, having 25 subjects in each group. Newly diagnosed hypertensive male patients between ages of 30-55 years were included and grouped into stage I and stage II patients and the healthy attendants were taken as controls. Patients having secondary hypertension, low vitamin D, known kidney, liver, thyroid, parathyroid or cardiac diseases were excluded. History, examination and laboratory tests of patients were recorded on questionnaire pro forma. Vitamin D assay was done using enzyme linked immunosorbent assay (ELISA) kit and automated analyzer. Data was analyzed by SPSS 20.0. Vitamin D, SBP and DBP were described as mean and standard deviation (mean± SD).

One way analysis of variance (ANOVA) was used to compare variables in the three groups. Post hoc Tukey test was done to find out which means were different from other by comparison of all possible pairs of means. Pearson's coefficient of correlation was applied to find out association between dependent (SBP, DBP) and independent (vitamin D) variables. P value of ≤ 0.05 was taken as statistically significant.

RESULTS

A total of 75 male subjects were included in the study group. Mean age of the cohort was 39.97 ± 8.34 years. Mean ± SD systolic BP (mm Hg) was 128.73±18.69 (range: 92-180), mean ± SD diastolic BP (mm Hg) 89.48 ± 14.77 (range: 70-130) and mean arterial pressure (MAP) was 107.29 ±16.08 mm Hg (range: 80-140). Mean ± SD vitamin D (ng/mL) in our study population was 30.94 ±10.22 (range: 10.5-56.9). Fig. 1 demonstrates vitamin D levels as per the control and hypertension groups (stage I and stage II). Decreasing trends in vitamin D levels were noticed as the blood pressure changed from normotensive in controls to higher values in stage I and stage II hypertensive patients (Table 1).

Although vitamin D levels were significantly lower in stage I and II when compared to controls (p=0.026 and 0.015 respectively), the levels did not differ significantly between stage I & stage II hypertensive groups (p=0.975). Table.2 depicts the Pearson's correlation of systolic BP with vitamin D in the study population with a statistically significant p value of 0.012 (r = - 0.289). The diastolic BP was compared to vitamin D and r = - 0.315 showed that both were inversely related in a highly significant manner having p= 0.006. The 'r' value of -0.405 also showed a statistically significant inverse association between mean arterial pressure and serum vitamin D levels (Fig. 2).

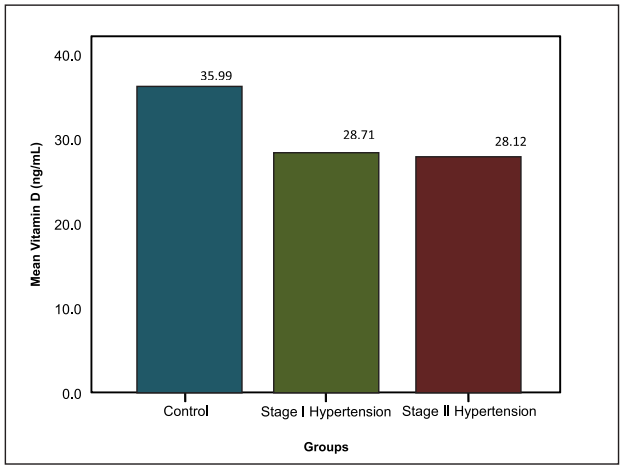

Figure 1: Mean Values of Serum vitamin D (ng/mL) levels in various groups

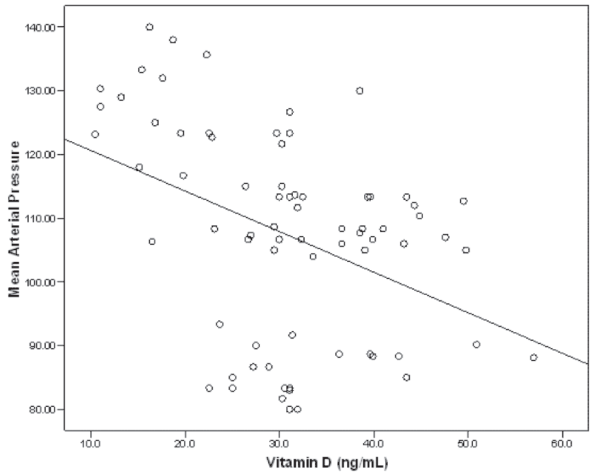

Figure 2: Correlation between vitamin D (ng/mL) and mean arterial pressure (mm Hg) in the study population

Table 1: Comparison of vitamin D, Systolic and Diastolic BP in Control, Stage I Hypertension and Stage II Hypertension Groups

	Control (n=25)	Stage I Hypertension (n=25)	Mean difference	p-value
Vitamin D (ng/mL)	8.082±35.99	10.85±28.71	7.29	0.026*
Systolic BP (mm Hg)	5.59±110.72	8.83±131.20	20.48-	0.000***
Diastolic BP (mm Hg)	3.35±73.24	5.86±91.80	18.56-	0.000***
	Control (n=25)	**Stage II Hypertension (n=25)**	**Mean difference**	**p-value**
Vitamin D (ng/mL)	8.082±35.99	9.94±28.12	7.88	0.015*
Systolic BP (mm Hg)	5.59±110.72	19.28±144.28	33.56-	0.000***
Diastolic BP (mm Hg)	3.35±73.24	12.05±103.40	30.16-	0.000***
	Control (n=25)	**Stage III Hypertension (n=25)**	**Mean difference**	**p-value**
Vitamin D (ng/mL)	10.85±28.71	9.94±28.12	0.59	0.975††
Systolic BP (mm Hg)	8.83±131.20	19.28±144.28	13.08-	0.001**
Diastolic BP (mm Hg)	5.86±91.80	12.05±103.40	11.60-	0.000***

Results expressed as mean ± SD, n= number of cases in each group, *p- value< 0.05 =statistically significant, **p- value< 0.01 = highly significant, ***p- value< 0.001 = very highly significant.

Table 2: Correlation of Serum Vitamin D with Systolic BP, Diastolic BP and, in study population

Correlation (Pearson's)	Control (n=25) (r)	Stage I Hypertension (n=25) (r)	Stage II Hypertension (n=25) (r)	Study population (n=75) (r)
Vitamin D with Systolic BP	0.388-	0.193	0.131-	0.289-*
Vitamin D with Diastolic BP	0.264-	0.011-	0.060-	0.315-**

r =Coefficient of correlation, n= number of cases in each group, *p- value< 0.05 = statistically significant, **p- value< 0.01 = highly significant, ***p- value< 0.001 = very highly significant
***= very highly significant

DISCUSSION

Both hypertension and vitamin D deficiency have emerged as a global pandemic. About one billion people are vitamin D deficient worldwide and in 2015, an estimated 3.5 billion adults had SBP of at least 110 to 115 mm Hg and 874 million adults had SBP of 140 mm Hg or higher.13,14 We planned our study aiming to find a plausible relation between hypertension and low vitamin D levels.

We noticed that lower vitamin D levels were associated with high blood pressures, both systolic and diastolic, finding strength from data showing abnormalities in vitamin D endocrine system relation to increment in blood pressure, vascular smooth muscle stiffness cardiac size, coronary and peripheral artery disease and an overactive renin- angiotensin- aldosterone system resulting in an increased BP[15,16].

Vitamin D levels of the control group having a normal blood pressure were in sufficient range (>30ng/mL) as categorized by other studies[17,18].

Our study gets support from NHANES III data that documented a reciprocal relation between 25 (OH) D and blood pressure involving both systolic and diastolic blood pressures in subjects with BP ranging from normotensive to mildly hypertensive. Framingham Offspring Cohort inferred that hypertensive patients with deficient vitamin D levels, had a greater risk of developing CVD as compared to individuals without hypertension. And that rise in CVD risk was in incremental manner[19,20].

We concluded from our modest endeavor that there is a trend of higher blood pressure values among vitamin D deficient people, as we obtained highest levels of vitamin D (57 ng/mL) in the control group and the lowest levels of vitamin D (11 ng/mL) in patients having stage II hypertension (BP range of ≥160 mm of Hg systolic and/or ≥100 mm of Hg diastolic)[21].

Considerable number of studies carried out on vitamin D supplementation and their subsequent effects on SBP and DBP showed promising results in the previous years as well as in present days[22,23].

This study had a small sample size and although matching was done to reduce the effect of confounding factors like dietary intake of salt, calcium, duration of sun exposure, time of the year and seasonal variation in vitamin D levels, it did not translate into a significant relationship. Being a comparative study of small cohort, it could not establish a causal role or directionality of association. Nevertheless, under the present circumstances of a deficient or insufficient vitamin D status and a rising trend in blood pressure related conditions prevalent in our country, our study can be helpful in supporting the notion of reduced vitamin D levels in hypertensive people.

CONCLUSION

Our findings in newly diagnosed hypertensive male subjects, suggests a correlation between low plasma 25(OH) D levels and high blood pressure. These findings may help relate higher risk of developing hypertension with vitamin D deficiency and insufficiency to some extent.

RECOMMENDATIONS

Large scale randomized placebo controlled trials and studies involving supplementing people with vitamin D are needed to substantiate or refute this link in patients with high blood pressure.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Mukhtar S: Principal Investigator, Concept & Data Analysis.

Qamar I: Data handling & Critical analysis.

Latif J: Manuscript Drafting.

Niaz S: Bibliography.

Naseem R: Data entry.

Sear MJ: Proof reading & critical analysis.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

RELATIONSHIP OF CONSANGUINITY WITH CONGENITAL HEART DISEASE IN CHILDREN

Syed Imad Ali Shah, Sabahat Amir, Rushna Younas, Faiqa Nazir, Abdul Khaliq, Zia Ur Rehman

Department of child health, Khyber Teaching Hospital, Peshawar - Pakistan

ABSTRACT

Objectives: To find the relationship between consanguineous marriage and congenital heart disease in children

Material and Methods: This case-control study was conducted from October 2018 to January 2020 at inpatient and outpatient settings of department of child health, Khyber Teaching Hospital Peshawar. Total 346 children were taken and divided into two equal groups. 173 with congenital heart disease and 173 with no cardiac defect on echocardiography. Consecutive non-probability sampling was employed and echocardiographs of the children were collected and analyzed by SPSS 23.

Results: Out of 346 children from birth to 15 years old, 173 had congenital heart disease and 173 had no cardiac defect. Amongst them, 214(61.8%) were male while 132(38.2%) were female. 274(71.1%) were from 0-1 year age group, 66(19.1%) were from 1-5 years, 20(5.8%) from 5-10 years age group and only 14(4%) were from 10-15 years age group. From the total study population, 119(34.39%) had consanguineous parents and had congenital heart disease with the odds of congenital heart disease 1.68 higher in consanguineous marriages compared to non-consanguineous marriages with a p-value of 0.02.

Conclusion: The odds of having congenital heart disease is 1.68 higher in children born from consanguineous marriages compared to non-consanguineous marriages.

Keywords: Consanguinity, congenital heart disease, children, echocardiography.

This article may be cited as: Shah SIA, Amir S,Younus R, Nazir F, Khaliq A, Rehman Z. Relationship of consanguinity with congenital heart disease in children. J Med Sci 2020 April;28(2):117-120

INTRODUCTION

Congenital heart disease (CHD) refers to the structural heart defect which is present since birth of a child. It is one of the major causes of mortality in the first year of life[1-3]. Congenital heart disease is one of the most frequently occurring birth defects which affects the newborn children and is sometimes picked up by a physician later on[4,5]. Congenital heart diseases (CHD) are common and serious conditions that have significant impact on mortality, morbidity, and healthcare expenses in children and adults[6]. It has a wide variety of clinical presentations ranging from asymptomatic detection of the defects to symptomatic cardiac disease which may lead to death[7].

The worldwide prevalence of CHD among newborns ranges from approximately 3.7 to 17.5 per 1000, accounting for 30-45% of all congenital defects[8]. Variations in birth prevalence of congenital heart disease in different parts of the world have been reported, from 6.9 per 1000 births in Europe to 9.3 per 1000 in Asia[6].

Correspondence
Dr. Syed Imad Ali Shah
Department of Child Health
Khyber Teaching Hospital, Peshawar - Pakistan
Email: imadbanoori@gmail.com
Cell: +92-333-9114324
Date received: 12-05-2020
Date revised: 01-06-2020
Date accepted: 20-06-2020

In Pakistan about 40,000 children are born with a congenital heart defect each year[7]. Incidence was found to be 8.2/1000 live births in a study in China[1], 25/1000 live births in Bangladesh[9] and 8.1/1000 live births in a study in Atlanta[10].

Etiology of Congenital heart disease is not known in majority of cases but numerous environmental and genetic factors have a role in its pathogenesis including tobacco use, maternal diabetes, maternal smoking, consanguinity among parents, infections, maternal age and family history of Congenital heart diseases[11].

Studies have been published in different parts of the world regarding the relationship of consanguinity and CHD in children but not much data is available in this regard in our country and keeping in view the increased ratio of consanguineous marriages, it is imperative to have a data regarding its effect on CHD in children and that is why this study was conducted.

MATERIAL AND METHODS

It was a case-control study conducted both at inpatient and outpatient setting of the department of child health, Khyber teaching hospital, which is one of the largest public sector tertiary care hospital of the Khyber Pakhtunkhwa (KPK) province, located in Peshawar city. This hospital provides health care services to pediatrics

patients most of whom belong to poor community and low socioeconomic class. In addition to local community, many of these patients come from far-flung areas of Khyber Pakhtunkhwa and Federally Administered Tribal Areas (FATA). A total of 346 children from birth to 15 years of age who had done echocardiography due to congenital heart disease or suspicious of congenital heart disease on clinical examination were included in the study and were divided into two equal groups after taking informed consent. Children with acquired heart disease due to any reason were not included.

The case group had 173 children with congenital heart disease and control group also had 173 children but with no congenital heart disease via consecutive non-probability sampling.

Data was collected on pre designed proforma including name, age, sex, congenital heart disease status and consanguinity and was analyzed using SPSS v23. Frequency and percentage was calculated for categorical variables and Odds ratio (OR) was calculated for assessing the risk of consanguinity on congenital heart disease.

RESULTS

Among the 346 children, 214(61.8%) were male and 132(38.2%) were female. Majority of children were infants i.e 0-1yr making about 241(71.1%) of the included children while just 14(4%) were from 10-15yrs of age. From 173 children with congenital heart disease, consanguinity was present in 119(68.73%) and absent only in 54(31.21%) and among children with no congenital heart disease, 98(56.54%) children were born from consanguineous parents while 75(43.35%) parents were not related. Odds ratio was calculated [OR=1.68, 95%CI 1.08-2.61] with P-value of 0.02 which is statistically significant and showed that risk of congenital heart disease in children with consanguineous parents was higher compared to those with non-consanguineous parents.

The common congenital heart diseases that we observed in our study are shown in table. 5. Majority of the children were having complex congenital heart disease i.e 2 or >2 cardiac defects in a child, accounting for 73(42.1%) of all CHD cases and 52 of them were present in children with consanguineous parents compared to 21 cases in non-consanguineous group. The next common defects were ventricular septal defect (VSD) and patent ductus arteriosus (PDA) accounting for 14.4% each but again more cases were found in children with consanguineous parents.

Table 1: Gender distribution of study participants.

Gender	Frequency	Percentage
Male	**214**	**61.8%**
Female	132	38.2%
Total	346	100%

Table 2: Age Groups of study participants.

Age Groups (in Years)	Frequency	Percentage
0-1yr	246	71.1%
1-5yrs	66	19.1%
5-10yrs	20	5.8%
10-15yrs	14	4%
Total	346	100%

Table 3: Frequency of consanguinity in CHD.

Consanguinity	Congenital Heart Disease		Total
	Present	Absent	
Present	119	98	217
Absent	54	75	129
Total	173	173	346

Table 4: Frequency of different congenital heart diseases.

S.No	Type of Congenital heart disease	Consanguinity		Total n (%)
		Present	Absent	
1	Atrial Septal Defect (ASD)	12	4	16 (9.2%)
2	Ventricular Septal Defect (VSD)	14	11	25 (14.4%)
3	Patent Ductal Arteriosus (PDA)	17	8	25 (14.4%)
4	Pulmonary Stenosis (PS)	3	2	5 (2.8%)
5	Transposition of Great Arteries (TGA)	3	2	5 (2.8%)
6	Coarctation of Aorta	2	1	3 (1.7%)
7	Tetralogy of Fallot (TOF)	8	3	11 (6.3%)
8	Atrioventricular Septal Defect (AVSD)	4	0	4 (2.3%)
9	Cor Triatriatum	2	1	3 (1.7%)
10	Total Anomalous Pulmonary Venous Circulation (TAPVC)	1	1	2 (1.1%)
11	Aortic stenosis (AS)	1	0	1 (0.5%)
12	Complex Congenital Heart Disease	52	21	73 (42.1%)
	Total	98	75	173 (100%)

DISCUSSION

In our study Congenital heart diseases were found significantly higher in children born out of consanguineous marriage than in those with non-consanguineous marriage. A study by Deveshwar D also showed that congenital heart disease was significantly higher in children born out of consanguineous marriage than in those with non-consanguineous marriage [OR=4.614][12]. Bassili A in their case-control study in the year 2000 showed that consanguinity was present in 44.1% of Congenital heart

disease cases compared to controls in which it was 23.8% ($p < 0.05$)[13]. Becker et al studied 1013 patients with Congenital heart disease and the data was then compared to rates of consanguinity from a previous study of 3212 Saudi families (El-Hazmi MA), and the comparison indicated a statistically significant association ($p < 0.001$) between first-cousin marriage and Congenital heart disease in the study population[14,15].

In South India, Ramegowda S in his case-control study analyzed 144 cases of congenital heart disease. The parents of 15.5% of the control group were consanguineous compared to 40.3% of the Congenital heart disease families ($p=0.001$)[16]. In another study conducted by El Mouzan MI, it was found that Congenital heart disease was present in 9.1 per 1000 consanguineous families versus 4.3 per 1000 non-consanguineous families, giving an OR of 2.12 (95% CI 1.27–3.57)[17].

Another study by Haq FU demonstrated that amongst the 250 cases of congenital heart disease, 122 patients (49%) were children of consanguineous marriages whereas in controls only 72 patients (29%) showed consanguinity between the parents. On multivariate analysis, consanguinity was found as an independent risk factor for Congenital heart disease in children ($p < 0.001$)[18].

The most common type of congenital heart disease that we found in our study population was complex congenital heart disease both in consanguineous and non-consanguineous groups but was more in consanguineous group. Other common defects observed were ventricular septal defect and patent ductus arteriosus while other defects were very few. In a study by Becker S, atrioventricular septal defect (AVSD) was most likely associated with consanguinity followed by VSD and ASD[14]. Contrary to this Ramegowda S concluded that atrial septal defect (ASD) and patent ductus arteriosus (PDA) were strongly associated with consanguinity, but they found no significant association of consanguinity with VSD or with complex congenital heart disease as found in our study.16 Bassili A reported that VSD and ASD were associated with consanguinity[13]. Same findings were documented by Yunis K in their study[19].

The majority of these studies like ours support the relationship between consanguineous and congenital heart disease in children. The question that how consanguinity causes this increase risk of congenital heart disease in children is not fully understood. Consanguinity could lead to the segregation of autosomal recessive genes, but the contribution of the genes to heritability of cardiac malformations is not well understood. Genetic studies can help to solve this question but it is beyond the scope of this local study. Different populations may be differentially susceptible to genetic and environmental perturbations, and it is important to continue these studies with a global perspective.

After analyzing the result of our study, we recommend that the healthcare professionals and parents should be educated regarding importance of the medical family history and to discuss the potential implications on health based on the family history and clinical assessment with the parents involved in consanguineous marriage. We also suggest to develop parental skills to better manage familial health risks and to prioritize disease prevention and investigation into genetic predispositions to disease and incorporate cultural and social issues such as consanguinity into global health initiatives.

LIMITATIONS

Was performed in a single hospital, we could have had better result if the study was performed on a wider scale with a bigger sample size. Additionally, if genomic study could have been available, a better understanding of the relationship of consanguinity with congenital heart disease could have been made.

CONCLUSION

Congenital heart diseases are common entity in children. Not much has been identified in the area of cause and effect relationship of various prenatal factors causing the congenital heart diseases in children. Consanguinity among parents is an independent risk factor for presence of congenital heart diseases in children and the result of our study and some other studies prove this statement. If we can develop a better understanding of the relationship between consanguinity and congenital heart disease, we can implement more precise genetic counseling and more effective clinical management.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Shah SIA: Principal author and article writing.

Amir S: Statistical analysis and review.

Younas R: Data Collection

Nazir F: Literature searching & Writing References.

Khaliq A: Literature searching & Writing References.

Rehman Z: Data Collection.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

A REVIEW OF FIREARM DEATHS IN FEMALE VICTIMS – AN EXPERIENCE OF FORENSIC MEDICINE DEPARTMENT IN PAKISTAN

Beenish Malik[1], Mian Saad Ahmed[1], Muhammad Arshad Hussain[1], Hafiza Naima Anwar[2], Sahibdad Khan[1], Muhammad Yousaf[1]

[1]Department of Forensic Medicine & Toxicology, Khyber Medical College, Peshawar - Pakistan

[2]Department of Forensic Medicine & Toxicology, Shahida Islam Medical Complex, Lodhran - Pakistan

ABSTRACT

Objective: To review firearm deaths in female victims reported to the Department of Forensic Medicine and Toxicology, Khyber Medical College, Peshawar, Pakistan.

Material and Methods: Retrospective chart review was conducted on female victims of firearm deaths out of the total medico-legal postmortems performed at the Forensic Medicine Department from January-December 2018. The cases were identified on the basis of the police inquest report and postmortem findings were recorded for firearms. SPSS 20.0 was used as a statistical tool for the study.

Results: Overall with a total of 157 cases, 90 were identified as female firearm victims, which constituted 57.3% of the total. Head & Neck were the main target area in (49%) followed by the chest (33%). 62% of the victims aged between 21-40 years. The maximum firearm deaths were recorded during May. In urban and rural distribution, 60% of the cases were from rural areas while 40% from urban areas.

Conclusion: Young females were more prone to firearm injuries, in which head & neck were the main target area of the body. Maximum cases were from rural areas and May was the month with maximum number of cases.

Keywords: Firearms, Deaths, Female.

This article may be cited as: Malik B, Ahmed MS, Hussain MA, Anwar HN, Khan S, Yousaf M. A review of firearm deaths in female victims – An experience of Forensic Medicine Department in Pakistan. J Med Sci 2020 April;28(2):121-124
doi: https://doi.org/ ----------

INTRODUCTION

It is believed that internationally number of deaths due to firearm are increasing each year. Firearms are the most common types of weapons globally used for killing, which can either be suicidal or homicidal for which the frequency varies for different regions between 50-90% [1, 2]. The history of Europe is self-explanatory where one can easily appreciate short gun as important tools of murder, which in comparison with the subcontinent in particular with South Asia is quite a small number[3]. In South Asia, when we particularly talk about Pakistan, then the free availability of weapons is always off great concern particularly in regions under conflict zones like in Khyber Pakhtunkhwa and Baluchistan. The belt of FATA and the region of the Pak-Afghan border is thought to have easier access to weapons and has strong weaponry culture. The area was previously under Frontier Crime Regulation (FCR) and had no control by any law enforcement agency which made is much suitable for local manufacture of weapons and its use[4]. Countries have evolved laws for illegal possession of weapons through which a considerable decrease in the homicidal mortality rate is achieved[5].

In a worldwide analysis of the homicidal deaths some common behavioral pathways are observed, which are the leading causes of homicides[6]. Intolerance, family disputes, unemployment, state terrorism and many social massacres are identified as major behavioral patterns involved in homicides. The province, we are living in has a strong social structure of tribes where traditional norms are taken with great sensitivity and three Z's are identified as major reasons of homicide Zan (woman), Zar (wealth), and Zamin (piece of land)[7]. The social-psychological examination of such cases shows that most of the killings are due to extreme social pressure, which is a mean of avenge for family honor[8]. And mostly in all such cases it is the female gender of the society which suffers the

Correspondence
Dr. Mian Saad Ahmed
Department of Forensic Medicine,
Khyber Medical College, Peshawar - Pakistan
Email: saadahmedmian@gmail.com
Cell: +92-333-9867700
Date received: 23-03-2020
Date revised: 14-05-2020
Date accepted: 20-05-2020

most[8]. Now the questions arise that why people take such a harsh decision of their own? This can be answered by the lack of knowledge and trust of people on different law enforcement agencies at one end, while on the other end the delaying tactics adopted by different departments also contribute towards the hindrance towards justice deliverance[9]. The human body has many body parts, organs, systems, muscles and bones; each of which can separately or in combination be injured by any bullet entering the body[10].

This study was aimed to review different patterns of firearm deaths in female cases reported to Khyber Medical College, Peshawar. The study analyzed the general pattern of age distribution, targeted area and month of deaths which can then be utilized by the field experts in minimizing the death toll by use of different intervention measures like counseling education, proper schooling, and use of proper legislation.

MATERIALS AND METHODS

This retrospective chart review was conducted from January – December 2018 at Forensic Medicine and Toxicology Department of Khyber Medical College Peshawar, All the females with firearm deaths who were brought to the department along with complete record were included in the study and cases with incomplete documentation were excluded. Internal and external examination was conducted. The internal examination involved thorough check up of the three main cavities of the body that is a cranial cavity, thorax and abdominal cavity. The track of the projectile was followed and the extent of injury to various organs was determined. The characteristics of both entry and exit wounds were noted. The above data collected, was entered on a pre-designed proforma and the results were summarized as text or tables after entering the data in SPSS 20.0.

RESULTS

A total of 157 dead bodies of female victims were reported to the department and was subjected to postmortem during 2018, out of which 90 cases were a result of firearm injuries.

The frequently affected age group of females was between 21-40 years, making the highest percentage of 61% followed by 11-20 years which makes a total of 16.7% as given in Table-1. The main target areas was being the head and chest details given in table-2. Sixty percent of cases were reported to the department from rural, whereas 40% from urban areas. The rural to urban ratio was 1.5:1.

Majority of the postmortems were conducted during May 17(18.8%) followed by September 12(13.3%) shown in table-3.Table-1: Age wise Distribution of Female Firearm Victims

Table 1: Age wise Distribution of Female Firearm Victims.

Age group (years)	Number of victims (%)
0-10	7(7.8 %)
11-20	15 (16.7 %)
21-40	55 (61.1 %)
41-60	12 (13.3 %)
Above 60	1 (1.1 %)
Total	90

Table 2: Target area of body in female victims of firearm injuries.

Targeted area	No. of cases
Head & Neck	44 (48.9%)
Chest	30 (33.3%)
Abdomen	15 (16.7%)
Extremities	1 (1.1%)
Total	90

Table 3: Month wise distribution of firearm deaths in female victims.

Month	Number of Cases	Percentage %
January	6	6.6
February	5	5.5
March	6	6.6
April	6	6.6
May	17	18.8
June	3	3.3
July	11	12.2
August	6	6.6
September	12	13.3
October	8	8.8
November	6	6.6
December	4	4.4

DISCUSSION

Our study showed that injury due to firearm to the vital organs of the body was the main cause of death in the female victims of Peshawar district. In the United States, about 60% of all deaths are due to firearms, more than 25% of all the assaults, over 35% of all robberies and approximately half of all suicides[11]. The data collected at the department of Forensic Medicine and toxicology, Peshawar shows correspondence with studies conducted in other cities of Pakistan, in which female victims due to firearm showed prominence[12,13]. However, a few studies show that both firearm injuries and road traffic accidents form the most common cause of postmortem[14]; this indicates easy availability of the weapons and the increasing traffic in big and busy cities.

The study under discussion represents female victims of all age groups, the main bulk of the victims fall between 41-60 years of age that involves young and middle-aged females as shown in Table-1. Many studies from all over Pakistan give highest occurrence in young and middle-aged female victims of firearm[15-17]. In female victims of firearm, head and neck were the primary target area followed by the chest, as these areas contain the vital organs of the body (Table-2) similar pattern was observed in other studies as well.

The female victims of firearm were more from rural areas as compared to urban. This must be endorsed due to superior policing, greater literacy and employment with evenhanded income in urban areas. If we consider the data collected for the study, there arises a need for forming legislation at federal and local levels in order to address the gun violence in a number of ways, which includes restriction at the purchase of firearm weapons especially by the young generation. Introducing educational programs for parents as well as children in order to raise awareness about the hazards posed by the possession and use of weaponries. In our part of the world Jirga system can be used for highlighting the ethical values and substitute the feudal value systems. More over the manufacture of the weaponries should be discouraged by the law enforcing agencies in the tribal areas surrounding Peshawar, and only licensed weapons should be available for purchase. In addition to this, effective system at hospitals to provide emergency treatment to the victims of firearm should be available in order to reduce the rate of deaths due to firearm injuries[18, 19].

Lack of control on the manufacture and sale of firearm in a country can have serious security issues on its neighboring and other countries. Recently the Unites Nations Crime Prevention and Criminal Justice Commission passed a resolution in order to control and minimize the illegal trafficking of firearms[20]. Small sample size was a limitation of the study; however, a study on a larger scale may validate results of this study.

CONCLUSION

The study concluded that young females are more prone to firearm injuries and head & neck were the major part of the body affected by the firearm. The study also revealed that maximum cases were from rural areas and in the month of May.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Malik B: Concept, design, data collection, critical review of article.

Ahmed MS: Analysis and interpretation of data, drafting of the article, statistical expertise.

Hussain MA: Data collection.

Anwar HN: Drafting of the article and critical review.

Khan S: Drafting of the article.

Yousaf M: Critical review of the article.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONGESTIVE CARDIAC FAILURE IN CHILDREN WITH VENTRICULAR SEPTAL DEFECT

Sabahat Amir[1], Yasir Rehman[2], Syed Imad Ali Shah[1], Arshia Munir[1], Syed Kaleem Ur Rehman[1], Shazia Bahar[1]

[1]Department of child health, Khyber Teaching Hospital, Peshawar - Pakistan.

[2]Department of Paediatric Cardiology, Hayatabad Medical Complex, Peshawar - Pakistan

ABSTRACT

Objective: To find the frequency of children with ventricular septal defect presenting with congestive cardiac failure

Material and method: This is a cross sectional descriptive study; carried out in a pediatric unit of a tertiary care hospital of Khyber Pakhtunkhwa, Peshawar from June 2018 till December 2019.

Results: 209 infants and children with ventricular septal defect were enrolled. 146 (69.9%) were males and 63 (30.1%) females. Minimum age of the patient was 0.9 years and maximum age was 8.5 years. Feeding difficulty was found in 90% of patients, dyspnea in 59.8% of patients, repeated chest infection was seen in 49.8%, failure to thrive in 69.9%, tachycardia in 83.3%, displaced apex beat in 59.8%, cardiomegaly in 90%, hepatomegaly in 43.1%, VSD murmur in all 100% of patients and edema was observed in 56.5% and tachypnea in 40.7% of patients with majority of patients presenting with combination of more than three clinical features.

Conclusion: Ventricular septal defect is not uncommon in our population. This study proves that the clinical picture of VSD has a big variety and care must be taken while these clinical features are observed in younger age groups or its combination to get the correct diagnosis in time.

Keywords: Ventricular septal defect (VSD), Congestive Cardiac Failure (CCF), Children.

This article may be cited as: Amir S, Rehman Y, Shah SIA, Munir A, Rehman k, Bahar S. Congestive Cardiac failure in children with Ventricular Septal defect. J Med Sci 2020 April;28(2):125-128

INTRODUCTION

Congestive cardiac failure (CCF) in infancy and childhood is a common presentation of many Congenital Heart Defects (CHD). The incidence of congenital heart disease is 6-8/ 1000 life birth and amongst them Ventricular septal defects (VSD) comprises of 25–30% of all congenital cardiac lesions i.e. 1.8–4/1,000 live births[1]. Thus CCF is very common in VSD[2].

Ventricular septal defect (VSD) though a common congenital heart defect, is usually picked up late. The reason being variable symptoms of VSD presenting from being quiet and silent with spontaneously closure, to irreparable complications and mortality when not treated timely and appropriately[3,4,5].

Several key components determine the mode of presentation of this defect. The amount of blood, interventricular shunting direction and the cardiac chambers' degree of volume loading are the primary factors, thus secondarily leading to aortic valve prolapse and pulmonary or systemic out flow tract obstruction. The size of the defect and pulmonary and systemic vascular resistance determines the quantity of interventricular flow[6,5].

The asymptomatic children who are picked during routine physical examination actually have a small VSD with less shunting and normal pulmonary arterial pressure while children with large VSDs and pulmonary hypertension and increased flow have tachypnoea, poor feeding and growth, excessive sweating, recurrent pulmonary infections and heart failure[4,6].

Children with VSD usually presents under one year of age (63.1%). The common symptoms are dyspnea (98%), cough (83.7%), problems with breast feeding (9.6%), and inability to gain weight (65.3%), recurrent pneumonias (59.2%) and excessive perspiration (44.9%)[2].

Cardiac murmur (98%), labored breathing (91.8%), cardiomegaly on X-ray chest (89.8%), tachycardia (89.8%), hepatomegaly (89.8%), displaced apex beat (57.1%) and edema (28.6%) are the common signs to look for[2].

The disorder with inability of the heart to pump blood adequately through the body is termed as congestive heart failure. Insufficient oxygenation and collection

Correspondence
Dr. Sabahat Amir
Associate professor Children B ward
Department of Pediatrics KTH, Peshawar - Pakistan
Email: sabahatamir7@gmail.com
Cell: +92-333-9128955
Date received: 05-04-2020
Date revised: 08-05-2020
Date accepted: 20-06-2020

of fluid in tissues and organs lead to breathlessness and easy fatigability of children. The severity of these symptoms is variable as is VSD itself. whatever the cause maybe children with heart failure presents with failure to thrive, tachypnoea, tachycardia, feeding difficulty, sweating, irritability, pallor, fatigue, exertional dyspnea, orthopnea, edema raised JVP, pulmonary crackles, hepatomegaly, repeated chest infections and wheeze[7].

About 24.6% patients with moderate or large VSD present with congestive cardiac failure[8]. Morbidity and mortality of congestive heart failure and VSD is high[2]. In developing countries the late presentation of ventricular septal defect (VSD) leads to development of severe pulmonary arterial hypertension (PAH) (16.5%) leading to rise in morbidity and mortality[3, 9].

The current study was designed to determine the variable presentation of children with VSD and congestive heart failure. This study will prove helpful to the physician in prompt recognition of CCF in pediatric patients with VSD thus early diagnosis and reduction of morbidity and mortality will be possible.

MATERIAL AND METHODS

This Cross sectional descriptive study was conducted at department of pediatrics, Khyber teaching hospital, Peshawar from June 2018 till December 2019.

A total of 209 patients newly diagnosed VSD or known cases who presented with signs and symptoms were included in the study. Non-randomized convenient sampling was used to select children. The attendants of the enrolled children gave informed consent. Standardized proforma was used for all patients included in study.

Record of every patient was maintained. A detailed history was taken from attendant of patient included in study. Attention was paid to presenting complaints such as poor feeding, fever, lethargy, perspiration, repeated chest problems, poor weight gain, cough and noisy chest. During examination of these children, special attention was paid to clinical features such as tachycardia, tachypnea, chest abnormality, apex beat, edema, hepatomegaly, crepitations and murmur. X-Rays chest antero-posterior were obtained in the radiology department of KTH. ECG was performed and interpreted for tachycardia, arrhythmias, left axis deviation, ventricular hypertrophy and abnormalities of PQRS and T-waves which helped in initiation of treatment. Echocardiography was performed by pediatric cardiologist with 2-D Doppler and color Doppler machine with transducer frequency appropriate for patient size for diagnosis of new cases and in those known VSD cases where reevaluation was needed .The data was recorded in pre designed questionnaire.

The patients presenting to OPD and Emergency Pediatric Services or ward with signs and symptoms of CCF, known to have VSD or found to have VSD on workup, known patients with VSD developing CCF during hospital stay and age 1 month to 16 years were included. While all those patients with complaints and clinical features of heart failure but without ventricular septal defect or with signs of heart failure and other or a complex congenital cardiac anomalies with VSD were excluded. All these factors are confounders and will make the study results biased if included.

RESULTS

209 patients with ventricular septal defect were enrolled. Males were 146 (69.9%) and female 63 (30.1%). (Figure No. 1). Minimum age of the patient was 0.9 years and maximum age was 8.5 years. The mean age was 4.05± 2.07. Most of the patients 98 (46.9%) were in the age group up to 3.50 years followed by 70 patients (33.5 %) in the age group of 3.51-6.00 years and 41 patients (19.6 %) were above 6.01 years of age. (Table No.1). Since our objective was to see the different types of presentation in children with VSD, we took about 11 set of different signs and symptoms in our study. Feeding difficulty was found in 90% of patients, dyspnea in 59.8% of patients, repeated chest infection was seen in 49.8%, failure to thrive in 69.9%, tachycardia in 83.3%, displaced apex beat in 59.8%, cardiomegaly in 90%, hepatomegaly in 43.1%, VSD murmur in all 100% of patients and edema was observed in 56.5% and tachypnea in 40.7% of patients with majority of patients presenting with combination of more than three clinical features (Table 2).

As our inclusion criteria consisted of consecutive patients with VSD; which were confirmed by ECHO. The subtypes of VSD in our study, were peri-membranous (86.6%), muscular VSD (10%) and sub-atrial infundibular VSD (3.3%)(Table 3).

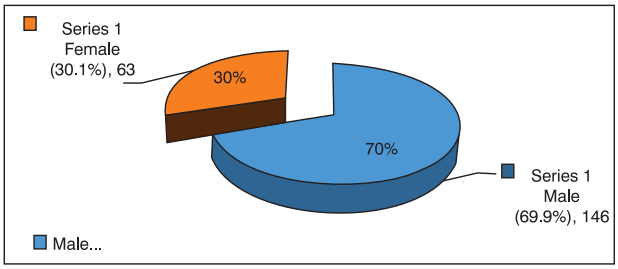

Figure 1: Gender wise distribution of sample (N=292).

Table 1: Age wise distribution of the sample (N=209)

Age Groups in years	Frequency	Percent
up to 3.50	98	46.9
3.51 - 6.00	70	33.5
6.01 and aboue	41	19.6
Total	209	100.0

Table 2: Clinical presentations among patient of Ventricular Septal defect.

Clinical presentation among patient	Yes (%age)	No (%age)
Feeding difficulty	188(90)	21(10%)
Dyspnea	125(59.8)	84(40.2%)
Repeated chest infections	104(49.8)	105(50.2)
Failure to thrive	146(69.9)	63(30.1)
Tachycardia	174(83.3)	35(16.7)
Displacement of apex beat	84(40.2)	125(59.8)
Cardiomegaly on CXR	188(90)	21(10)
Hepatomegaly	90(43.1)	119(56.9)
Edema	118(56.5)	91(43.5)
Tachypnea	85(40.7)	124(59.3)
VSD murmur	209(100)	

Table 3: Echocardiographic finding of VSD.

Type of ventricular septal defect	Frequency	Percent
Peri membranous VSD	181	86.6
Muscular VSD	21	10
Sub atrial Infundibular VSD	7	3.3
Total	209	100

DISCUSSION

Congenital cardiac malformations constitute a major portion of pediatric cardiovascular disease thus constituting a greater percentage of congenital malformations; 4 to 50 per 1000 live birth being its estimated prevalence. Amongst the 4 to 10 live born infants per 1000 having a cardiac defect, 40% are diagnosed less than one year of age and 50 per 1000 live births.

Incidence of CHD is deficient growth or failure of the septum between the ventricles to align or non-fusion of parts of interventricular septum leads to Ventricular septal defect (VSD)[12]. Ventricular septal defect alone with none of the other cardiac defects presents in 2-6 of every 1000 live births and constitute more than 15-20% of all congenital heart diseases[13]. Lopez L divided VSD into peri membranous, Muscular and juxta arterial types and 80% of VSDs are peri membranous thus being the most frequently diagnosed type[14,15]. About 5-20% are Muscular VSD and have a good prognosis as they close on their own earlier than peri membranous VSD[16]. Doubly committed sub arterial VSD's (DCSA) are found in 5-7% children with VSD on autopsy and surgically. They are more common in Asia, particularly Far East constituting about 29% of VSDs[17]. Classically VSD association with aortic valve prolapse and aortic regurgitation developing progressively is being reported in Chinese and Far Eastern population frequently[18]. Peri- membranous VSD was the most common type in this study (86.6%). Muscular VSD (10% of total VSD) was the second frequent subtype while Sub arterial infundibular (SI VSD) type was least frequent (3.3%). These results were similar to western literature, where peri membranous VSD was the most frequently reported while muscular and DCSA followed in descending order of frequency[19,20].

There is a lack of local studies on this topic. In a study at Children Hospital Lahore by Hyder SN, peri membranous, muscular, sub-aortic supra-cristal inlet and outlet were reported in 65.8%, 12.6%, 8.3%, 6.0%, 5% and 1.7% of patients respectively[19]. In a study at NICVD, Karachi, Aziz K found that PM VSD were 92% of total VSD, 7% were SI VSD and muscular were 1.7% being the least common. The same study diagnosis was made in children older than one year (68% of patients) more frequently[20]. In the present study, however, the ages of patients were between 0.9 and 8.5 years with mean age of 4.05 years. The reason being that tiny muscular VSD closes earlier and spontaneously than PM. In another study by Sadiq PM et al [20], the incidence of VSD was 32% of all Congenital Heart Diseases (CHD) in patients presenting to a tertiary care pediatric cardiology unit[21].

In our study, we reported a set of clinical features in patients with VSD. We studied and found feeding difficulty in 90% of patients, dyspnea in 59.8% of patients, repeated chest infection was seen in 49.8%, failure to thrive in 69.9%, tachycardia in 83.3%, displaced apex beat in 59.8%, cardiomegaly in 90%, hepatomegaly in 43.1%, VSD murmur in all 100% of patients and edema was observed in 56.5% and tachypnea in 40.7% of patients with majority of patients presenting with combination of more than three clinical features. In a study by Ejaz MS, the most commonly diagnosed congenital cardiac defect was Ventricular septal defect (20%) and 17.14% of acquired cardiac diseases were Rheumatic fever and viral myocarditis. The signs of heart diseases were difficulty in breathing (94.28%), fever (90%), poor feeding (57.14%) and malnutrition (34.28%). Rheumatic fever presented with movement disorder (chore)(8.57%), joint pain in 11.42%(arthritis) and S/C nodules (2.85%)[22]. In another study by Hussain M, children with VSD presented under one year (63.1%). The presentation of these children were with breathing difficulty (98%), cough (83.7%), failure to breast feed (9.6%), not gaining weight (65.3%), frequent chest problems (59.2%) and sweating (44.9%). Cardiac murmurs (98%), tachypnea (91.8%), cardiomegaly on X-ray chest (89.8%), tachycardia (89.8%), hepatomegaly (89.8%), apex beat being displaced (57.1%) and edema 28.6% were found in descending order[3].

LIMITATIONS

It was carried out in only one hospital Ventricular septal defect is fairly common in our population and features of congestive cardiac failure are apparently nonspecific. A good knowledge of common features of congestive cardiac failure is important for clinician while dealing with a child having ventricular septal defect.

CONCLUSION

Ventricular septal defect is not uncommon in our population. This study proves that the clinical picture of VSD has a big variety and care must be taken while these clinical features are observed in younger age groups or its combination to get the correct diagnosis in time.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Amir S: Principal author and article writing.

Rehman Y: Statistical analysis and review.

Shah SIA: Data Collection.

Munir A: Literature searching & Writing References.

Rehman K: Literature searching & Writing References.

Bahar S: Data Collection.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ANXIETY AND DEPRESSION AMONG TYPE-2 DIABETIC PATIENTS AT A TERTIARY CARE HOSPITAL

Sajid Ali[1], Raja[2], Badil[3], Pawan Kumar[4], Washdev[5]

[1]Benazir College of Nursing, Shaheed Mohtarma Benazir Bhutto Medical University, Larkana - Pakistan.

[2]Department of Plastic and Reconstructive Surgery, Dr. Ruth K.M. Pfau Civil Hospital, Karachi - Pakistan

[3]Institute of Nursing, Dow University of Health Sciences, Karachi - Pakistan

[4]Department Dow Medical College, Dow University of Health Sciences, Karachi - Pakistan

[5]Department of Psychiatry, Dr. A. Q Khan Centre IBS, Karachi - Pakistan

ABSTRACT

Objectives: To determine the frequency and associated factors of anxiety and depression among type-2 DM patients.

Material and Methods: Hospital based cross-sectional analytical study was carried out in outpatient department (OPD) of single public sector hospital of Karachi. Calculated sample size was 323. Subjects were approached by systematic random sampling method. Data was collected by adapted questionnaire. Chi-square test applied to identify the associated factors. P-value less than 0.05was counted as significant.

Results: Out of 323 participants, 290 (89.8%) were males. The mean age was 42.14±7.24 years. The incidence of diabetics with comorbid anxiety and depression was reported 36.5 %. Statistically association of anxiety and depression was established with gender (p-value<0.001), age (p-value<0.001), educational status (p-value<0.001), occupation (p-value<0.006), monthly family income (p-value<0.001) and smoking status (p-value<0.001). Anxiety and depression related to diabetes is affected by age groups, it is observed that middle age-group patients suffering more than younger age-group.

Conclusion: Diabetic patients are facing more psychological problems such as anxiety and depression. Moreover, significant association of anxiety and depression was found with age, gender, educational status, occupation, monthly income and smoking history of the participants.

Keywords: Anxiety, depression, type-2 diabetic clients, Tertiary Care Hospital, Pakistan.

This article may be cited as: Ali S, Raja, Badil, Kumar P, Washdev. Anxiety and Depression among Type-2 Diabetic Patients at a tertiary Care Hospital. J Med Sci 2020 April;28(2):129-135

INTRODUCTION

The worldwide occurrence of diabetes is persistently increasing along with other morbidities and extra cost[1]. According to International Diabetes Federation (IDF) one out of eleven people have diabetes, which comprises of 425 million worldwide. In addition, one in six births are affected by hyperglycaemia in pregnancy and one in two adults with diabetes is undiagnosed as well which consist of 212 million worldwide. Moreover, globally 727 billion dollars are used over diabetes mellitus (DM) annually[2]. A research study was published in 2011 which explored that there were 366 million patients with diabetes, and this is likely to increase to 552 million by 2030. Majority of people with diabetes mellitus live in developing countries. Furthermore, these countries will be on risk for greatest rise over the upcoming 19 years[3].

DM, anxiety and depression are related with early morbidity and mortality, and when these conditions co-exist, the chance of increasing difficulties, patient's distress and related cost usually increase[4]. A current research study revealed that, among individuals with type-2 Diabetes, Depressive indications significantly compromise Health Related Quality of Life[5]. Persons with DM are more prone to experience the effects of anxiety and depression as compared to general population, however this frequently stays unrecognized and untreated[6]. The occurrence of anxiety and depression among diabetic individuals is alarming because it delays the initiation of treatment

Correspondence
Mr. Raja
Staff Nurse, Department of Plastic and Reconstructive Surgery, Doctor. Ruth K.M. Pfau Civil Hospital, Karachi - Pakistan
Email: rajakhatri33@gmail.com
Cell: +92-333-3281360
Date received: 15-04-2020
Date revised: 14-06-2020
Date accepted: 20-06-2020

for these associative conditions leading to disappointment and poor outcome. Furthermore, Anxiety and Depression are known to stimulate the hypothalamic-pituitary-adrenal axis which, primarily stimulate the Sympathetic Nervous System (SNS). This results in reduced Insulin sensitivity, poor glycaemic control and increased risk of complications[7].

The diabetic patients are less likely to fulfil self-care. Sedentary routine of life, smoking and high fat diet inevitably prompt poor diabetes control and clinical results[8]. Though, it is obvious that active case discovery and managing Anxiety and Depression can help in improving patient motivation, and contribute to enhanced metabolic control and clinical results, whereas reducing the expenses of patient management[9]. It is obviously understood that timely diagnosis of Depression among Diabetic patients is extremely important to monitor right action and to reduce the rate of morbidity and mortality. Recent study conducted in Azad Kashmir revealed 38.35% Depression among type-2 DM[10]. DM is a major disease, which affects almost 425 million people globally. Whereas prevalence of anxiety and depression related to DM is under reported in developing countries like Pakistan. DM is a disease which directly links with the other health related problems particularly psychological problem, which leads to uncontrolled DM. Hence, identifying and examining the prevalence and associated factors of anxiety and depression will push us to take appropriate action to manage the psychological effects which eventually keep the clients healthy to manage their DM. Therefore, this study was conducted to determine the frequency and associated factors of anxiety and depression among type-2 DM patients at diabetic OPD at Dow University Hospital Karachi, Pakistan.

MATERIAL AND METHODS

This cross-sectional analytical study was performed at OPD of Dow University Hospital (DUH) Karachi upon both genders, known cases of type-2 DM, who came at OPD for follow-up. Those patients, who were above the age of 20 years, were included. Participants were included through systematic random sampling method. Present study was conducted in six months, from May to October 2019. Proportion formula was used for sample size calculation through Open Epi version 3.0. Total 323 patients were included with 95% confidence level and 5% margin of error.11 Study was conducted after the approval of Institutional Review Board (IRB), DUHS. Furthermore, permission also granted from Medical Superintendent of DUH and written informed consent was taken from all the participants as well. Confidentiality of the data was assured. All patients were approached at diabetic OPD of DUH. A validated, structured and self-administered questionnaire "Agha Khan University Anxiety and Depression Scale" (AKUADS) was used to collect data. Researcher assisted the patients where needed. Moreover, Urdu version of questionnaire was also used. The data collection tool contains 25 questions, out of which 13 are psychological & 12 somatic items, thus increasing the reliability for use as a screening instrument. Most of the other available instruments comprise of either psychological or somatic items. At a cut off score of 19 points AKUADS has specificity of 81%, sensitivity of 74%, a positive predictive value of 63%, and negative predictive value of 88%. While, Urdu version of the tool at a score of 20 it has a sensitivity of 66%, a specificity of 79%, a positive predictive value of 83 and a negative predictive value of 60, which is higher than other available scales like the self-reporting questionnaire (SRQ)12. Entry as well as analysis was computed by using SPSS version 21. Firstly, the association of anxiety and depression with demographic variables were determined by using Chi-squire test. P-value ≤ 0.05 was considered as level of significance. Secondly, logistic regression was used to identify the strength and direction of the association with outcome variable.

RESULTS

In this research total 323 type-2 diabetic patients from DUH were recruited. Demographic profile of the study participants was displayed in Table 1. Approximately half (46.4%) of the participant's age group were between 41-50 years. Mean age of study subjects was 42.14 ± 7.24 years. Majority of them (89.8%) were males, nearly half 146 (45.2%) had education matric and above. Monthly income of more than half 173 (53.6%) participants was between Pak Rs. 16,000-25000 and 47 (14.6%) participants were unemployed. Majority 208 (64.4%) of study participants were smokers and duration of the DM was 1-5 years.

Table-2 reveals the association of socio-demographic characteristics of the study subjects with anxiety and depression. There was significant reduction in prevalence of Anxiety and Depression with increasing age ($p = <0.001$). According to our findings, both the anxiety and depression is much more common in females than males that is also significant ($p = <0.001$). Prevalence of anxiety and depression were found less in highly educated than illiterate or primary educated persons, this variable also significant ($p = <0.001$). Patients with lower income and

cigarette smoking were also more depressed (p = 0.001). Anxiety and depression were found less common in unemployed or retired patients than employed patients, this variable also statistically significant (p=0.006). Prevalence of Anxiety and Depression increased with duration of Diabetes (p = 0.644).

Table 3 demonstrates the effect of association between anxiety and depression with socio-demographic characteristics of the participants. It was computed by using logistic regression. Statistically association of Anxiety and Depression was established with gender, age, occupation, monthly income, educational status, and smoking. Age group 41-50 years (OR: 8.8, 95%CI: 4.05-19.10) and in 51years and above age-group (OR: 2.41, 95%CI: 1.36-4.27) as compare to 31-40 years of age-group. Proportion of Anxiety and Depression is more in females' participants (OR: 4.721, 95%CI: 2.160 -10.318). Diabetes linked with anxiety and depression also exaggerated by educational status of the research participants, highly educated subjects are less affected by Anxiety and Depression. In Middle level (OR: 11.53, 95%CI: 5.022-26.49), Matriculation (OR: 9.33, 95%CI: 3.73- 23.30) and for (Intermediate/ Bachelor / Masters) (OR: 2.16, 95%CI: 0.89- 5.24) as compare to Middle level of education. Employment is also one more aspect to enhance anxiety and depressive symptom among diabetic clients (OR: 2.81, 95%CI: 1.21 - 6.49). It is also highlighted by present study that cigarette smokers are at greater risk of anxiety and depression as compare to non-smokers (OR: 2.37, 95%CI: 1.42- 3.93).

Table 1: Demographic Profile of Study Participants.

Characteristics	N	%
Age		
40-31	68	21.1
50-41	150	46.4
51 and above	105	32.5
Gender		
Male	290	89.8
Female	33	10.2
Educational Status		
Illiterate	42	13.0
Primary	30	9.3
Middle	105	32.5
Matriculation	52	16.1
Intermediate	39	12.1
Bachelor / Masters	55	17.0
Occupation Status		
Professional	134	41.5
Non-professional	142	44.0
Unemployed/ Retired	47	14.6
Monthly Income		
<15,000	82	25.4
25,000-16,000	173	53.6
>25,000	68	21.1
Smoking Status		
Smoker	208	64.4
Non-smoker	115	35.6
Duration of Diabetes (years)		
Less than 1 year	33	10.2
5-1 years	208	64.4
10-6 years	31	9.6
More than 11 years	51	15.8

Table 2: Association of Anxiety and Depression with demographic characteristic.

Anxiety and Depression symptom	No		Yes		Chi square test	
	n	%	N	%		
Age					33.957	<0.001
40-31	15	%31.2	33	%68.8		
50-41	106	%62.4	64	%37.6		
51 and above	84	%80.0	21	%20.0		
Gender					17.435	<0.001
Male	195	%67.2	95	%32.8		
Female	10	%30.3	23	%69.7		
Educational Status					59.183	<0.001
Illiterate/ Primary	64	%88.9	8	%11.1		
Middle	43	%41.0	62	%59.0		
Matriculation	24	%46.2	28	%53.8		
Intermediate/Bachelor / Masters	74	%78.7	20	%21.3		
Occupation					10.245	0.006
Professional	85	%63.4	49	%36.6		
Non-professional	81	%57.0	61	%43.0		
Unemployed/ Retired	39	%83.0	8	%17.0		
Monthly Income					27.668	<0.001
<15,000	71	%86.6	11	%13.4		
25,000-16,000	79	%52.0	73	%48.0		
>25,000	55	%61.8	34	%38.2		
Smoking Status					11.435	0.001
Smoker	118	%56.7	90	%43.3		
Non-smoker	87	%75.7	28	%24.3		
Duration of Diabetes (years)					1.667	0.644
Less than 1 year	27	%67.5	13	%32.5		
5-1 years	110	%65.5	58	%34.5		
10-6 years	30	%61.2	19	%38.8		
More than 11 years	38	%57.6	28	%42.4		

DISCUSSION

According to (IDF), global prevalence of DM was approximately 285 million in 2010 and increase is anticipated to approximately 439 million by 2030[13]. WHO surveyed and revealed in 2011that, overall prevalence of DM is about12.9 million in Pakistan[14]. The incidence of mortality increases with depression associated with diabetic patients[15-17]. Prevalence of depression in some neighbouring countries such as Iran was reported 55% United Kingdom and United States of America was30-83%[18- 20].

The comparison of DM with depression first one has more symptoms of illness, like higher risk of complications and higher working incapacity than second one[21]. It is established that in several chronic illnesses[22]. Depression is a leading mental health issue to medical therapy and there is highest threat of noncompliance to hospital medication non-depressed patients[23]. People who have Diabetes and depression have poor dietary, exercise, and medication compliance resulting in reduced glycaemic control[24].

In this study diabetes patients with anxiety and depression were 36.5% affected by younger age group, the frequency of anxiety and depression is higher than the middle age group. Frequency of female patient's depression was higher in this study. Depression was seen higher amongst patients with poor socioeconomic status and little educational level. Finding of this study is not so far from the study conducted in United Kingdom, reported approximately 33% of individuals with DM experience the ill effects of anxiety and one-fourth of them experience the ill effects of depression[25]. Frequency of depression and anxiety was found to be 52.7% as discovered by an updated study. Moreover, occurrence of depression was seen higher amongst uneducated ladies, housewives compare

Table 3: Effect of associated factors with Anxiety and Depression among diabetic patients using logistic regression.

Factors	Beta coefficient	Standard Error	Wald test statistic	Degree of freedom	P-value	OR	%95 C.I for OR	
							Upper	Lower
Age			30.270	2.000	<0.001	1		
40-31	2.175	0.396	30.222	1	<0.001	8.800	4.053	19.108
50-41	0.882	0.291	9.192	1	0.002	2.415	1.366	4.271
51 and above						1		
Gender								
Male						1		
Female	1.552	0.399	15.137	1	<0.001	4.721	2.160	10.318
Educational Status			51.909	3	<0.001			
Primary						1		
Middle	2.445	0.424	33.220	1	<0.001	11.535	5.022	26.495
Matriculation	2.234	0.467	22.884	1	<0.001	9.333	3.738	23.306
Intermediate/Bachelor / Masters	0.771	0.452	2.913	1	0.088	2.162	0.892	5.242
Occupation			9.491	2	0.009			
Professional	1.033	0.428	5.840	1	0.016	2.810	1.216	6.497
Non-professional	1.301	0.0424	9.429	1	0.002	3.671	1.601	8.420
Unemployed/ Retired						1		
Monthly Income			24.307	2	<0.001			
<15,000						1		
25,000-16,000	1.786	0.362	24.279	1	<0.001	5.964	2.931	12.135
>25,000	1.384	0.391	12.550	1	<0.001	3.990	1.856	8.580
Smoking Status								
Smoker	0.863	0.258	11.146	1	0.001	2.370	1.428	3.933
Non-smoker								
Duration of Diabetes (years)			1.661	3	0.646			
Less than 1 year						1		
5-1 years	0.091	0.375	.059	1	0.808	1.095	0.526	2.282
10-6 years	0.274	0.447	.376	1	0.540	1.315	0.548	3.160
More than 11 years	0.426	0.420	1.029	1	0.310	1.530	0.673	3.482

with educated class and working women[26]. Regarding ranking scale of diseases, depression is on number 4 thon the international burden of diseases and is about to rise to rank 2nd by the year 2020[10]. In Malaysia, a latest research study on diabetic clients was conducted on large sample size from eight different areas, which discloses the high prevalence of Depression 26.6%, Anxiety 40% and Stress 19.4% respectively. They have also found significant association among marital status, occupation, family history, monthly household income, presence of co-morbidity, and factors of depression, anxiety and stress[27]. In our research study, statistical association was found between diabetes related anxiety and depression and age, gender, educational status, occupation, monthly household income and smoking status.

Another study conducted in Pakistan by Rehman et al in 2015, it was found that the prevalence of depression, anxiety and stress 47.9%, 69.6% and 62.9% respectively among type-2 diabetes patients[28]. Moreover, prevalence of depression, anxiety and stress was also significantly higher among those patients who were suffering from complications along with type-2 DM as compared to without complications. In our study, nearly 50% of the cigarette smokers and low household income holders were suffering from anxiety and depression. According to IDF three quarters of people with diabetes live in low and middle-income countries. On the other hand, several research studies disclosed that association of low household income and diabetes related anxiety and depression.

In present study, 69.7% female and 32.8% male participants had sign of anxiety and depression. A study done in Qatar also revealed that female had elevated depression, anxiety and stress as compared with male. It is also observed that 13.6% DM patients were suffering from

strict depression, 35.3% were with strict anxiety, 23.4% with strict stress, while in female diabetic clients 63.3% were with depression, 70.1% were with Anxiety and 73.3% were with stress[29].

Another study carried out in Azad Kashmir Pakistan, observation was that Depression among diabetic patients was 38.35%. Depression was mild in about 34 (25.56%), moderate in about 12 (9.02%), less severe in about 4 (3.01%) and severe in about 1 (0.75%) patients. Significant association with depression was of female, lower education level and higher BMI ($p < .05$).10 Sughra et al (2018) found that 61 (55.5%) DM clients were also having comorbid Depression. Mood disorder was found to be greater in females (83.6 %) as compared to males (16.4%). Statistically significant relationship was found between Depression along with HTN ($p< 0.002$)[30]. In current study, statistical association was also found in gender and education variable p=value <0.001.

Haleem et al (2017) compared Type 2 DM patients with and without Depression and found that Depression was three fold greater in females (25.7%) compared to males (7.1%). This may be because of higher BMI in females which predisposes them to significantly higher comorbid conditions[31]. A research study done in Islamabad revealed that Depression among Diabetic population was 21– 26% based on scores of HDRS along with BDI and also observed that Depression was more in females 78% as compare to males and more in uneducated patients 54.4–61.7% as compare to educated.32

LIMITATIONS

This study was conducted only in one institution and on small sample size. Therefore, findings can't be generalized on whole population. Moreover, Cause and effect association could also not be determined as the study was cross-sectional in nature.

CONCLUSION

Diabetic patients are at greatest risk for mental distress. Diabetic patients who are uneducated, unemployed and females, are at greater risk of having comorbid Anxiety and Depression. Diabetes Mellitus when coupled with Depression, leads to non-adherence to medications, diet plan, and exercise, insufficient monitoring, and poor self-care. Moreover, this study gives insight about the problem. This study will potentially help to conduct interventional study in future.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Ali S:	Conception, study design, data collection, manuscriptwriting.
Raja:	Dataentering, analysis and interpretation, helped in manuscript writing.
Badil:	Literature review, editing manuscript and over all supervision.
Kumar P:	Critical review, proof reading and final approval to publish article.
Washdev:	Manuscriptwriting and bibliography.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ASSESSMENT OF ADVANCED TRAUMA LIFE SUPPORT COURSE AMONG TRAINEES AS KEY TREATMENT OBJECTIVES: A CASE OF CPSP REGIONAL CENTRE PESHAWAR, PAKISTAN

Waqar Alam Jan[1], Mian Iftikhar Ul Haq[2], Arif Raza Khan[3]

[1]Department of Surgery, Lady Reading Hospital, Peshawar - Pakistan

[2]Department of Neuro Surgery, Lady Reading Hospital, Peshawar - Pakistan

[3]Department of Otorhinolaryngology, Khyber Teaching Hospital, Peshawar -Pakistan

ABSTRACT

Objectives: To determine the outcomes of Advanced Trauma Life Support course among post-graduate trainees in Teaching Hospitals of Khyber Pakhtunkhwa (KP) province.

Material and Methods: A self-designed questionnaire was distributed amongst 200 postgraduate trainees who attended ATLS (Advanced Trauma Life Support Service) course from January 2014 to December 2016. Questionnaires were sent to post-graduate trainees from different public sector hospitals including Lady Reading Hospital Peshawar, Hayatabad Medical complex Peshawar, Khyber Teaching Hospital Peshawar and Ayub Teaching Hospital Abbottabad. Fifty trainees were selected from each hospital. The survey questionnaire was analyzed for ascertaining the demographic profile and other variables.

Results: Amongst 200 students, thirty one (15.5%) were from Anaesthesia, 46 (23%) were from General Surgery, 34 (17%) were from Orthopedics, 36 (18%) were from Accident/emergency, 09 (10.5%) were from Neurosurgery, 05 (16%) were from Cardiothoracic and 39(19.5 %) were from other surgical and allied specialties.

Conclusion: ATLS course enhanced the skills of trainees` approach towards management of emergencies.

Keywords: ATLS, Trauma, Life support.

This article may be cited as: Jan WA, Haq MIU, Khan AR. Assessment of advanced trauma life support course among trainees as key treatment objectives: a case of CPSP regional centre Peshawar, Pakistan. J Med Sci 2020 April;28(2):136-139

INTRODUCTION

Advanced Trauma Life Support (ATLS) is an essential teaching method for the initial assessment and supervision of trauma patients that aim to optimize primary care and reduce mortality and morbidity and have been adopted worldwide. Here in Pakistan, regrettably not much research has been done to find out the effectiveness of this sort of training. However, Heartfile (a Non-governmental organization) in collaboration with Government`s National Action Plan for deterrence and control of non-communicable diseases carried out a survey at Rawalpindi and it was found that overall 17.7% males and 10% females suffer from injuries due to different factors. The questionnaire based interview characterized those who took up this particular educational resource at CPSP`s (College of Physicians and Surgeons of Pakistan) regional center Peshawar during a two years' period, and analyzed their perceptions about their clinical competence. Regardless of their previous level of training and experience, nearly all surgeons and anesthetists who took this course experienced that it has improved their clinical skills and other professional qualities. While assessing the impact of trauma education in terms of clinical process, preservation of skills and awareness, and the outcome of patients, one study concluded that the standard (ABC) approach of ATLS training is applicable to the care of all critically ill or injured patients and should be taught at junior level.

Correspondence
Prof Dr Arif Raza Khan
Chairman Department of ENT
Khyber Teaching Hospital, Peshawar - Pakistan
Email: arifraza_K@yahoo.com
Cell: +92-333-39167305
Date received: 04-02-2019
Date revised: 20-03-2020
Date accepted: 20-05-2020

No one could have imagined that when a light aircraft crashed in rural Nebraska in 1976, the nature of global trauma management would be altered forever altered. James Styner, an Orthopedic surgeon, was piloting the plane in question and the accident resulted in the death of his wife and serious injuries to himself and his four children. The standard of care that he and his family received in the local hospital in the aftermath of the crash so horrified Styner, that he decided to establish a new system for the management of major trauma[1-4]. In 1978, Dr. Styner developed an educational program concerning trauma care that was quickly endorsed by the American College of Surgeons (ACS)[5,6]. The ATLS course was started the United Kingdom in 1988. These type of courses are now run globally in 63 countries[7,8].

The premise of the ATLS program is to avert the greatest threat to life first. It also advocates that the lack of a definitive diagnosis and a detailed history should not slow the application of indicated treatment for life-threatening injury, with the most time-critical interventions performed early. During past decades, the ATLS guidelines evolved and improved based on the evidences provided from the studies. It is well established that improving the standards of care process would reduce mortality and morbidity in trauma systems[2-5,8,9]. In this regard, ATLS subcommittee performs sequential additions to the guidelines based on expert opinion and select review of current literature[4,6,7].

ATLS courses have a uniform pattern:16 doctors from a mix of specialties relevant to trauma care are taught by a faculty of 6 to 10 trained instructors, who apply adult education theory to inculcate a systematized and collaborative approach to trauma care[2,3]. Strong prominence on the individual guidance of candidates allows formative as well as cumulative evaluation of individual candidates. The course depends upon the eagerness of candidates as well as instructors, and teaching is carried out in a conducive and supportive environment. The significance and soundness of the course content is strengthened by the clinical credentials of those who teach it following four yearly updates suggested by American College of Surgeons Committee on Trauma[10-12].

The aim of this survey was conducted to determine the perceptions of postgraduate students about its utility educational impact, relevance and challenges faced during the workshop.

MATERIAL & METHODS

A self-designed questionnaire was distributed amongst 200 trainees from different public sector hospitals (including Leady Reading hospital Peshawar, Hayatabad Medical complex Peshawar, Khyber Teaching Hospital Peshawar and Ayub Teaching Hospital Abbottabad) who attended ATLS courses from January 2014 to December 2016. Fifty trainees were selected from each hospital.

The questionnaire included the demographic profile of the candidates, questions about their perceptions about the utility, educational impact, relevance, and challenges faced during the workshop. The respondents were questions about the above-mentioned aspects using Likert scale responses (1, no use; 2, little use; 3, average; 4, useful; 5, very useful). All the data was collected on printed proforma and the results were analyzed using SPSS-23.

Table 1: Number of Centre and of Trainees.

Hospitals	No of Trainees
Hayatabad Medical complex Peshawar	50
Khyber Teaching Hospital Peshawar	50
Ayub Hospital Abbottabad	50
Leady reading hospital Peshawar	50

Table 2: Shows the specialties of the respondents.

No of specialties	No of respondents & % ages
Anaesthetics	31(15.5%)
General surgery	46(23%)
Orthopaedics	34(17%)
Accident/emergency	36(18%)
Neurosurgery	09(10.5)
Cardiothoracic	05(16%)
Others	39(19.5%)

Table 3: Preparedness of the respondents regarding their course.

Preparedness of the respondents	No of respondents with % ages
Well prepared	84(42%)
Adequately prepared	61(30.5%)
Poorly prepared	41(20.5%)
No answer	14(7%)
Total	100%

Table 4: Did the ATLS course improve your clinical practice?.

Improvements in Skills	No of candidates and % ages
Small improvement	43(21.5%)
Medium improvement	99(49.5%)
Large improvement	58(29%)
Total	100%

Table 5: Should ATLS be compulsory for FCPS?.

Yes/ No	All surgeons	All others
Yes	172 (86%)	187 (93.5%)
No	22(11%)	13 (6.5%)
Total	100%	100%

RESULTS

In all 200 questionnaires were sent to the trainees froTable 1 shows the distribution of participants belonging to different hospitals and table-2 shows the specialty distribution of postgraduate students. Fourty-two percent students were well prepared to attend the course while about one fifth were poorly prepared (see table-3).

Regarding improvement in practice, about 1/3rd of students responded in positive (see table-4 for details). To a question that whether this course should be made mandatory, almost all students responded in positive (see table-5) Respondents were also asked to grade how useful they felt the skills stations were, using the same scale. The highest scoring skills stations were for the moulage practice (5.17) and the lowest scoring were Vascular Access and Shock Management (2.83) and Head and Neck Trauma Assessment (2.45).

DISCUSSION

This survey consisted of a cohort of postgraduate students belonging to different specialties that provided useful perspectives of the course. We have shown that a large number of students felt that their clinical practice has improved by attending the course, and 29% stated that there was significant improvement.

This highlights the value of the ATLS course as an educational experience that corroborates high quality trauma care. Previous research has shown that levels of core knowledge increased after an ATLS course[4-6]. This survey affirms that clinical confidence, perception of self, core knowledge and skills, and perceived ability to manage a seriously injured person and to teach others, all increased after attending this ATLS course. These perceived improvements occurred across all specialties.

A large number of the respondents intended to take a refresher course on the expiry of their certificate after four years. Course organizers should be aware of this high level of intent, though whether this will translate into action remains to be seen. Most surgeons (79%) and anesthetists thought that ATLS Provider status should be compulsory for the FCPS examinations.

It should be noted, however, that 11 % of the surgeons and 6.5%% of the anesthetists did not feel that ATLS should be compulsory for their colleges' examinations. A significant weakness of this study is that the tool used was a non-validated questionnaire and was used amongst limited number of participants. Large scale surveys of this kind throughout the country using this tool or other validated tools need to be used to find the true impact of ATLS course.

CONCLUSION

ATLS course is perceived as an extremely useful course by doctors in all specialties involved in trauma management, and across all levels of doctors. Arranging such courses and workshops should therefore be encouraged, rather made mandatory. Practical problems like time and money for that purpose need to be arranged.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Jan WA: Main Idea, Course Instructor, Data Collection.

Haq MIU: Data Collection, Manuscript writng.

Khan AR: Critical review, final approval.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ASSOCIATION OF NORMAL WEIGHT OBESITY WITH SERUM SURFACTANT PROTEIN - D

Shireen Jawed[1], Naila Parveen[2], Rooha Tariq[3], Benash Altaf[1]

[1]Department of Physiology, Aziz Fatimah Medical & Dental College, Faisalabad - Pakistan

[2]Department of Physiology, Liaquat National Medical College, Karachi - Pakistan

[3]Department of Dermatology, University Medical and Dental College, Faisalabad - Pakistan

ABSTRACT

Objectives: To find frequency of normal weight obesity in males and females and to explore its association with the serum Surfactant protein –D (SP-D). We assessed and compared infection rates among genders and tried to establish its link with normal weight obesity and SP-D.

Material and Methods: This cross sectional study was performed at Dow University of Health Sciences (DUHS), Karachi from 2012 to 2013, after approval from the Institutional Review Board (DUHS/DR/2011/892). It comprised of 120 participants of both genders with age ranging 30-60 years. Subjects were recruited by non-probability purposive sampling technique. Structured proforma was used to record history of infections. Waist-hip ratio (WHR) was calculated from recorded Waist and hip circumferences. Cut off points for males and females normal weight obesity were taken as 0.88 and 0.86 respectively Surfactant protein –D (SP-D) was determined by ELISA. Statistical analysis was performed by SPSS 20. Mean of SP-D was determined and compared by Independent t- test. Percentages for normal weight were estimated. Chi square test was used for association of normal weight obesity with gender. Odd ratio was estimated using binary logistic analysis. Association between SP-D and WHR was evaluated by regression analysis.

Results: Out of total 120 studied subjects, 68.3% and 31.7% were males and females respectively. Females have comparatively lower SP-D levels than males (85.5±32.50 Versus 152.12±88.00 , p value 0.001). 26.3% of females and 12.2% of males had normal weight obesity (P value 0.05). Female poses 2.27 times more risk for generalized infection than male population. (OR= 2.27, P value 0.04). WHR and SP-D are negatively associated (Beta coefficient (β) of - 3.15, (P value 0.0001)

Conclusion: Normal weight obesity is frequently found in females than in males. Females have lower concentration of SP-D levels and high risk of infection.

Key words: Infections, Normal weight obesity, SP-D, Waist-Hip ratio

This article may be cited as: Jawed S, Parveen N, Tariq R, Altaf B. Association of normal weight obesity with Serum Surfactant Protein - D. J Med Sci 2020 April;28(2):140-144
https://doi.org/ ----------

INTRODUCTION

Obesity is a huge health burden worldwide. It is a significant risk factor for diverse infections including respiratory, dermatological, UTI, wound infections and nosocomial infections due to impaired immune responses that highlight close interaction between metabolic control and immune tolerance[1]. Concerning debates on infection among gender, diversity was documented by previous researches. Some researchers have reported that the dermatological and subcutaneous tissue infections commonly develop in males, whereas respiratory tract infections and urinary tract infections are present more frequently in obese females. Abscesses are found commonly in obese subjects of both genders[2]. Body mass index (BMI) is most widely used parameter for assessing obesity, however it is not indicator of measuring visceral adipose tissue (VAT) as it is calculated by height and weight only. BMI has less sensitivity for predicting body fat percentages that results in misclassification of subjects with excess adiposity as normal weight[3]. Normal weight obesity is now new emerging concept for researchers and it is used for assessing obesity by various researchers. Normal weight obesity (NWO), is a condition in which individuals are classified as normal weight by BMI, but have excess body fat[4]. Evidences are available showing that subjects with NWO have more risk of getting metabolic disorders and infections than BMI index obesity due to excess fat accumulation that results in disruption of lymphoid tissue integrity and alters secre-

Correspondence
Dr. Shireen Jawed
Associate Professor
Department of Physiology, Aziz Fatimah Medical and Dental College, Faisalabad - Pakistan
Email: drshireenjawed@gmail.com
Cell: +92-336-3153931
Date received: 05-05-2020
Date revised: 31-05-2020
Date accepted: 20-06-2020

tion of adipo-cytokines causing immune dys-regulation[5]. Normal weight obesity is prevalent in up to one-third of individuals of Asian ethnicities but still it is unrecognized in various Asian countries[6]. NWO is not extensively studied but latest researches are now focused on it; that seem to be reliable predictor of health risk in future. Literature is emerging on its association with metabolic disorders including type 2 diabetes mellitus, dyslipidemia, hypertension and cardiovascular mortality[6]. Several studies have demonstrated the importance of waist circumference and WHR as a marker of VAT and emphasize to use these parameters for assessing NWO[4].

SP-D is a part of collectin family of pattern recognition receptors (PRR) having antimicrobial effects[7]. It plays key role in innate as well as adaptive immunity against inflammation, allergy and infections[8]. By direct interacting with microbes and modulation of host cell responses via series of cellular receptors, it causes dampening of inflammation and innate signaling evoked by microbe-derived ligands[9]. It has a pivotal role in phagocytosis during aggregation and augmentation of microbes for elimination from pulmonary as well as extra pulmonary sites[10]. Primarily it focused on chemotaxis, opsonization, pattern recognition and binding with bacteria, yeast, helminthic parasites and viruses to promote their attachment to phagocytic cell through Fc receptors on fragment crystallization region of immunoglobulin and complement receptors to facilitate their destruction and elimination from body to prevent wide variety of infections[7,11]. It directly interacts with myeloid lineages to enhance clearance of microbes by macrophages[10,11]. Moreover, it facilitate efficiency of Neutrophil Extracellular Traps (NETs), bactericidal and fungicidal activity and neutralization of infectivity caused by these pathogens[8]. It also enhances nuclear and cell membrane blebbing suggesting its role in apoptosis thus prevention from cancers[12]. Deficiency of SP-D has been linked extensively in medical literature with a multitude of infections including, respiratory tract infections, Helminth infections, urinary tract and dermatological infections[9,11]. Its deficiency also leads to various types of cancers like pancreatic cancer ,ovarian cancer, prostate cancer[10,12]. This signifies the importance of SP-D in our body and the role it plays in innate immunity. There is a huge variation in the frequency of infections among genders and also conflicting results concerning the difference in SP-D levels among the gender have been reported by several previous researches. There is need to assess status of normal weight obesity, SP-D level and infection rate in both genders separately, so in future the link between them can be clarified. In future SP-D could be used for therapeutic purpose especially in subjects with recurrent infections. Normal weight obesity is an under recognized yet widely prevalent problem in individuals of Asian descent[6]. This study was planned to assess frequency of new emerging concept of normal weight obesity (NWO) that seem to be reliable predictor of health risk in future[3,6]. We also planned to estimate SP-D levels in males and females and to establish its association with NWO. Furthermore we assess the infections rates and predict relative risk of infections in both genders. This study highlights the importance of identifying high risk normal weight obese subjects and helps in understanding the relation of NWO with infections and SP-D.

MATERIAL AND METHODS

A cross sectional study was carried out at Dow University of Health Sciences (DUHS), Karachi from 2012 to 2013, after approval from the Institutional Review Board (IRB) (DUHS/DR/2011/892). It comprised of 120 male and female participants. Sample Size was Calculated with prevalence (p) of obesity 13%, error (e) 5% and confidence interval (CI) of 95% by formula n = Z21-α/2 (P(1-P)) / e2. (n = sample size; Z = standard normal Z value at 95% CI = 1.96)[13]. Healthy Employees of DUHS with age range 30 to 60 years were included in the study. All Study participants were selected by non-probability purposive sampling technique. Informed consent from subjects was taken prior to enrollment. Study subjects were evaluated for recurrent infections on the basis of thorough medical history . Past history for respiratory and general infections including GIT, skin and urinary tract infections were taken. The frequency, duration, severity, complications of infection and use of antibiotic were inquired to evaluate recurrent infection rates. All relevant information was recorded on predesigned proforma. Subjects having three or more severe infections in one year, or the need for antibiotics for two months/year were considered as having recurrent infections[14]. All information was kept confidential. Smokers, subjects with known history of chronic renal diseases, end stage renal disease, cardiovascular and lung diseases and cancers that affect the SP-D levels and possible cause of infections were excluded from study to minimize the confounders. Anthropometric measurements like, hip and waist circumferences were taken by standard protocols. Waist and hip circumferences are measured in inches using measuring tape. Waist-hip ratio (WHR) was calculated from recorded waist and hip circumferences. Normal weight obesity was assessed on the basis of WHR. WHR cut off points for males and females normal weight obesity (NWO) were taken as 0.88 and 0.86 respectively[15]. Blood samples were taken from subjects. Serum SP-D level was determined by sandwich ELISA technique (Demedi-tec Laboratory, Germany). Statistical analysis of data was performed by SPSS-20. Mean ± SD were used for describing quantitative variables. Categorical variables (gender, NWO infections) were presented as percentages and frequencies. Normality of data was checked by Shaprio wilk test[13]. Data was normally distributed as p value was insignificant. Independent t test was applied to compare mean differences of anthropometric and SPD concentration among the gender. Infections were taken as dichotomous variables (“yes” and “no”). Binary logistic re-

gression was used to predict the risk of infection among gender and results are expressed as odd ratio (OR). Chi square was used to assess relationship of NOW with gender and infections, frequencies are also compared by Chi square test . Linear regression analysis was used to explore association between Dependent variable (SP-D) and independent variable WHR and results are expressed as beta coefficient and standard error. P-value ≤ 0.05 was considered as statistically significant.

RESULTS

Data was collected from 120 male and female subjects with mean age 45± 11.65 years. Of total subjects, 82(68.3%) were males and 38(31.7%) were females. Table 1 is describing the comparison of mean anthropometric measurements among the gender. Significant differences were noted with respect to waist and WHR, with P values 0.042 and 0.031 respectively. Table 2 is summarizing that the females have higher frequency of NWO (p value 0.04), higher rates of infections (self-reported)along with lower levels of serum SP-D (Pvalue 0.001) as compared to male population. 60.5% of the females reported the history of recurrent infections as compared to this only 43.9% males have recurrent infections table 2. Estimated OR of 2.27 shows that females have comparatively 2.27 times higher risk of infections than males (P value 0.04). Simple Linear regression analysis shows significant negative association between WHR and SP-D. Beta coefficient (β) of - 3.15 indicates that one unit increase in WHR, decreases SPD by 3.15units (P value 0.0001) table3.

Table 1: Comparison of Anthropometric Measurements among genders (N=120)

Study Variables	Male	Female	P value
	Mean ± SD	Mean ± SD	
Hip Circumference (inches)	62.95±10.90	64.86±15.76	0.901
Waist Circumference (inches)	46.13±10.31	52.10±14.44	0.042*
WHR	0.70± 0.15	0.79±0.15	0.031*

WHR=Waist – hip ratio, SD=Standard deviation
Statistically Significant difference at P ≤0.05

Table 2: Comparison of study Parameters among gender.

Gender	NWO N (%)	SP-D (ng/ml) Mean ± SD	Recurrent Infections	
			Yes (%)	No (%)
Male (n= 82)	10 (12.2%)	152.12± 88.00	36(43.9%)	46(56.1%)
Female (n= 38)	10 (26.3%)	85.51±32.50	23(60.5%)	15(39.5%)
P value	0.05*	0.001*	0.04*	

Normal weight obesity (NWO) is on the basis of WHR. Surfactant protein –D (SP-D)
Infections are self-reported, Odd Ratio (OR)= 2.27
Mean are compared by T-test, frequencies are compared by X2test
P Value ≤0.05 was considered than Statistically Significant

Table 3: Regression analysis between SP-D and WHR.

Independent variable	Beta Coefficients (β)	Standard Error	P value
Waist Hip ratio (WHR)	-3.15	62.59	0.0001*

Dependent Variable is Surfactant Protein –D (SP-D)
Statistically Significant difference at P ≤0.05

DISCUSSION

Current study highlighted the association of SP-D with normal weight obesity among the both the genders. Additionally we evaluated the infection rate among them and estimate OR to predict risk for infections in female and male population. WHR is the reliable indicator of normal weight obesity, so in this study we tried to explore relationship between SP-D and WHR and infections with respect to gender. Current study reveals that 26.3% of female population had normal weight obesity in contrast to this 12.2 % male have NWO. Furthermore, we have observed that greater percentages of females have history of infections than males. Odd ratio of 2.27 of our study favors the above findings indicating that females have 2.27 times more tendencies to have infections as compared to males, most probably because of the fact that females have greater WHR and have normal weight obesity. Our findings are justified by Dobner et al who reported the increase in overall infections with increase in BMI and obesity[1]. Our results are also in line with previous study by Kaspersen et al, that reported the increasing risk of infection with obesity[2]. It is also evident from the previous studies that the obesity is associated with decrease in SP-D levels and can leads to infections[9,16]. Current study also found significant decrease in the concentrations of SP-D in females than males. On contrary to our results another study conducted in Lahore did not find significant difference in SP-D levels among gender[17]. However, similar results to current study was reported from the neighbor country China, that demonstrated significant lower concentration of SP-D in females as compared to males[18]. Study in Danish population is also in agreement of current study that documented the higher SP-D concentration in males than females[19]. Baseline SP-D levels in Sindhi population of the current study was higher as compared to the levels reported from study conducted at Lahore among Punjabi population. SP-D concentration of male and females of current study are 152 and 85 ng/ml respectively, while study conducted in Lahore have reported 8.43 ng/ml of SP-D in control healthy smoker group of both genders, this distinction might be because of ethnical and racial differences[17]. Dissimilarity may be because of the fact that aforementioned study determined the levels in smokers; however our studied population was nonsmokers, also suggesting the impact of smoking on SP-D levels. Another factor for concerning the disparity in results of two Pakistani studies could be the use of two different media for determination of SP-D levels. Current study had used serum for estima-

tion of SP-D level while Plasma was used by study conducted at Lahore[17]. Evidences are available showing that serum has 20-36% greater amount of SP-D than plasma[18]. Moreover we have observed a negative association between the WHR and immune-regulator SP-D levels. This suggests that there is decreased immunity in subjects with increased WHR. This further supports the statement that females have more tendencies to have infections due their higher WHR and the corresponding lower SP-D levels. Obesity is the pivotal factor here; leading to a decreased level of SP-D. Previous published data favors the current results that showed negative association between SP-D and BMI indexed obesity[16]. The present study emphasizes the need of a better model to understand the relationship and the reasoning behind the decreased SP-D levels in subjects with increased WHR. The recognition of WHR as a standard of obesity should be enforced and further studies should be carried out on a larger scale with these parameters. Consequently, gaining a better understanding of the risk factors that are associated with normal weight obesity is an important step towards prevention, therapeutic options, appropriate management and making policies to promote healthy lifestyles[20]. This study adds literature concerning normal weight obesity in Pakistan, as new researchers are being exploring NWO in Asian population and trying to identify this high risk group in this region[6-20]. This study will be open horizon for new researches on a broader scale.

LIMITATION

Casual association is not established due to cross sectional nature of study. Results may not be generalized to whole population because of small sample size. Study should be conducted on broader scale to evaluate mechanistic link between SP-D and normal weight obesity

CONCLUSION

Normal weight obesity frequently found in females than males. Females have lower concentration of SP-D levels and high risk of infection might be because of higher WHR than males.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Jawed S: Study design, data collection, interpretation of results, writing and revising all intellectual contents of manuscript.

Parveen N: Data collection, statistical analysis of data, interpretation and write up of results.

Tariq R: Manuscript writing, data analysis and revis ing it critically.

Altaf B: Manuscript writing and revising final version of article .

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

EFFECTIVENESS OF LOSARTAN IN EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY (ESWL) INDUCED NEPHRON INJURY

Liaqat Ali, Faiza Hayat, Saifullah Khan, Sikander Hayat, Mehboob Ul Wahab, Asiya Hassan

Institute of Kidney Diseases, Hayatabad Medical Complex, Peshawar - Pakistan

ABSTRACT

Objective: To compare losartan and multi-vitamins as antioxidants in decreasing albuminuria in extra corporeal shock wave lithotripsy (ESWL) related renal injury.

Material and Methods: This is a randomized control trial done in the Department of Urology "Team C" at Institute of Kidney Diseases (IKD), Hayatabad Medical Complex Peshawar from June 2018 to March 2020. All the patients with 10 to 15 mm renal stones were included. The patients were divided into two groups; Group A of 90 patients (control) were given multivitamins (Zinc, Selenium, Vitamin A & C) two hours before and one tablet every eight hours after ESWL up to one week. Group B of 90 patients were given Tab. losartan 50 mg two hours before ESWL and once daily after ESWL for one week. The on-spot albuminuria was evaluated before ESWL, at 2-4 hours and one week after standard ESWL (3000 shocks). A structured pro forma was used for the data and the analysis of data was done on SPSS.

Results: Almost all the demographics like age, gender, laterality, BMI in both the groups were similar, the albuminuria before ESWL in Group A was 13.9 mg/dl and Group B was 14.1 mg/dl. The albuminuria in Group A was 547 mg/dl after 2-4 hours of ESWL and 581.2mg/dl in Group B (P 0.098). In Group A after one week of ESWL the albuminuria was 88.7 mg/dl versus the albuminuria 41.9 mg/dl in Group B ($p< 0.001$).

Conclusion: Losartan (ARB) is superior to the anti oxidants as a kidney protective agent against ESWL related renal injury by remarkably reduced albuminuria.

Keywords: Urolithiasis, Lithotripsy, Losartan, ESWL, Complications, Kidney Stone.

This article may be cited as: Ali L, Hayat F, Khan S, Hayat S, Wahab MU, Hassan A. Effectiveness of losartan in extracorporeal shock wave lithotripsy (ESWL) induced nephron injury. J Med Sci 2020 April;28(2):145-148

INTRODUCTION

Urolithiasis is a disease of antiquity and the earliest reference can be found in Hippocratic Oath that "I will not cut upon the bladder stone [1]."The prevalence of urolithiasis in South East Asia is 16% and almost accounts for 50 percent of all the Urological OPDs and Urological Surgeries in Pakistan [2,3]. Extracorporeal Shock Wave Lithotripsy was introduced in 1980s and remained first line of management for treatment of renal and upper ureteric stones for 2 decades. The introduction of percutaneous surgery and miniaturing of endoscopic equipment have changed the paradigm from ESWL to the era of Mini and Micro PCNLs. Despite the fact, ESWL is still considered as a crucial treatment option in management of urolithiasis. ESWL is considered first line management in < 15mm sized renal stones irrespective of location. ESWL is considered minimal invasive and safe modality[4]. The overall minor complication rates of ESWL is 15-38 %. The long term complications are always a subject of debate in literature. Some studies have reported increase rate of hypertension as 4% after 10 years of ESWL.5 However, there is no clear evidence whether there is any direct relationship between hypertension and ESWL.

The newer development in the lithotripters like latest versions of electromagnetic lithotripters have reportedly raised the efficacy and reduced the complication rates. Yet ESWL is associated with injury to nephron. Different markers can be used to know about renal injury due to ESWL for example measurement of urinary albumin, neutrophil gelitinase-associated lipocalcin (uNGAL) and MRI (dynamic contrast enhanced). The reno-protective effectiveness in EWSL and several medications including Losartan 6which is angiotensin receptor blocker and multi vitamins comprising of Selenium, Vitamin A & C are reported to be helpful in decreasing the ESWL related renal injury[6,7]. However, the beneficial effect of selenium based multivitamins is only shown in animal models in most of the studies.

The Institute of Kidney Diseases Peshawar is the largest tertiary hospital with enormous work load man-

Correspondence
Dr. Liaqat Ali
Associate Professor
Institute of Kidney Diseases Hayatabad Medical Complex, Peshawar - Pakistan
Email: liaqat_99@yahoo.com
Cell: +92-334-0966665
Date received: 10-03-2020
Date revised: 16-04-2020
Date accepted: 20-05-2020

aging the patients of renal stones. The overzealous use of ESWL mainly in private sector of Khyber Pakhtunkhwa has discredited ESWL. The rationale of our study is based on a research question that which of either, the Selenium based multi-vitamins or Losartan is better in decreasing renal injury associated with ESWL. As uNGAL and MRI (dynamic contrast) are not available in our setup, so we have selected the estimation of urinary albumin in urine as a marker, easily available in all laboratories in Peshawar. The present study when published will be shared with the owners and operators of lithotripters about use and also the prevention of nephron injury.

MATERIAL AND METHODS

This is a randomized control trial done in the Department of Urology "Team C" at Institute of Kidney Diseases (IKD), Hayatabad Medical Complex Peshawar from June 2018 to March 2020. A total of 180 patients were equally divided into two groups by lottery method. We included all the patients with stone size ranging from 10 to 15 mm in renal pelvis and upper, middle and lower calyces with favorable anatomy. We excluded patients with stone density more than 1000 HU as those stones are hard to be fragmented by ESWL. All patients with pre-procedure albuminuria, marked hydronephrosis, diabetes, congenital anomalies and hypertension were excluded. We also excluded obese patients as a contraindication to ESWL. All the patients who full filled the mentioned criteria and had given consent were included in the study. A total of 180 patients were equally divided into two groups by lottery method. Group A of 90 patients (Control) were given multi-vitamins (Zinc, Selenium, Vitamin A & C) in dose of Selenium 0.02 mg, Vitamin C 5 mcg ,Vitamin A 1mg and Zinc 3 mg two hours before and one tablet every eight hours after ESWL for one week. Group B of 90 patients, were given Tab Losartan 50 mg two hours before ESWL and once daily after ESWL for one week. All the patients were subjected to electromagnetic ESWL by single operator. 3000 shocks were given to all the patients in first session. The number of shocks was tailored according to degree of fragmentation in subsequent second and third sessions. The on-spot albuminuria was evaluated before ESWL, at 2-4 hours at and one week after 1st session of standard ESWL of 3000 shocks. Our outcome variables were categorical like laterality, gender, location of stone and numerical values were age, stone size, BMI. For comparing means T test was used. Chi square test was used for gender laterality and location of renal stones. A structured pro forma was used for the data and the analysis of data in SPSS.

RESULTS

The categorical demographic variables such as gender, laterality of stone and location of stone is shown in Table 1. The continuous variables like age, stone size and session with mean and standard deviation is shown in Table 2. The albuminuria was assessed before ESWL and at 2 hours and 1 week after 1st session of standard ESWL. The result of mean and SD of pre and post-EWSL in are shown in Table 3.

Table 1: Categorical Demographic Variables.

Categorical Variable n(%)	Group A (n=90) Control (Selenium based Multivitamins)				Group B (n=90) Case (Losartan)				P value Chi Square
Laterality									0.414
Right	47 (52.2%)				44 (48.8%)				
Left	43 (47.7%)				46 (52.1%)				
Gender									0.73
Male	55 (61.1%)				57 (63.3%)				
Female	35 (38.8%)				33 (36.6%)				
Stone location	Renal Pelvis	Upper Calyx	Middle Calyx	Lower Calyx	Renal Pelvis	Upper Calyx	Middle Calyx	Lower Calyx	Anova >0.05
	41 (45.5%)	18 (20 %)	20 (22.2%)	11 (12.2%)	37 (41.1%)	21 (23.3%)	22 (24.4%)	10 (11.1%)	

Table 2: Numerical Values of Age, Stone Size and BMI.

Numerical value Mean (SD)	Group A (n=90) Control (Selenium based Multivitamins)	Group B (n=90) Case (Losartan)	P value
Age	37.4±9.8	39.8±5.1	0.75
Stone size	13.5±2.1	11.2±3.2	0.71
Body mass index	27.9 (6.1)	26.8 (6.3)	0.71

Table 3: Cross tabulation of Pre and Post ESWL Albuminuria in both groups.

Numerical value Mean (SD)	Group A (n=90) Control (Selenium based Multivitamins)	Group B (n=90) Case (Losartan)	P value
Pre ESWL Albuminuria	13.6 (6.1)	14.8 (6.7)	0.80
2 hours Post ESWL	547.6 (46.1)	581.2 (48.7)	0.001
7 days Post ESWL	88.7 (44.3)	41.9 (36.2)	0.001

DISCUSSION

Urolithiasis and its complications are the most common illnesses presenting to urological units in Pakistan. Although, the technical advancement in endo-urological equipment's has limited the indications of ESWL, yet all those endo-urological procedures require admission, operation theatres and anesthesia respectively. The huge burden of urolithiasis in our setup overwhelms the waiting periods for surgeries. So keeping in mind the true indications of ESWL and resource limitations for endo-urological procedures, Extra Corporeal Shock Wave Lithotripsy is still considered minimal invasive, safe and reasonably effective treatment modality. The present study has put an emphasis on enhancing the safety profile of ESWL as we being doctors believe in 1st fundamental point of Hippocratic oath "First do no harm".

The epic part of our study is that it's a randomized control clinical trial of larger sample size comparing the kidney-protective effectiveness of selenium based multivitamins versus losartan in reducing the ESWL induced nephron injury.

The limitation of the study is that we didn't carry out this study with double blinding and placebo control. Moreover, the diversity in laboratory findings for detecting albuminuria and non-availability of better parameters for assessing nephron injury also renders a limitation to our study. Still we have tried to control this confounder with selection of the best available laboratory with no conflict of interest.

The clinical evidence of ESWL on renal tissue is manifested by hematuria. The gross hematuria which persists for a couple of days, however the microscopic hematuria persists for few weeks. The Post ESWL sub capsular hematomas range upto 25% on serial MRIs and CT scan[5]. This intra-renal/sub capsular hematomas lead to tissue ischemia that can result in apoptosis. Studies have found that the major hematomas due to injudicious use of lithotripters result in scar formation on the renal cortex. However, if ESWL is used as per guidelines the nephron injury due to ESWL remain a focal process that leaves most of the renal tissue intact[8].

The ESWL induced nephron injury can be minimized by a number of ways. It can be achieved by improved focal length in newer generations especially the shift from spark gap technology to electromagnetic and piezoceramic lithotripters. Newer procedural techniques like Shock wave Lithotripsy with reno-protective pause is also gaining interest among urologists[9].

The new insights of reno-protective mechanism of selenium based multivitamins through free-radical scavenging activity, nifedipine, verapamil and mannitol has raised the interest of researchers. Lately, losartan (ARB) has appeared to be effective in ESWL related nephron injury. The physiology of this protective nature is due to prevention of ischemia or reperfusion injury. Effectiveness of both treatments was analyzed by its ability to hamper a significant increase in albuminuria, which shows leakage of albumin from the injured renal glomeruli.

Our study has shown that Losartan is superior ($p < 0.001$) to Selenium based multivitamins at 1 week interval in reducing the albuminuria after ESWL. This finding is in accordance with international literature[4, 10-12]. Losartan, Verapamil, Nifedipine and Mannitol were found equally effective in recent literature in human model too[12-15]. Although Kehinde EO has reported superiority of Selenium based multivitamins in ESWL induced injury, but the sample size in that article was very low i.e. 39 patients with stone size of 30 mm and they didn't compare the multivitamins with either of Losartan or Verapamil[16-18].

Our study will benefit all the Urologists, Nephrologists, Specialists in Lithotripsy and Health care providers that are involved in ESWL and post ESWL care of patients with urolithiasis[19,20]. Large sample size RCT studies are needed to assess long term benefits of this kidney-protective medication after ESWL.

CONCLUSION

ESWL is minimal invasive and a safe mode in management of urolithiasis. Selenium based multivitamins and Losartan both possessed reno-protective mechanism in reducing albuminuria after ESWL. However, Losartan showed superiority at 1 week Post-ESWL over multivitamins.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Ali L: Concept, Methodology, data Collection.

Hayat F: Manuscript writing, data Collection.

Khan S: Data Collection.

Hayat S: Analysis of data.

Wahab MU: Data Collection, manuscript writing.

Hassan A: Collection of data.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

KNEE ARTHROSCOPIC PROCEDURES AND COMPLICATIONS AT A TERTIARY CARE HOSPITAL

Syed Dil Bagh Ali Shah, Samir Khan Kabir, Sikandar Hayat, Muhammad Ayaz Khan, Wajid Akhtar

Department of Orthopedic Khyber Teaching Hospital, Peshawar - Pakistan

ABSTRACT

Objective: To determine the effectiveness of knee arthroscopic surgical procedures

Material and Methods: It is an observational prospective study conducted on 135 patients with torn anterior cruciate ligament and menisci who underwent arthroscopic partial meniscectomy and /or reconstruction of anterior cruciate ligament (ACL) at orthopedic department of Khyber teaching hospital Peshawar from November 2017 to June 2019. Patients demographics recorded. Pre-op and post-operative assessment done and results recorded.

Results: A total of 135 patients underwent knee arthroscopy. Out of this 72 (53%) patients had partially torn meniscus only, 8(7%) patients had combine meniscal tear along with ACL tear while 47(39%) patients had isolated ACL tear only. So, in total 80 patients underwent partial meniscectomy while, 55 patients underwent ACL reconstruction. So for description purpose we can divide all the patients into two groups, Group A: Arthroscopic ACL reconstruction Group B: Arthroscopic partial meniscectomy group

In Group A there were 54(98%) male and only 01(02%) female while Group B comprised of 77 male and 03 female patients. Mean age of both groups was comparable. Right side was mainly involved in ACL reconstruction group while left side in partial meniscectomy group. Sports injury was the principal underlying reason in the patients undergoing for partial meniscectomy while sports and road traffic accident (RTA) were equally responsible for the patient group underwent ACL reconstruction surgery. Similarly, in group A where patients underwent arthroscopic ACL reconstruction 91% became asymptomatic while, in group B where patients underwent arthroscopic partial meniscectomy about 94% turned out to be symptom free in comparison to preoperative status. There were intra-operative as well as post-operative complications. Among the earlier category, instrument breakage, technical faults in the arthroscopic machine, graft cut out and problem with fixation of tibial end of graft in ACL reconstruction were notorious. Postoperatively, knee joint infection, stiffness and pain were significant.

Conclusion: Knee arthroscopy is an effective and reproducible technique with decent and efficient outcome.

Keywords: Arthroscopy, Partial meniscectomy, Anterior cruciate ligament, Knee.

This article may be cited as: Shah DBA, Kabir SK, Hayat S, Khan MA, Akhtar W. Knee Arthroscopic Procedures and Complications at a Tertiary Care Hospital. J Med Sci 2020 April;28(2):149-153

INTRODUCTION

Arthroscopy of the knee is one of the utmost common surgical procedures universally[1] and the numeral of arthroscopic surgeries has significantly amplified over the preceding 03 decades[2]. Every year, there are around one million such procedures accomplished in the United States and in Sweden (population 9.5 million) the equivalent number is around 35,000[2,3]. Knee arthroscopy is extensively accredited to be a benign technique[4,6]. It has been formerly described that knee arthroscopy is connected with problems such as septic arthritis and venous-thrombo-embolism[4,7,8,9]. It is the treatment option for certain types of knee pain. Arthroscopic surgery is the method that includes introducing a few millimeter sized camera into the knee joint and which lets doctors to review the joint for injury. By means of other tiny incisions, gadgets can be introduced to patch-up or take away injured tissues. Arthroscopic knee surgery is named as “scoping the knee” or knee arthroscopy. Various dissimilar surgical techniques that are frequently accomplished arthroscopically today were formerly used to accomplish through the bigger incisions. The advantage of arthroscopy is being capable to accomplish those surgical procedures without damaging normal structures around the knee joint. By being less intrusive, the anticipation is there will be less discomfort and a quicker recovery. Knee arthroscopy operation has ascended to admiration for the reason that it generally necessitates little recovery times. The procedure typically takes less than 1 hour, and serious complications

Correspondence
Dr. Syed Dil Bagh Ali Shah
Assistant Professor
Khyber Teaching Hospital Peshawar - Pakistan
Email: drdilbagh@gmail.com
Cell: +92-312-6914030
Date received: 30-01-2020
Date revised: 01-06-2020
Date accepted: 20-06-2020

are infrequent.

Common Indications of Knee arthroscopy are:- Meniscal repair, partial meniscectomy, subtotal meniscectomy, ACL reconstruction, PCL reconstruction Plica excision to treat plica syndrome, Lateral release to treat recurrent dislocation/subluxation of patella and a variety of procedures to treat and manage chondral damage and Osteo-arthritis of knee joint comprising of micro fracture, autologous chondrocyte transplantation and cartilage transfer. Similarly, removal of loose body and washout of joint can be done satisfactorily by using arthroscopic technique[2-4,5]. Although Meniscal lesions are communal nonetheless linked with extremely mutable knee symptoms, signs, and radiological verdicts. Numerous meniscal tears are asymptomatic, and knee signs can frequently be accredited to additional pathologies like Osteo-arthritis[10, 11,12,13,14].

As soon as a meniscal lesion is arbitrated to be the reason of symptoms, surgical treatment to remove the un-balanced meniscal tissue—arthroscopic partial meniscectomy—is often suggested, and is one of the greatest mutual orthopedic surgical procedures universally[15,16]. Unlike open surgery arthroscopic procedures are associated with just a few risks like iatrogenic accidental damage to cartilage, bleeding inside the joint, instrumental breakage inside the joint and knee joint infection. However, these risks are uncommon, and most people recover without incident. The aim of this study was to assess the efficacy, safety, patient acknowledgment and economy of knee surgery arthroscopically in a tertiary hospital Peshawar.

MATERIAL AND METHODS

This prospective observational study was approved by the ethics committee of the hospital. Knee arthroscopy of 135 patients done with the examination finding of meniscal injury with or without intra-articular ligamentous injury. Major complaints of patient were pain, giving way or locking. The positive signs were joint line tenderness, pain on terminal flexion, positive Mcmurray +/- Lachman test. MRI Knee joint was done in all cases before embarking upon surgery. Informed consent of each patient was obtained. Study related data was collected between November 2017 to June 2019 in Khyber Teaching Hospital Peshawar. Patients with knee problems presenting to orthopedic OPD and accident and emergency department underwent arthroscopic surgery. Overall, study patients fell into 02 groups. Group A comprised of patients having ACL deficiency +/- meniscus lesion while, Group B consisted of pure meniscus lesion without any ligamentous laxity while. Group B comprised of about 80 patients while group A of 55 patients. All the patients underwent arthroscopic surgery of the knee joint. Out of which, 55 patients had their ACL reconstruction surgery done from January 2018 to June 2019. All the 55 patients were monitored and assessed in this prospective phase. The arthroscopic surgery was carried out under general/ spinal anesthesia. Detail arthroscopy was done to perform partial meniscectomy and in all cases healthy stable meniscus preserved whenever possible. Incidental removals of cartilaginous/osseocartilaginous loose bodies were also carried out. After surgery patients were taught isometric quadriceps exercises and allowed partial weight bearing on the affected limb as tolerated with crutches. Patients were re-examined in the OPD/clinic 02 weeks following surgery. Wound reviewed and skin stitches if any, removed. Resistive muscle strengthening and Range of motion (ROM) exercises were started. At the time of discharge from hospital, patients were advised for follow-up visits at 3 months and one year after surgery.

RESULTS

A total of 135 patients underwent knee arthroscopy. Out of this 72 (53%) patients had partially torn meniscus only, 8(7%) patients had combine meniscal tear along with ACL tear while 47(39%) patients had isolated ACL tear only. So, in total 80 patients underwent partial meniscectomy while, 55 patients underwent ACL reconstruction. So for description purpose we can divide all the patients into two groups as:

Group A: Arthroscopic ACL reconstruction group.
Group B: Arthroscopic partial meniscectomy group.

In Group A there were 54(98%) male and only 01(02%) female while Group B comprised of 77 male and 03 female patients (Table 01). Mean age of both groups is given in Table 02. Right side was mainly involved in ACL reconstruction group while left side in partial meniscectomy group Table 03. Sports injury was the principal underlying reason in the patients undergoing for partial meniscectomy while sports and road traffic accident (RTA) were equally responsible for the patient group underwent ACL reconstruction surgery Table 04. Similarly, Table 05 reflects outcome of arthroscopic surgery. In group A where patients underwent arthroscopic ACL reconstruction 91% became asymptomatic while, in group B where patients underwent arthroscopic partial meniscectomy about 94% turned out to be symptom free in comparison to preoperative status. Overall, arthroscopic complications are summarized in table 06. There were intra-operative as well as post-operative complications. Among the earlier category, instrument breakage, technical faults in the arthroscopic machine, graft cutout and problem with fixation of tibial end of graft in ACL reconstruction were notorious. Postoperatively, knee joint infection, stiffness and pain were significant Table-07

Table 1: Gender distribution of patients undergoing knee arthroscopy.

Arthroscopic ACL Reconstruction		Arthroscopic partial meniscectomy	
Gender	N (%)	Gender	N (%)
Male	54 (98%)	Male	77(96%)
Female	01 (2%)	Female	03(04%)
Total	55(100%)	Total	80(100%)

Table 2: Mean Age distribution.

Arthroscopic ACL Reconstruction		Arthroscopic partial meniscectomy	
Mean Age (years)	31.5	Mean Age (years)	30

Table 3: Involvement of side.

Arthroscopic ACL Reconstruction		Arthroscopic partial meniscectomy	
Side Treated	N (%)	Side Treated	N (%)
Right	40 (73%)	Right	20 (25%)
Left	15 (27%)	Left	60 (75%)
Total	55 (100%)	Total	80 (100%)

Table 4: Mode of injury in patients undergoing knee arthroscopy.

Arthroscopic ACL Reconstruction		Arthroscopic partial meniscectomy	
Mode of injury	N (%)	Mode of injury	N (%)
Sports	20 (36.36%)	Sports	32 (40%)
RTA	20 (36.36%)	RTA	25 (31%)
Falls	15 (27.27%)	Falls	23 (29%)
Total	55(100%)	Total	80 (100%)

Table 5: Outcome of surgery in patients undergoing knee arthroscopy.

Arthroscopic ACL Reconstruction		Arthroscopic partial meniscectomy	
Lachman's test		McMurray Test	
Negative	50(91%)	Negative	75 (94%)
Positive	5(9%)	Positive	5 (06%)
Total	55 (100%)	Total	80 (100%)

Table 6: Overall intra-operative Complications of Knee Arthroscopy.

S.No	Intra-Operative Complications	N (%)
1.	Instrument (Arthroscopic Hook) breakage	1 (08%)
2.	Graft cut out while tightening femoral interference Screw	5 (38%)
3.	Too anterior tibial hole with difficulty in fixation	5 (38%)
4.	Failure of arthroscopic machine needing extra time	2 (16%)
	Total intra-operative complications	13 (100%)

Table 7: Overall Postoperative Complications of Knee arthroscopic surgery.

S.No	Post-operative Complications	N (%)
1.	Infection of tibial screw	2 (14%)
2.	Post-operative Knee stiffness	4 (28%)
3.	Post-operative knee pain	5 (36%)
4.	Failed ACL needing re surgery	3 (21%)
	Total	14 (100%)

DISCUSSION

A total of 135 patients underwent knee arthroscopy. Out of this 72 (53%) patients had partially torn meniscus only, 8(7%) patients had combine meniscal tear along with ACL tear while 47(39%) patients had isolated ACL tear only. So, in total 80 patients underwent partial meniscectomy while, 55 patients underwent ACL reconstruction. In the current study overall arthroscopic partial meniscectomies were performed in 80 patients. Arthroscopic surgery was successful in 100% of the cases, therefore replacing and supervening an open technique. MRI is an exceedingly sensitive investigation for detecting high intensity signals in the menisci and intra meniscal degenerative injuries particularly in the posterior horn of medial meniscus might be established inaccurately as full thickness tears[17]. Of 80 patients with a meniscus tear on MRI, when arthroscopy was done, in about 5(06%) patients there was no meniscus tear. Due to the existence of untrue positive tears, partial meniscectomy must be limited to those cases where unsteady meniscus injury can be recognized arthroscopically. MRI should be done when the surgeon is uncertain of the judgement and necessity for arthroscopy. When a patient has unblemished history and characteristic signs of injured meniscus, timely arthroscopy will endorse the clinical findings and menisectomy can be done in the same procedure[17]. The over exploitation of this luxurious investigation ought to be efficient and kept for cases of ambiguous diagnosis merely. The early and late results of old-style open meniscectomy have been comprehensively documented[18-21]. The recapture of function is sluggish, enduring loss of motion, obstinate muscle waste and compromised function ensues in 15-20% of the patients. Gradual onset degenerative changes in the knee are well recognized on lengthy span follow-up[18,19,20]. Therefore, in 30% or higher, diminishing of function and incapacity on extended monitoring is described. Tapper and Hoover[19] and Cargill and Jackson[20] proposed that full meniscectomy created a larger amount of degenerative changes in comparison to partial meniscectomy in Bucket handle tears of meniscus. In 1954 Astrand[21] testified improved outcomes with partial meniscectomy in comparison to classical open technique. Mc Ginty[22] conveyed a like results in 1977. Nevertheless, limiting issue with open surgical technique was that open method was called just for expatriate bucket handle tears. Arthroscopic method gives the chance to examine and handle the whole menis-

cus and recognize thoroughly the magnitude of the injury before its cutting out. Arthroscopic method and distinct equipment sorts it conceivable to expunge the injury in any part of the meniscus. This discerning meniscectomy targets on conserving a working meniscus.

In this series, in patients having meniscal tear extending to articular surface it was possible to accomplish the goal of selective (partial) meniscectomy Arthroscopic partial meniscectomy is better than old-style open meniscectomy for the reason of decreased morbidity, speedy rehabilitation, greater patient reception and quick coming back to work and sporting. In the extended course of time, Arthroscopic meniscectomy must be done very carefully and gently in order to diminish the degenerative changes in the articular cartilage of the knee and evidence of long term outcomes are cheering.

Rockborn and Gilquist,[23] have reported a 13-year clinical and radiographic follow-up of 43 patients under the age of 23 years. On subsequent follow up, there was no difference among the operated and the non-operated knees regarding range of motion, strength of muscles or knee firmness and 90% had no functional deterioration. However, 40% of the knees presented with radiological worsening (Fairbank's changes) on the postoperative knees in comparison to just 10% of the non-operated knees, while merely 4% exhibited worsening.

In the present series, most of the patients with pure meniscus tear were 30 or below 30 years age. Partial meniscectomy in this young age group can be a risk factor for long term osteoarthritis. Covall and Wasilewski[24] have described radiologic vicissitudes in patients above 45 years of age following arthroscopic meniscectomy with five year follow-up. Operated knees of 60% presented with radiological advancement of Fairbank's changes in comparison to 20% of the non-operated knees.Ten to 20 years later following meniscectomy, there is a 10-fold rise in osteoarthritis, compared to controls[25, 26]. And after 2-3 decades, nearly three of four patients suffer from radiographic tibiofemoral osteoarthritis[27] and, as we very well recognize, knee osteoarthritis is a fore most funder to incapacity, worldwide[28]

Conversely, noteworthy radiologic advancement was prominent in 15% in the post-operative knees and 11% in the non-operated knees. However, at the moment we do not have long term follow up which will prove scientifically role of meniscus in prevention of degenerative changes

It is fairly flawless that post arthroscopic partial meniscectomy degenerative arthritis of the knee occurs on a long term follow-up, conversely inspiring improvement of symptoms, the lowest disease and preservation of upright function for several years rationalizes arthroscopic meniscectomy. The endoscopic method is preferably appropriate in Pakistani locales for the reason that intrusive surgery is linked with greater complications like infection and knee stiffness necessitating lengthy management and physiotherapy particularly for the reason that our medical services are not at equality with worldwide standards. There are note worthy price savings since abolition of prolonged hospital stay, IV antibiotics, rapid salvage and brilliant forecasts for complete recovery and timely coming back to work. As arthroscopic field is a highly specialized technology demands dexterity hand eye co-ordination, therefore, several orthopedic surgeons may by no means become skillful in arthroscopy. Arthroscopic meniscectomy is practically hard to do and necessitates distinctive training. Enough experience in diagnostic arthroscopy is essential before proceeding to endoscopic surgical meniscectomy. Composed and non-traumatic skill is essentials because it is easy to hurt and injure the refined articular cartilage with uncaring and awkward usage of tools through endoscopic surgery. Due to low morbidity connected with the technique, there is a danger of malpractice of this surgical technique. The usage of arthroscopy must be limited to well describe pathological situations and ought not to substitute decent medical decision as medical technology is a decent servant but anevil master.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Shah DBA: Idea Planning and organization

Kabir SK: Data analysis

Hayat S: Patient care

Khan MA: Data Collection

Akhtar W: Assisted in article Writing.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ROLE PLAY AS A LEARNING AND TEACHING MODALITY AND ITS EFFECTIVENESS IN IMPROVING THE COMMUNICATION AND CRITICAL THINKING SKILLS OF MEDICAL STUDENTS

Jibran Umar Ayub Khan[1], Brekhna Jamil[2], Farooq Ahmed[3], Umar Ayub Khan[4], Ayesha Qaisar[5]

[1]Department of Gastroenterology, Kabir medical College, Peshawar - Pakistan

[2]Department of Medical Education, Khyber Medical University, Peshawar - Pakistan

[3]Department of Medical Education, Khyber Medical College, Peshawar - Pakistan

[4]Association of rehabilitation of physically disabled, Peshawar - Pakistan

[5]Department of Physiology, Khyber Medical College, Peshawar - Pakistan.

ABSTRACT

Objectives: To identify the importance of role plays as a learning and teaching modality and find out its effectiveness in improving the communication and critical thinking skills of students.

Material and Methods: This Quasi-Experimental study was conducted in Kabir Medical College Peshawar that is a private sector medical institute situated in the north of Peshawar, Pakistan. Probability technique of simple random sampling was used to select 100 students from Year-3, and role plays sessions were conducted by dividing the students into 2 groups with 50 students each. Groups 1 performed the role plays followed by feedback. Group 2 was given brief video demonstration of a breaking bad news sessions only and then asked to give their feedback. Data was collected from both groups by filling a self-designed questionnaire that was previously pilot tested amongst 7 students. The data was analyzed using SPSS version 23. Chi–square test was used to compare the responses of two groups with a P value of less than 0.05 was considered significant.

Results: In group 1, 47 out of 50 students (94%) and in group 2, 32 out of 50 students(64%) admitted that role-play scan improve critical thinking and communication skills (p=0.02). Regarding role plays as a teaching modality, 46 out of 50 students (92%) in group 1 and 28 out of 50 (56 %) in group 2, rated it to be effective (p=0.02). Considerably small number of students had any previous participation in role plays, 14 in group 1 and 15 in group 2 (p value=0.21).

Conclusion: Role plays as a teaching and learning modality is an innovative style of teaching in improving the communication and critical thinking skills of students.

Keywords: Role play, Teaching methods, Communication skills.

This article may be cited as: Khan JUA, Jamil B, Ahmed F, Khan UA, Qaisar A. Role play as a learning and teaching modality and its effectiveness in improving the communication and critical thinking skills of medical students. J Med Sci 2020 April;28(2):154-157

INTRODUCTION

Role plays have gained popularity in medical education as teaching and learning tool for imparting knowledge, skills and attitudes[1, 2]. Role play and debates have roles and applications in medical education for not only instilling solid critical thinking abilities in students but also enhance their communication skills[3]. Excellent communication skills come into play especially in difficult situations such as breaking bad news, withholding the treatment, discussing "Do not attempt resuscitation", and many other situations, especially in critically ill patients and their relatives.

Role play gives a platform for students to come out of their normal roles as students and exhibit some essential roles which they may be assigned in their future professional careers. With increasing demands of modern day medical education, it is imperative for a doctor to have empathy, supportive attitude and sincere non-judgmental behavior towards patients. The incorporation of role plays in undergraduate curriculum is of paramount importance not only to acclimatize students with this teaching methodology but also get them to think out of the box as they perform the scripts of real life scenarios[4]. Cooperative

Correspondence
Dr. Farooq Ahmed
Director Medical Education
Khyber Medical College, Peshawar - Pakistan
Email: drfarooqahmed43@gmail.com
Cell: +92-313-3799901
Date received: 15-12-2019
Date revised: 10-04-2020
Date accepted: 20-05-2020

Learning (CL students learn by reinforcing teamwork as one student takes the role of doctor and other being the patient. The training of students through role plays is considered to be a gateway to self-directed learning[5].

Engaging students in role plays not only serves the sole purpose of active learning but also follow the true principles of adult learning formulated by Knowles[6]. This paper presents a comprehensive theoretical model. The proposed model integrates self-management contextual control. It is not a unidirectional way of transferring knowledge in which students are silent spectators and teachers take the role of reading through slides without checking the retention of knowledge of learners[7].

Till now, role plays are suggested by the curriculum designers to be inculcated in undergraduate and postgraduate medical curricula, but no study regarding its effectiveness has been performed in our country in the context of evaluating its impact on critical thinking abilities and communication skills in the minds of learners. The rationale of this study was to identify the importance of role plays as a learning and teaching modality and find out its effectiveness in improving the communication and critical thinking skills of students of Kabir Medical College.

MATERIAL AND METHODS

This quasi-Experimental study was conducted in Kabir Medical College Peshawar that is a private sector medical college for undergraduate students of MBBS and BDS. Probability technique of simple random sampling was used to select 100 students from Year-3 and role plays were conducted by the division of students into 2 groups. There were 50 students in each group. Groups 1 performed the role plays practically and then were asked to give their feedback. Group 2 was given brief demonstration only and then asked to give their feedback. Data was collected with the help of aself-designed questionnaire from both groups that was previously pilot tested amongst 7 students. The data was analyzed using SPSS version 23. Chi –square test was used to compare the responses of two groups. P value of less than 0.05 was considered significant.

RESULTS

Amongst 100 students (table-1), 63 were males and 37 were females with mean age of 21 years (SD=1.3). Responses were obtained regarding the students' views for conduction of role-plays in undergraduate medical education and training. A majority of them agreed that role plays are an effective teaching strategy for improving critical thinking and communication skills of students. In group 1, 47 out of 50 students (94%) and in group 2,32 out of 50 students(64%) admitted that role plays can improve critical thinking skills (p=0.02). Almost same results were found for the improvement of communication skills as well (see table-2).

DISCUSSION

Role-plays are powerful tools of instruction in medical education by enhancing the mutual interaction between students and teachers. A role-play can enable the learner to deal ambivalent professional situations. Role play is an effective intervention that can contribute to increase all the domains of learning. The tendency of it to engage emotions adds to its uniqueness. Role-plays are

Table 1: Gender distribution of students in each group.

Gender	Group-1	Group-2	Total
Male students	32	18	50
Female students	31	19	50
Total	63	37	100

Table 2: Gender distribution of students in each group.

Questionnaires	Group-1		Group-2		P-value
	Yes	No	Yes	No	
Have you participated in any role play previously?	14	36	15	35	0.21
Do you feel role plays help in Improving communication skills?	46	4	32	18	0.02
Did you feel your critical thinking skills have improved after role play?	47	3	32	18	0.02
Do you find role plays useful?	45	5	33	17	0.02
Do you feel role play as an effective teaching modality?	46	4	28	22	0.02
Do you feel role plays are effective teaching modality as compared to lectures?	43	7	18	32	0.68
Are role plays effective for self-directed learning?	46	4	10	40	0.04
Will you recommend role plays as a teaching modality for future teaching?	40	10	27	23	0.09

predominantly used in teaching sensitive subjects such as end of life care decisions, breaking bad news, and dealing with complex clinical scenarios[8]. Having relevant communication skills in palliative care is of enormous importance and this can be learnt through role plays. Role play is used as an effective teaching strategy if this is properly structured and formulated on the basis of meeting objectives of the course.

A study was conducted to see the effectiveness of role-plays in teaching genetic counseling and was found that most of the study population of medical graduates agreed that role-play was effective in teaching them the art of counseling[9]. Most participants came to a unanimous conclusion that role play helped them to comprehend the indications for referral for genetic counseling. A vast proportion of participants (76.7%) recommended the introduction of role plays in curriculum. Another study highlighted the importance of role play and debates for promoting critical thinking of the students and in addition improving their communication skills during problem based learning sessions[10]. While comparing both the above modalities mentioned, debate was considered to be more effective in creating new horizons of thinking as compared to role play.

Another study conducted at Manipal College of Medical Sciences, Pokhara, favored the results of our study in which participants felt that the skills gained with the help of role plays will be instrumental in future professional careers[11]. Should do so in a sensitive and caring manner and convey a supportive, non-judgmental attitude to their patients, especially with regard to sexual and reproductive issues. The Manipal College of Medical Sciences (MCOMS) study showed that 90.8% of the participants agreed it to be an effective mode of information transfer.

Our study findings suggested role play as an effective strategy for increasing the communication and critical thinking skills of students, and paves way for introducing it formally in undergraduate medical and dental education curriculum. By applying this technique, teachers will be able to make their teaching style more innovative and interactive rather than old style of lecturing. This will also increase the confidence of students to a colossal extent.

Role play was rated higher than compared to lectures in imparting the knowledge and skills of breaking bad news in our study in people who were trained in role plays. This adds to the existing research which emphasize the role of this teaching modality in improving communications skills[12]. A study conducted in Germany emphasized the role of role plays sessions in improving the technical skills of medical students[13]. Another local study conducted on undergraduate medical students about their perception of role plays in Public health and Community medicine training revealed similar results as ours[14]. Emotions are an integral part of role plays, and therefore are considered to be an important tool for self-directed learning[15]. Our interventional group was of the opinion that role plays improve self-directed learning which is mostly related to the emotional component.

This study was limited to one center and to only medical students. Further studies of this kind with validated data collection tools are needed to help us generalize the results.

CONCLUSION

Role plays as a teaching and learning modality is an innovative style of teaching in improving the communication and critical thinking skills of students.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Khan JUA: Conceptualized the idea, collected data and wrote introduction and results

Jamil B: Helped in concept, reviewed the article

Ahmed F: Reviewed the whole article, did analysis of data and wrote discussion

Khan UA: Reviewed the article, and helped in data collection.

Qaisar A: Data collection and manuscript writing.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

FREQUENCY OF HEPATITIS B IN HEMODIALYSIS PATIENTS IN LADY READING HOSPITAL PESHAWAR, KHYBER PAKHTUNKHWA

Naeem Khattak[1], Ambreen Afridi[2], Iftikhar Ud Din[1], Shafi ullah[1], Shahana Nisar[1], Zeeshan Kibria[3]

[1]Department of Community Medicine, Bacha Khan Medical College, Mardan - Pakistan

[2]Department of Community Medicine, Khyber Medical Medical College, Peshawar - Pakistan

[3]Institute of Basic Medical Sciences Khyber Medical University, Peshawar - Pakistan

ABSTRACT

Objectives: To determine the frequency of hepatitis B in hemodialysis patients in lady reading hospital Peshawar Khyber Pakhtunkhwa

Methodology: The study design was cross sectional and carried out in the department of Nephrology lady reading hospital Peshawar Khyber Pakhtunkhwa from 1st February 2018 to 30th July 2018. All eligible patients who were on hemodialysis were enrolled in the study through consecutive non probability sampling.

Results: In our study 177 participants were included, 73.4% males and 26.6% females. The participants mean age was 41.8 ± 8.6 years. Mean no of hemodialysis sessions were 15.2 with standard deviation of 5. Hepatitis B virus was present in 27.1%.

Conclusion: Hepatitis is highly prevalent in our population who is subjected to repeated hemodialysis. More robust screening techniques should be used to detect these at an early stage.

Keywords: Hemodialysis, Hepatitis B, frequency

This article may be cited as: Khattak N, Afridi A, Din IU, Shafiullah, Nisar S, kibria Z. Frequency of hepatitis B in Hemodialysis patients in Lady Reading Hospital Peshawar, Khyber Pakhtunkhwa. J Med Sci 2020 April;28(2):158-161

INTRODUCTION

Chronic Kidney disease (CKD) may be defined as "A condition frequently associated with uncontrolled hypertension and diabetes" it has become a major economic and public health problem both locally and globally[1]. The term Chronic Renal Failure (CRF) means the last stage of chronic kidney disease (CKD) in which there is decline of glomerular filtration rate (GFR)below 0.25 ml/s[2]. Chronic Renal Failure (CRF) is a global serious economic and public health issue with an increasing prevalence and incidence[3]. The most important risk factors for renal and caridiovascular diseases is hypertension, till now approximately 1 billion adults worldwide are suffering from hypertension[4]. Glomerular hyper-filtration and Systemic hypertension are the major factors leading to progressive nephron damage. If Blood pressure is controlled effectively then progression of renal disease in adults will be delayed[5]. Over 2 billion people are affected with Hepatitis B globally and 350 million people are affected from chronic Hepatitis is B virus infection[6]. Its infectivity is more than the other blood-borne pathogens and a single needle prick injury indicates a risk of 300 hepatitis B virus infection (the risk is 30%), 30 hepatitis C virus infection (the risk is 3%) and 3 Human Immunodeficiency virus (HIV) infection (risk is (risk is 0.3%) per 1000 respective[7]. The patients on Hemodialysis (HD) are more at risk of getting hepatitis B virus (HBV) infection,the main reason of which is frequent contact with blood supplies and surfaces containing these viruses[8]. As a result of this the prevalence of Hepatitis B virus (HBV) infection in hemodialysis patients is very high, although it is different among countries and among different hemodialysis units of the same country[9]. The established risk factors for HBV infection are duration of hemodialysis and number of blood transfusions. The prevalence of HBV infection has decreased by the use of blood product screening in blood banks and erythropoitin treatment, inspite of this outbreak of HBV still occurs[10]. The reported prevalence of HBV among dialysis patients is 11.2% and 8% in Asia[11]. Our study is designed to determine the frequency of HBV in patients on chronic hemodialysis (HD). As mentioned above, the patients on HD are at increased risk of viral infection due to their continuous exchange of body fluids and other blood related products. Moreover, it is also mentioned in literature that the burden of HBV varies from one hemodialysis settings to another

Correspondence
Dr. Naeem Khattak
Lecturer Community Medicine, Bacha Khan Medical College, Mardan - Pakistan
Email: naeemkhattak520@gmail.com
Cell: +92-334-9085661
Date received: 20-12-2019
Date revised: 18-02-2020
Date accepted: 20-05-2020

due to variation in resources and expertise. This study will give us local evidence of magnitude of HBV in patients on chronic HD. Our study results will be distributed to local health authorities to aware them about the severity of the problem and future research recommendations to prevent the enhancing burden of HBV among HD dependent patients.

MATERIAL AND METHODS

This descriptive cross sectional study was carried out in the department of Nephrology, Lady Reading Hospital, Peshawar Khyber pakhtunkhwa from 01-02-2018 to 30-07-2018. Sample size was 177 and technique used was consecutive (non-probability) sampling. All patients with either gender having age 18-65 years on chronic HD with minimum of five HDs done in the past 3 months were included in the study. Patients who were already diagnosed with HBV on medical records with history of any type of treatment received for Hepatitis B in past were excluded from the study. The study was done after approval from hospitals research and ethical committee. All patients fulfilling the inclusion criteria (i.e. patients presenting to the dialysis unit for their routine dialysis and with history of at least 5 sessions of dialysis in the past 3 months) was included in the study. The benefits and purpose of the study and associated risks were explained to the patients. An informed consent was taken from all the patients and detailed history and clinical examination was done. 10cc of blood was obtained from all patients and was sent to hospital laboratory immediately to detect HBV. All the laboratory procedures were conducted from single hospital laboratory under supervision of single expert pathologist having minimum of 5 years experience. A pre-designed proforma was used that comprised of demographic data and frequency of HBV. The data was analyzed in SPSS version 23. Percentage and frequency were calculated for categorical variable like gender and HBV. Mean and standard deviation was calculated for continuous variables like age and number of hemodialysis in the past. Frequency of HBV was stratified among the age, gender and number of dialysis sessions to the effect modifiers using chi square test with p value of < 0.05 taken as significant.

RESULTS

The mean age of our sample was 41.7 years with a standard deviation of 8.6 years with a minimum age of 25.5 and maximum age of 55 years in our study. We divided the patients into 3 different age groups i.e. > 25 to 35 years > 35 to 45 years and > 45 to 55 years. (Table 1). Out of 177 participants, there were 73.4% males and 26.6% females (Table 2). Mean number of HD sessions were 15.2 with SD of 5. Table 3 elaborates the categories wise distribution of HD sessions. All patients were subjected to screening of HBV and found that it was present in 27.1%. (Table 4) Stratification of HBV was done on the basis of age, gender and categories of HD sessions as elaborated in table 5-7 after applying chi square test.

Table 1: Age-wise distribution of participants (N=177).

Age groups	Frequency	Percent
25 to 35 years	49	27.7
> 35 to 45 years	48	27.1
> 45 to 55 years	80	45.2
Total	177	100.0

Table 2: Gender wise distribution of sample (N=177).

Gender	Frequency	Percent
Male	130	73.4
Female	47	26.6
Total	177	100.0

Table 3: No of hemodialysis sessions (N= 177).

HD Sessions	Frequency	Percent
5 to 11 sessions	61	34.5
> 11 to 17 sessions	58	32.8
> 17 to 23 sessions	58	32.8
Total	177	100.0

Table 4: Frequency of HBV (N= 177).

HBV	Frequency	Percent
Yes	48	27.1
No	129	72.9
Total	177	100.0
Total	177	100.0

Table 5: Age groups wise stratification of HBV (N = 177).

		HBV		P value
		Yes	No	
Age Groups	25 -35 years	13	36	<0.001
		26%	74%	
	> 35-45 years	24	24	
		50%	50%	
	> 45-55 years	11	69	
		14%	86%	
Total		48	129	
		27%	73%	

Table 6: Gender groups wise stratification of HBV (N= 177).

Gender of the patient	HBV		P value
	Yes	No	
Male	48	82	<0.001
	36.9%	63.1%	
Female	0	47	
	0.0%	100%	
Total	48	129	
	27.1%	72.9%	

Table 7: Hemodialysis sessions wise stratification of HBV (N= 177).

No of Dialysis session in Categories	HBV		P value
	Yes	No	
5 to 11 sessions	13	48	0.032
	21.3%	78.7%	
> 11 to 17 sessions	23	35	
	39.7%	60.3%	
> 17 to 23 sessions	12	46	
	20.7%	79.3%	
Total	48	129	
	27.1%	72.9%	

DISCUSSION

WHO has categorized Pakistan as intermediate HBV prevalence region[12]. Over the past 15 to 20 years the prevalence of HBsAg has decreased in Pakistan, as shown by earlier reports to 8 [13] and 10 to 15 percent [14] in the healthy adult population. The decrease in HBV positivity may be due to testing by more specific HBs Ag Elisa kits with few false-positive results and is due to use of vaccination and increased awareness against hepatitis B. Recently, Pakistan has included hepatitis B vaccine in routine immunization schedule of neonates, the immunization coverage of which was 65 percent in 2004[15]. In Armed Forces personnel large-scale hepatitis B vaccination was done in the past 10 years and among health care professionals, with vaccination status of 86 to 98 percent[16]. The other risk factors which seems to be unchanged, are repeated use of potentially contaminated razors by barbers, reuse of disposable glass, syringes, improper dental practices[17] and other risk factors seem to be unchanged.

The established risk factors for HBV infection are duration of hemodialysis and the number of blood transfusions[18]. The prevalence of Hepatitis B infection has decreased by the use of erythropoietin treatment and screening in blood banks. However, outbreak of HBV still occurs[19]. Hospital acquired infection may play a role in such outbreaks which is supported by the association between risk of infection with this virus and hemodialysis duration[20].

In our study, the prevalence rates of HBV infection among hemodialysis patients was more or less high than as compared to developing countries and it was higher than developed countries[21-23]. The reason for high prevalence may be attributed to the prevalence of Hepatitis B infection in general population. In Pakistan the rate of Hepatitis B virus infection ranges from moderate to high endemicity. As a result prevalence of HBV among hemodialysis patients has increased in recent years. Developing countries need implementation of infection control programs. Our study showed a higher prevalence of HBV infection. The results might be influenced by differences in the specificity and sensitivity of the procedures used, they revealed that the current infection-control techniques has not decreased the prevalence of HBV infection. In these situations, hospital transmission of infection might play an important role.

CONCLUSION

HBV is highly prevalent in our population who subjected to repeated hemodialysis.

RECOMMENDATION

More robust screening techniques should be used to detect these at an early stage. Moreover, more research is recommended for a possible source of infection to the HD patients so that future preventive mechanisms may be described.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Khattak N: Main Idea Principal Author.

Afridi A: Data analysis.

Din IU: Data Collection.

Shafiullah: Content Writing.

Nisar S: Data Collection.

kibria Z: abstract and content wiring.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

OUTCOME OF STEROID INJECTIONS IN PATIENTS WITH DE-QUERVAIN'S TENOSYNOVITIS

Waqas Raza, Abu Bakar, Shabir Awan, Raja Irfan Qadir

Department of Orthopaedics, North West General Hospital, Peshawar - Pakistan

ABSTRACT

Objective: To determine the outcome of steroid injections in patients with de Quervain's tenosynovitis.

Material and Methods: This Descriptive case series was conducted in the Department of Orthopedics Surgery, Hayatabad Medical Complex, Peshawar from April 2017 to Jan 2018. Patients of any gender, age group 18-55 presenting with de Quervain's disease were included. Sample size was 97, using 95% confidence interval, and 10% margin of error, under WHO software for sample size calculation. Positive test means ulnar deviation of the wrist with flexed thumb lead to pain; outcome was determined by obtaining negative Finkelstein's test at 3 weeks follow up.

Results: Total No of 97 patients with de Quervain tenosynovitis (Positive Finkelstcin's test) were selected and Finkelstcin's test was performed at three weeks after steroid injection to study its effect. 96% of the patients were female and in 99% disease was noted on the dominant side. The mean age in study was 33.9$\pm$ 5.3 SD. Efficacy was observed to be 95% however its association with age has p value .000 and gender .000.

Conclusions: Local steroid injection in patients with de Quervain's tenosynovitis is effective at three weeks in term of Finkelstein's test.

Keywords: Local, steroid, injection, de Quervain's tenosynovitis.

This article may be cited as: Raza W, Bakar A, Awan S, Qadir RI. Outcome of Steroid Injections in Patients with De-Quervain's Tenosynovitis. J Med Sci 2020 April;28(2):162-166

INTRODUCTION

Named after Swiss Physician Fritz de Quervain, De Quervain tenosynovitis is a painful disabling condition affecting hand. It is more prevalent in manual workers, can be treated by conservative and surgical means. Working population are more at risk of developing De Quervain's tenosynovitis[1], which is a painful condition and may limit day-to-day activities. The most probable cause is thickening of the extensor retinaculum of the wrist[2].

In 1895 Fritz de Quervain, a Swiss physician first described this condition. Pain in the region of the wrist joint, due to Stenosing tenosynovitis of first dorsal web space of extensor pollicis brevis and abductor pollicis longus tendon[3].

The prevalence of de Quervain's tenosynovitis was 0.5% in men and 1.5% in women commonly encountered in orthopedic clinics and diagnosed clinically. New studies in worker show its prevalence to be higher than in the community. De Quervain's is also written as disease of pregnancy and lactation[4].

The signs and symptoms of de Quervain's tenosynovitis includes pain or tenderness and sometimes swelling at the radial styloid with tenderness[5]. Ulnar deviation of the wrist with flexed thumb lead to pain. Classical pain is over radial styloid radiating to anatomical snuff box and thumb[6].

De Qucrvain's tenosynovitis can be treated by conservative and operative mean[7]. The conservative treatment includes oral anti-inflammatory drugs ice, heat therapy and steroid infiltration along the tendon sheath[8]. Conservative means are enough to resolve the self limiting disease of pregnancy complete relief of symptoms by the end of lactation is observed[4]. A use of thumb splint for resting is most popular[9] but is cumbersome and has been observed with poor results in the working community. Surgical treatment includes release of the first dorsal compartment and removal of any septa if present[7, 8]. The result of surgical treatment is much better than the conservative, but at the cost of operating theater time, risk of infection, permanent damage to superficial branch of redial nerve and instability[10].

De Quervain's tenosynovitis is painful disabling condition of the wrist; treatment is conservative and oper-

Correspondence
Dr. Waqas Raza
Senior Registrar
Department of Orthopaedics, North West General Hospital, Peshawar - Pakistan
Email: raza.waqas@gmail.com
Cell: +92-336-93378731
Date received: 27-11-2019
Date revised: 18-03-2020
Date accepted: 20-05-2020

ative. Most studies are done on operative treatment, which is invasive expensive needs operation theater anesthesia setup and possible complications.

Studies done on the conservative treatment uses splints more often, which in case of removable are expensive and fixed splinting for three weeks or so, may not be tolerated well in working people. As found effective in my study, family physicians and orthopedic surgeons can be recommended to use local steroid injection for de Quervains's tenosynovitis as an outpatient department procedure to avoid un-wanted surgical intervention[11].

MATERIAL AND METHODS

This descriptive case series was conducted over a time period of 6 months from 15-04-2017 to 30-01-2018 in department of orthopedics surgery, Hayatabad Medical complex Peshawar. Patients of any gender, age group 18-55 presenting with de Quervain's disease were included in the study.

However, patients with history of chronic joints disease osteoarthritis rheumatoid disease or fracture around the wrist joint on x-ray were excluded. Also patients with previous history of local steroid infiltration in the region which may interfere with outcome of study and patients under treatment of endocrinology or history diabetes mellitus with fasting blood sugar 120 mg/dl as steroid injection have diminished effects in those patients were also excluded.

Furthermore, patients with wound or focus of infection around wrist on clinical examination were also not included as injections are contraindicated to control selection bias and confounding variable as these had different prognosis and would affect the overall result of the study.

Sample size was 97, using 50% effectiveness of steroid injection, 95% confidence interval, and 10% margin of error, under WHO software for sample size calculation.

After the approval from the hospital ethical committee all the patients meeting the inclusion criteria, in orthopedic outpatient department with pain in first dorsal compartment while grasping the thumb and deviating the wrist to ulnar side were selected. Written informed consent was taken.

Patients were given one local injections with 40 mg (1 ml) methylprednisolone along the line of the tendon, just proximal or distal to the styloid at the maximum tender site by the researcher in supervision of senior orthopedics surgeon. All the patients were discharged and advised to follow up at three weeks.

At three weeks follow up finkelstein test (Positive test means was deviation of the wrist to the ulnar side, while grasping the thumb, results in pain) was done to determine intervention effectiveness. All of the above information including name age sex gender is recorded in predefine Performa. Strict exclusion criteria followed to control confounders and biases in the study.

Data was entered in SPSS version 10. The mean +_ standard deviations calculated for continuous variables like age. The frequencies and percentages calculated for categorical variables like sex, affected side, and Finkelstein test. Effectiveness is stratified among age sex and other analgesics used to see the effect modifiers. Results described and presented in the form of tables.

RESULTS

Total of 107 patients were registered who came with complaints of pain at base of thumb with positive Finkelstcin's test. 9 of them did not come for follow up visit and were excluded from the study. Three patients in those 9 later on undergone surgery for the disease so these patients who were initially registered in study were excluded because of follow up test at three weeks was not done, one of the female was diagnosed as case of diabetes mellitus and was also excluded.

Age distribution was analyzed as most of the patients 63(64.9%) were in age range 30-40 years followed by 23(23.7%) patients below 30 years and 11(11%) patients above 40 years of age. Mean age was observed to be 33.9 with STD deviation of ± 5.3 (as shown in Table 1)

Gender distribution among 97 patients was analyzed as female predominant disease, more in pregnancy, 26 out of 96 were having pregnancy and 13 postpartum 4 of those with bilateral disease. 96% of my patients were female age ranges 23 to 40 years. Only 3 males were registered who fulfils the inclusion criteria of follow up after 3 weeks. Interestingly ages in male population effected were on higher side, 40 plus. (As shown in Table 1). Site affect among 97 patients were analyzed as 96 patients had laterality on right side while only one patient had laterality on left side.

In this study there were 23 patients age less than 30 years, all female and had outcome observed to be 100% in this group. 63 patients were from 30 to 40 years age group, 61 females showed efficacy of steroids and 1 male and 1 female patient were observed to have positive Finkelstein's test at three weeks. There were only nine patients with age more than 40years; in this group 2 males and a female patients' steroids were observed to be non effective in term of Finkelstein's test in De Quervain tenosynovitis as shown in Table no 4, 5, 6)

Outcome was observed to be 95% however it was noted to have association with age and gender P value 0.000 and0 .000 respectively.

Table 1: Age & gender distribution (N=97).

Age & gender	Frequency	Percentage
< 30 years	23	%23.7
40-30 years	63	%64.9
> 40 years	11	%11
Male	3	%3.1
Female	94	%96.9

Table 2: Age wise efficacy of steroid.

Age wise efficacy	Efficacy	Efficacy	Total
	Yes	No	
< 30 years		23	23
40-30 years	62	1	63
40 & above	8	3	11
Total	93	4	97

Chi square was applied in which P value 0.00

Table 3: Gender wise efficacy of steroid.

Age wise efficacy	Efficacy	Efficacy	Total
	Yes	No	
Male	1	2	3
Female	92	2	94
Total	93	4	97

Chi square was applied in which P value 0.00

DISCUSSION

In our study total of 107 patients were registered who came with complaints of pain at base of thumb with positive Finkelstcin's test. Nine of them did not come for follow up visit and were excluded from the study. Three in those 9 later on undergone surgery for the disease so these patients who were initially registered in study were excluded because of follow up test at three weeks was not done; one of the female was diagnosed as case of diabetes mellitus and was also excluded. All the patients were advised avoid grasping and lifting with the wrist while ulnar deviation.

Prevalence of .7% to 2.1% in general working population and 5% to 1.3% in community is noted[12]. According to wolf and colleagues de Quervain's tenosynovitis had a significantly higher rate in Women of at 2.8 cases per 1000 person-years, compared to men at 0.6 per 1000 person-years women had a significantly ($p < .0001$) Female. A male -to- female ratio as high as 1: 8 have been reported. There appears to be an increased prevalence in women during the later stages of pregnancy and in the early postpartum period, which is often bilateral[4-13]. Avci and colleagues termed de Quervain's as a disease of pregnancy and lactation which usually is self-limited and responds well to conservative treatment. They conducted a randomized prospective study on 19 wrists of 18 patients with de Quervain's disease who were either pregnant or breast-feeding[4].

Sawaizumi observed a mean age of 46 years' minimum age reported 22 yrs; there were 14 men and 22 women, With 24 dominant hands and 2 cases of bilateral involvement[14]. The mean ages for the patients in the 7 observational studies varied between 38.0 and 49.4 years in review study conducted by Rechiee[10]. In Iranian study by Alemohammad the mean age of all patients was 31.2 years (range 21 – 61 years)[9].

In our study female predominance was significant and disease was observed more in pregnancy, 36 out of 96 were having pregnancy and 23 lactating mothers 4 of those with bilateral disease. The female age recorded in our study is on lower side because of the early marriages and early pregnancies in our region. 96% of patients were female age ranges 23 to 40 years. Only 3 males were registered who fulfilled the inclusion criteria of follow up after 3 weeks. Interestingly ages in male population effected were on higher side (more than 40). Mean age was observed to be 33.9 with STD deviation of 5. De Quervain's tenosynovitis is noted to be in the dominant hand 99 % of the times and was observed in one non dominant hand in sample size of 97.

459 wrists were studied in a Systemic review of seven observational studies, efficacy of splints steroids and splints and steroids were observed to be 14%, 61% and 83% respectively[10]. In this study, efficacy of steroids verses steroids and splints were noted to be higher in steroids group which is described as wolf law of tendon healing and remolding in accordance to force and stresses upon them. In another study in which nimsulide had been studied alongside local steroids, they observed steroids to be effective in 68% of the cases with nimsulide and 67% otherwise at 7th day [15].

In a Dutch study the short and long term effects of corticosteroid and placebo were studied[16]. Their observation was, steroids are effective in comparison with placebo in short as well as long term of immediate treatment response, severity of pain, improvement as perceived by participant and functional disability. They were only able to include 21 patients for the sample size of 50 which was calculated before the study. They get to the conclusion of steroid significance in terms of subjective improvement of pain[16].

A study conducted in Iran comparative trail on casting and steroids with casting. They included 73 patients 37 in steroid group efficacy was observed to be 85.6%[9]. Although they excluded any patient with pregnancy, steroids and casting efficacy had significantly higher rate of cure than casting alone. Another study finds steroids to be 89% effective and they also needed a second injection if the symptoms persist after one injection. They emphasize on the correct placement of the injection in the tendon sheath[14].

In our study there were 23 patients aged less than 30 years all of which were female and efficacy was observed to be 100% in this group. 63 patients were from 30 to 40 years' age group, of which 62 were females and one male patient. 61 females showed efficacy of steroid injection in this age group and one female and one male patient were observed to have positive finkelstein test at three weeks. There were only nine patients with age more than 40 yrs; in this group 2 males and 1 female patient's steroids were observed to be non effective in term of finkelstein test in De Quervain's tenosynoitis.

A positive Finkelstein test is the diagnostic criterion for de Quervain tenosynovitis. The test is performed by making a fist with the thumb inside the fingers. On passive ulnar deviation of wrist by the examiner, the dosrolateral wrist pain is aggravated. The Finkelstein test is done bilaterally to compare the involved side with uninvolved one[17].

Test was done on initial visit for the confirmation of the disease and then repeated after three weeks of the injection. Initially it was observed to be positive but could not be elicited at third week except for the three patients in whom steroid was considered to be not effective. A single visit permanently cured the symptoms in almost half of the patients. Nowadays 2 and 4 site injection technique has been introduced and randomized trials are available to show better results of 90% and above in the relief of symptoms. In our study steroids are 96.9% effective in term of Finkelstein test.

The results of our study coincides with Avci, who reported 100% efficacy in pregnancy and lactation[4-13]; which is in agreement with the results observed in our study in patient age group below 30 years. The de Quervain tenosynovitis occurring during pregnancy frequently responds well to the conservative treatment. The symptoms in pregnant women may resolve spontaneously either at the end of pregnancy or at the end of breast feeding[4].

Though this will also need further studies in pregnancies and postpartum to establish its true natural history and response. The efficacy of steroids in our study indicated statistically significance association with age and gender however the sample size was taken to determine the efficacy of steroids only. So this will need further studies and larger sample size to establish these associations with effectiveness.

Results for the age group of more than 40 years with efficacy of 70% are in consistent with that of other studies. The possible explanation for this again is chronic degenerative disease and probable congenital variations in this area.

LIMITATIONS

The concepts of eccentric loading are applied and all the patients are advised to avoid griping and lifting in ulnar deviation of the hand and to do passive stretching exercise. This can act as confounder with steroids in outcome of the disease, but this again will need further research.

Short duration follow-up was main shortcoming of our study. We were not able to follow the patients after three weeks. Any recurrence after three weeks was not recorded. The predesigned Performa was deficient in terms of recoding of the association like pregnancy.

Outcome measure was only Finkelstein test. No other outcome measurement pain scale or Perceived improvement is recorded. Control on injection in the correct tendon sheath needs ultrasonography control, which was not available and may have resulted in wrong site injections in non-responders.

CONCLUSION

Steroid injections are effective in more than 90% of the patient in terms of Finkelstein test. Results are suggestive of significantly better efficacy of steroids in younger age and female gender.

RECOMMENDATIONS

De Quervain tenosynovitis is painful disabling condition of the hand in people who performs manual work. It can be safely treated by general practitioner. Sound knowledge of anatomical land marks and injection in to the tendon sheath is the key to success.

Further studies needed to know about the prevalence in our region. Disease association with pregnancy needs further evaluation for its pathology and its response to steroids.

Cadaveric studies in our region will be also helpful to know about anatomical variation of 1st dorsal compartment in our region. Conservative management like physiotherapy and eccentric loading in tendinopathies need to be evaluated for their efficacy.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Raza W: Concept, study design, data acquisition.

Bakar A: Draftingn the manuscript.

Awan S: Critical review.

Qadir RI: Analysis & interpretation of data.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

FREQUENCY OF MALIGNANCY IN PATIENTS PRESENTING WITH PAROTID SWELLING

Israr Ud Din, Muhammad Hafeez, Arif Raza khan, Imran khan, Muhammad Junaid
Department of Otorhinolaryngology Khyber Teaching Hospital, Peshawar - Pakistan

ABSTRACT

Objective: To determine the frequency of malignancy in patients presented with Parotid swelling.

Material and Methods: This study was conducted in Otolaryngology department, Khyber Teaching Hospital, Peshawar, Pakistan from January 2018 to December 2019. One-twenty six Patients of age 18 to 68 years with Parotid swelling were included. Patients with history of Parotid surgery and inflammatory conditions were excluded.

Results: Out of 126 patients, males were 76 (60.31%) and females 50 (39.69%). Malignancy in male patients was 20 (15.87%) as compared to females which was 13 (10.32%).

Conclusion: Malignancy was found in 10-15% of patients who presented with Parotid swelling which necessitates biopsy in all such patients.

Keywords: Parotid gland, malignancy.

This article may be cited as: Din I, Hafeez M, Khan AR, Khan I, Junaid M. Frequency of Malignancy in patients presenting with Parotid swelling. J Med Sci 2020 April;28(2):167-170

INTRODUCTION

Parotid swelling may be inflammatory, granulomatous and neoplastic[1]. Most lesions have a long history of painless lump unilateral and rarely bilateral[2]. Sudden onset of the swelling, pain, hard in consistency, facial nerve weakness and regional lymph nodes involvement has clinical suspicion of malignancy. Some tumours presents with regional lymph node involvement while others presents with distant metastasis[3].

About 75 % begnin lesions arise in Parotid glands while malignant about 10 to 15 % thereafter incidence of malignancy increases in submandibular and sunlingual glands. In a study the reported malignancy is 14.0% as compare to other studies[4]. In other published studies malignancy is 10.3% and 9% in Parotid lesions[5, 6]. If swelling is solid or cystic on ultrasound then one must perform fine needle biopsy if it is suggestive of malignancy then treatment of choice is total conservative Parotidectomy if needed with neck dissection for neck nodes and post operative radio therapy[7-11]. Benign lesion on needle biopsy need superficial Parotidectomy with histopathological examination of the specimen as a part of management protocol[11]. Parotid surgery need experience surgeon many vital structures passes through it otherwise the procedure will end with complications[12].

Parotid region has great cosmetic and surgical importance patient with Parotid swelling must be counselled for surgical resection. Many benign swellings transform in to malignant due to delay in proper treatment. Early surgery greatly reduces morbidity and mortality on patient side.

MATERIAL AND METHODS

This cross sectional study was conducted in the Department of otorhinolaryngology, Khyber Teaching Hospital, Peshawar-Pakistan from January 2017 to December 2019. Total 126 patients of both gender, age from 18 t0 68 years and patient of Parotid lumph on clinical examination confirmed by ultrasound were included. History of Parotid surgery, unresectable swelling, uncontrolled diseases like diabetes hypertension, ischeamic heart diseases and inflammatory conditions were excluded. Approval from hospital ethical and research committee was taken the purpose and benefits of study were explained to the patients and an informed consent was obtained.

Correspondence
Dr. Arif Raza Khan
Professor
Department of Otorhinolaryngology Khyber Teaching Hospital, Peshawar - Pakistan
Email: arifraza_k@yahoo.com
Cell: +92-333-9167305
Date received: 30-01-2020
Date revised: 18-02-2020
Date accepted: 20-05-2020

All patients were subjected to detailed history and examination diagnosis of Parotid swelling was based on the clinical and radiological examinations of Parotid glands. Diagnostic criteria for malignancy were pre operative fine needle aspiration cytology and histopathlogy of the operated specimen.

All the above mentioned information including name, age, gender and address which recorded in the study proforma. Data collected was analyzed in SPSS version 22.

The result were expressed as frequencies and percentages. Malignancy in Parotid swelling was stratified among both sexes and in all age groups to see the effect modification. Results were presented as tables and graphs.

RESULTS

The results of the study are given in Table 1 and 2. Table 1 shows that a total of 126 patients were studied, in which the number of male and female patients were 76(60.31%) and 50(39.69%) respectively. Among females there were 13(10.32%) malignant and 37(29.37%) non-malignant patients, whereas 20(15.87%) malignant and 56(44.44%) non-malignant in males. Table 2 shows age-wise distribution of malignant and non-malignant patients. The frequency and percentages as 12(9.52%) malignant & 8(6.35%) non-malignant patients, 25(19.85%) malignant & 35(27.78%) non-malignant patients, 12(9.52%) malignant & 14(11.11%) non-malignant patients, and 12(9.52) malignant & 8(6.35%) non-malignant patients were considered respectively for age groups less than 30, 34 – 48, 49 – 63, and 64 years and above.

Table 1: The distribution of gender with respect to malignant and non-malignant patients.

Gender	Malignant	Percentage of Malignant	Non-Malignant	Percentage of Non-Malignant	Total	Percentage
Male	20	15.87%	56	44.44%	76	60.31%
Female	13	10.32%	37	29.37%	50	39.69%
Total	33	26.19%	93	73.81%	126	100%

Table 2: Age-wise Distribution of Malignant and Non Malignant patients.

Age	Malignant	Percentage of Malignant	Non-Malignant	Percentage of Non-Malignant	Total	Percentage
Less than 30	12	9.52	8	6.35	20	15.87%
34 - 48	25	19.85	35	27.78	60	47.63%
49 - 63	12	9.52	14	11.11	26	20.63%
64 & Above	12	9.52	8	6.35	20	15.87%
Total	61	48.41	65	51.59	126	100%

DISCUSSION

Malignancy of Parotid gland is usually slow growing and may take long time to develop signs and symptoms[13]. Exact etiology is still unknown but its risk increases in extreme of ages[14]. History of pain other body swelling, hard on consistency and nerve weakness arises the suspicion of malignancy as in the literature[15]. Most swellings are unilateral but bilateral can also accure[16]. Ultrasound can demonstrate clearly weather smelling is cystic or solid further confirmation is done on needle biopsy[17]. Some times in selected cases we need incisional biopsy[18]. In lymphomas of Parotid excision of the node is required[19].

Frequency of malignancy 26.19% is high in this study as compared to other studies that are 20.9% and 10.3% reason is that most of the suspected cases are referred here because surgical clearance needs experienced surgeon and tertiary care setting[20, 21]. Most lesions require extensive resections which carry risk of complications that are better managed in referral hospitals[22]. We performed minimum superficial Parotidectomy if pre operative biopsy shows cancer cells then total conservative surgery offered[23]. Post op radiation is standard for malignant gland that was offered as in original research[24]. In palpable neck nodes we performed neck dissection to stage the disease pathologically [25]. In this study male patients were 60.31% and female 39.69% as compared to a similar published work[26]. Malignancy was 10.32% in female patients while 15.87% in male as also shown in the results 50.77% male and 49.23% female[27]. Malignancy remains common in children, age must be consider a risk factor 9.52% as in was done is this study[28]. Middle age that is from 34 to 48 years malignancy was 19.85% and non malignant 27.78% supported by article[29]. Again in fifth decade neoplasia

9.52% that is lower In number and age above sixth decade must be consider a great risk for cancer as in the study is 9.52% as compared to non malignant 6.35% also shown in some published studies[30].

CONCLUSION

Surgery remains gold standard for Parotid swelling it is both diagnostic and curative and early intervention will help to reduce morbidity and mortality and improve quality of life.

RECOMMENDATIONS

It is must to initiate an awareness programmes for early referral of such patient with Parotid swelling for proper investigation and prompt treatment as possible early as delayed presentation not only end with complication but also put burden on hospital economy. Tertiary care hospital must provide space for such patients to be operated on priority basis.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Din I: Main Idea data collection Manuscript writing.

Hafeez M: Statistical Analysis.

Khan AR: Overall supervision and approval of final version.

Khan I: Bibliography.

Junaid M: References.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

USE OF SOCIAL MEDIA FOR MEDICAL EDUCATION; PERSPECTIVE OF MEDICAL FACULTY FROM SIALKOT, PAKISTAN

Intzar Hussain[1], Rehan Ahmed Khan[2], Usman Mahboob[3], Muhammad Zahid Latif[4], Rahila Nizami[5], Shamshad Ali[6]

[1]Department of Ophthalmology, Services Institute of Medical Sciences, Lahore - Pakistan

[2]Department of Surgery & Medical Education, Islamic International Medical College, Riphah International University, Islamabad - Pakistan

[3]Institute of Health Professions & Research, Khyber Medical University, Peshawar - Pakistan

[4]Department of community Medicine/Public health and Director of Medical Education, Azra Naheed medical college, Superior University, Lahore - Pakistan

[5]University of Management & Technology Lahore - Pakistan

[6]Services Institute of Medical Sciences Lahore - Pakistan

ABSTRACT

Objective: To study the perspective of faculty members about the use of social media in medical education.

Material and Methods: Across sectional descriptive study was conducted among the faculty of three medical colleges from Sialkot. After ethical approval and informed consent, a structured, pretested questionnaire was used for data collection. Data was entered in IBM SPSS version 23 and analyzed by the use of statistical tools.

Results: Out of the total of 123 participants of this study, 65 (52.8%) were males and 58 (47.2%) were females. Mean age of the males was 41.43±10.91years and females were of 32.84±7.83years.Faculty members' use of Social Media in teaching was more in private colleges than public college (P-value 0.018). Benefits score was higher in private institution (p-value 0.300). Barriers score was higher in public institutions but difference was not statistically significant (p-value 0.638).Use of social media score was higher in females but the difference was not statistically significant (p-value 0.965).

Conclusion: Majority of the medical faculty in private sector use social media for education whereas the public-sector faculty is also engaged in the process of education through social media tools.

Keywords: Social media, Medical, Faculty, Education, Smart phones, Students.

This article may be cited as: Hussain I, Khan RA, Mahboob U, Latif MZ, Nizami R, Ali S. Use of Social Media for Medical Education; Perspective of Medical Faculty from Sialkot, Pakistan. J Med Sci 2020 April;28(2):171-175

INTRODUCTION

Social media has been established as a life style and is also considered as an important platform for interaction, communication and collaboration among peers, students and teachers[1]. The improved interactions are thought to be among the important factors for the enhancement of traditional class teaching. It has been described that interactions through the group activity and collaboration for learning can be achieved with the use of social media. During the last decade, culture, communication and education has been altered in many aspects due to the use of different gadgets like smart phones[2]. There is an increasing trend to use these hand held devices in educational activities but a little evidence is available regarding the facilitation for learning[3]. Faculty members are the major users and can play a significant role for educational use of smart phones and social media[4].Similarly, Facebook has been used as the most popular social networking site by the students[5].

The faculty members commonly use social media for sharing of information, professional connections and personal communication[6,7]. There is a gradual increasing pattern about the use of social media tools among the faculty members within and outside the class room[1,8]. However, the required time is a major concern of faculty members associated with the use of social media[4]. Similarly, the adoption by the faculty has serious concerns including privacy, constraint of time, integrity and distraction. The

Correspondence
Prof Dr. Muhammad Zahid Latif
Department of Community Medicine
Public Health & Director Department of Medical Education, Azra Naheed Medical College, Superior University, Lahore - Pakistan
Email: mzahidlatif@yahoo.com
Cell: +92-333-4428870
Date received: 31-12-2019
Date revised: 27-04-2020
Date accepted: 20-05-2020

use of this technology is supposed to enhance the learning but there are various associated potential threats[2]. The findings of a relevant study concluded that social media was used either for academic, research, professional or personal purposes[6]. Facebook was used for individual communication and LinkedIn for professional interactions by majority of the faculty members. Similarly, workload of faculty, issues related to privacy, constraints of time, strategies of assessment and cyber bullying were recognized as the main concerns. However the technology of social media is an important tool to involve students and develop their skills and competencies[8]. Academicians are the key stakeholder in educational organizations having vital role to initiate technological innovations. They are generally concerned about the utilization of social media for educational purposes among college students[9]. On the other hand, the faculty should be equipped with emerging innovations of technology. They should be skilled enough to operate the technological gadgets for the enhancement of learning activities in an efficient and meaningful way. This study is intended to establish that which types of mobile devices and social media are being used by medical faculty and to which extent they are using it for teaching. This study will also find out the advantages and barriers in the social media use for learning and teaching as perceived by the medical faculty. The results will assist the management, faculty and policy makers to guide the faculty members about the use of social media in teaching for improvement of academic achievements in future. The research will also investigate the benefits and barriers in the use of social media for educational activities.

MATERIAL AND METHODS

After the approval of institutional Ethical committee, this quantitative, cross sectional descriptive study was carried out during the period of July 2017 to September 2017. The medical faculty of Khawaja Muhammad Safdar Medical College Sialkot (Public Sector), Islam Medical College Sialkot and Sialkot Medical College Sialkot (Private Sector) were included. All the Professors, Associate Professor, Assistant Professors of basic and clinical departments and demonstrators of basic departments were invited for the study. Faculty members having teaching experience of less than 6 months and those teaching non-medical subjects like Islamic and Pakistan studies were excluded. Census sampling technique was opted[10]. A structured pre tested validated questionnaire consisting of 52 close ended questions was used [11]. After the formal permission, this questionnaire was briefed, modified and edited according to the local context. Questionnaire was discussed individually with one senior teacher from each institution and then reviewed by two medical educationists. The expert opinion was obtained for face validation and suggestions were incorporated. The pre-test of the instrument was carried out on 24 medical faculty members at a medical college of Lahore and reliability coefficient, Cronbach alpha was found to be 0.89. Informed consent was obtained and questionnaire was directly administered to the study participants. Average time to fill this questionnaire was around eight to ten minutes. The collected data was organized and entered into version 23 of IBM SPSS. It was analyzed by the use of statistical tools.

RESULTS

Out of the total 123 respondents from three different medical colleges of Sialkot, 65 (52.8%) were males, 58(47.2%) were females, 64(52%) were teaching in public college and 59(48%) were working in private institutions. The mean age of the male and female teachers was 41.43±10.91years and 32.84±7.83years respectively. The mean teaching experience of professors was 27.17±5.92 years,associate professors 9.61±3.77 years, of assistant professors 4.02±2.92 years, of senior demonstrators 4.67± 2.31 year and for demonstrators it was 3.05±2.09 years. The number of particpnats from basic medical sciences was 84(68.3%) whereas 39 (31.7%) belonged to clinical sciences. The results of faculty members about personal use of social media showed that almost all the faculty members (96.7%) own smart phone and 95.9% of them have internet packages as well. The access to internet at home was available to 94.3% of the teachers. Google was most frequently(88.6%)used application and less than half (46.3%) of faculty members attended a basic course to learn the computer technology. The overall responses of the study participants about the use of social media in teaching were studied between agree and strongly agree. Faculty expressed from the results that faculty use social media in teaching to attract the students' attention(mean=3.28),present lesson material(mean=3.23),enhance understanding by searching for the updated information(mean=3.23) and motivate students for technology use in educational process(mean=3.12).Benefits of the social media use in education as viewed by the members of faculty are presented in table 2. Faculty members concluded the five items of high benefit, including presenting instructional material, communicating with colleagues about past understanding, increasing the attention of learners, motivating students for the use of technological tools in instructional processes, and encouraging students to share information. The answer of question “what are the barriers facing social media use in teaching as viewed by faculty members” is presented in table 2. “Lack of high-speed internet”, “Lack of student seriousness in dealing with these technologies for academic purposes” and “lack of teachers training” was the major hurdles for social media use in education as stated by the faculty. Regarding the comparison between public and private sectors, the results are presented in table 3. The use of social media for medical education by the faculty of private institutions was significantly higher than the public institution (P-value 0.018). Benefits score was higher in private institution but the difference was statistically non-significant(p-value 0.300). Barriers score was higher in public institutions but this difference was not statistically significant (p-value 0.638).The gender-based comparison about the use of social media by the participants is presented in table

Table 1: Responses of the faculty member regarding use of Social Media in teaching.

	Mean	Std. Deviation
Illustrate basic concepts briefly	2.95	0.73
Diversify teaching methods	3.00	0.64
Attract students' attention	3.28	0.71
Communicate with my students	3.10	0.70
Exchange discussions and dialogues with my students	2.91	0.79
Enrich the subject of the lesson	3.00	0.67
Respond to students' questions	2.96	0.75
Present lesson materials e.g., posters, slides, and videos	3.23	0.60
Benefit from students' comments on the lesson and teaching	2.97	0.65
Communicate with colleagues and staff to benefit from their previous experiences	3.07	0.62
Observe and assess student progress	2.72	0.77
Strengthen the academic relationship between students through information interchange	2.91	0.69
Instill responsibility and self-confidence through free writing expression	2.84	0.73
Increase technical understanding by searching for the latest information	3.23	0.67
Assist students to understand the lesson through their discussions	3.02	0.66
Give students more time to meditate and reflect on the lesson	2.87	0.70
Encourage students to use technology in the instruction process	3.12	0.64

Table 1: Benefits & barrier for using social media in teaching and learning.

		Mean	SD
Benefits	Communicating with colleagues and staff to benefit from their previous experiences	3.21	0.56
	Encouraging students to use technology in instruction processes	3.17	0.64
	Assisting students to understand the lesson through their discussions	3.02	0.66
	Encouraging students to share information	3.11	0.59
	Responding to students' questions	3.08	0.65
	Instilling responsibility and self-confidence through free writing expression	2.93	0.67
	Attracting students' attention	3.13	0.71
	Summarizing the main important ideas in the lesson and supporting academic writing skills	3.08	0.65
	Diversifying teaching methods	3.04	0.65
	Deepening the academic relationship between students through information interchange	2.96	0.64
	Giving students more time to meditate and reflect on the lesson	2.97	0.68
	Communicating with students	3.02	0.62
	Benefitting from students' comments on the lesson and teaching	3.01	0.67
	Presenting instructional materials e.g., posters, slides, and videos	3.22	0.54
	Exchanging discussions and dialogues with students	3.02	0.65
	Illustrating basic concepts briefly	3.00	0.68
	Observing and assessing students' progress	2.86	0.73
Barrier	Lack of high-speed Internet	3.16	0.83
	Smart phones required for rapid access may not be available to most students	2.63	0.80
	Lack of teacher confidence in their instructional role	2.62	0.74
	Small screen spaces do not provide an adequate opportunity for writing expression	2.83	0.69
	Lack of student seriousness in dealing with these technologies for academic purposes	3.09	0.68
	Difficulty in assessing student work	2.75	0.68
	Invasion of teacher privacy	2.75	0.71
	Invasion of student privacy	2.64	0.68
	Lack of teacher training	3.04	0.69

Table 3: Comparison according to public/private sector medical colleges.

	College	Mean	SD	p-value
Faculty members' use of Social Media in teaching	Public	49.672	7.404	0.018
	Private	54.132	11.839	
Benefits of social media use as viewed by faculty member	Public	51.117	7.388	0.300
	Private	52.593	7.745	
Barrier for using social media in teaching and learning	Public	25.678	3.622	0.638
	Private	25.315	4.551	

Table 3: Comparison according to gender.

	Gender	N	Mean	SD	p-value
Faculty members' use of Social Media in teaching	Male	59	51.76	12.30	0.965
	Female	52	51.85	6.56	
Benefits of social media use as viewed by faculty member	Male	59	51.71	8.32	0.880
	Female	55	51.93	6.73	
Barrier for using social media in teaching and learning	Male	62	25.66	4.24	0.654
	Female	51	25.31	3.91	

4. The score of female study subjects was higher but the difference was statistically non-significant(p-value 0.965). Similarly, the benefits score was more in female and it was not statistically significant(p-value 0.880). On the other hand, the perception about barriers was more frequent in males than females but this difference was not statistically significant (p-value 0.654).

DISCUSSION

There seems to be a gradual increase in the use of smart phones by the medical faculty due to various facilities like; availability of internet, multiple applications, portability and ease to use it. Lots of teachers are using smart phone as an educational tool through the social media practice and collaborative learning[11]. In this study, the use of social media for teaching by majority of medical faculty was in the range of agree and strongly agree and its major uses were to attract the students' attention, present lesson material, enhance procedural understanding by searching the updated knowledge and motivating learners for the use of technology in instructional process. Another study concluded that more than 90% of the faculty members have been using social media for teaching whereas a study done at a university of Sudan resulted in lower level of the social media use in education by faculty which was related to lack of digital infrastructures at Sudanese universities[4-11]). Another study concluded that the use of social media tools is relatively more in the members of faculty having required skills and convinced for the benefits of technology[12].

It was found that application of social media for teaching by the members of faculty is more in private medical institutes as compared to Public Sector College. There was a difference in the scores for male and female study subjects regarding the use of social media for education. This difference was in the support of females but it was not statically significant. These results corroborates the findings of a relevant study concluding that use of internet applications for study purpose is more common in females[12]. Correspondingly, the findings are in line with the results of a study mentioning that the numbers of females using Facebook accounts for 57% of the study participants. Similarly, another study concluded that the use of social media application is more common among females than males[13]. On the other hand a research concluded that there is no considerable gender based difference regarding social media use among the faculty members[12]. However, the same researcher reported that the trend for not integrating social media in class room was higher among the senior faculty with advanced qualifications. Different research articles are in the favor, that a gender difference exists in the use of social media and computer technology whereas there are research studies which did not agree regarding gender difference about the use of technology[12-15]. This research harmonizes with the findings of another study concluding no significant gender and designation based relationship about the use of social media[12].

It was found in the present study that benefits of social media use in education were considered as strongly agree by the faculty members on a Likert scale. The five items rated as of high benefit were presenting instructional material, benefit from their past experience, communication with colleagues, motivating students to use technology in teaching processes, attracting the attention of learners and encouraging students to share information. These results agree with the findings of other relevant studies concluding that social media promotes engagement, communication, and cooperation[14,16-18]. Faculty members rated the "observing and assessing students progress "as of little benefit. Majority of faculty members have their concern about the social media use for education. In our study, the major barrier in the use of social media use for education as mentioned by medical faculty were “Lack of high speed internet”, “Lack of student seriousness in dealing with these technologies for academic purposes” and “lack of teachers training” whereas in a study at Sudan university "lack of high speed internet "was also most important barrier mentioned by the faculty members. The other common barrier agreed between this and our study was "lack of teacher training". Some other major barriers concluded in another study include absence of smart phones, small size of screen, lacking the confidence of teacher, and technological issues[11]. Limitations inclusion of small num-

bers of medical institutes and the faculty members which can be addressed with large number of sample size and inclusion of more medical colleges across the country.

CONCLUSION

The faculty members strongly agree with the use of social media for medical education. Faculty of private medical colleges was more engaged in the application of social media for educational purposes. Moreover, gender-based difference in support of female teachers was concluded with no significant association. Lack of quality internet, attitudes of learners and issues related with training are the major barriers.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Hussain I: Principal investigator, Concept, Design and data analysis.

Khan RA: Data and critical analysis.

Mahboob U: Manuscript Drafting.

Latif MZ: Data analysis, Proof reading &critical analysis.

Nizami R: Data entry, Bibliography.

Ali S: Bibliography.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

THE RELATION OF GLYCOSYLATED HEMOGLOBIN LEVELS WITH HEMOGLOBIN LEVELS IN NON DIABETIC PATIENTS HAVING IRON DEFICIENCY ANEMIA

Safia Rahman[1], Muhammad Ihtesham Khan[2], Samiya Rahman[3], Saman Waqar[4]

[1]Department of Chemical Pathology, Khyber Teaching Hospital, Peshawar - Pakistan

[2]Department of Hematology, Khyber Medical College, Peshawar - Pakistan

[3]Department of Pathology, Khyber Medical College, Peshawar - Pakistan

[4]Department of Chemical Pathology, Federal Medical and Dental College, Islamabad - Pakistan

ABSTRACT

Objective: To determine the relationship between levels of glycosylated hemoglobin and hemoglobin levels in non diabetic patients having iron deficiency anemia.

Material and Methods: This Cross-sectional descriptive study was conducted in Pathology department of Khyber Teaching Hospital,Peshawar-Pakistan from January 2019 to November 2019. Non diabetic cases with iron deficient anemia were included in study. The hemoglobin level of less than 13 gm /dl in males and less than 12 gm per dL for females was taken as cut off for anemia. The mean cell volume of less than 75 fl was taken as a cut off for iron deficiency anemia. The hematologist confirmed the cases to have iron deficiency anemia and analysed the blood counts. glycated hemoglobin A levels were detected in all the cases using Cobaschemillumniscent 411-E equipment by consultant chemical pathologist. Pearson correlation test and linear regression model were used to determine correlation between hemoglobin levels and HbA1c levels .

Results: Fourty eight non-diabetic cases with iron deficiency anemia were included in the study. Mean age of the population was 38±8.9 years (range :12-70 years). There were 17 (35.4%) males and 31(64.6%) females. HbA1C levels were high in 35 (72.9 %) cases, normal in13 (27.1 %). Pearson-r test showed a weak negative correlation (r=-.077, n=48, p=.604). Linear regression model was applied which showed that HbA1C levels can not be predicted for a given hemoglobin value (R2 =-.016, p value= .604)

Conclusion: There is no significant correlation between hemoglobin levels and HbA1c levels in non diabetics.

Keywords: Glycated, hemoglobin A, Iron deficiency, Anemia, hemoglobins.

This article may be cited as: Rahman S, Khan MI, Rahman S, Waqar S. The relation of Glycosylated Hemoglobin levels with Hemoglobin levels in non diabetic patients having iron deficiency Anemia. J Med Sci 2020 April;28(2):176-180

INTRODUCTION

Hemoglobin A1c (HbA1c) is the glycated form of hemoglobin molecule[1]. It is formed when the beta globin molecule is glycated at the valine residue near the the amino end of the molecule[1]. When the HbA1c was first discovered, it was thought it is an abnormal form of hemoglobin that is increased only in diabetic patients[1]. But later on, the researchers determined that there is a certain cut off levels for HbA1C in diabetics and non diabetic population[1]. It shows the spikes in blood glucose level in the previous three months which might have not been detected by random or fasting blood sugar levels[1]. Therefore, it is used in clinical setup to determine control of glucose level in the diabetic patients in the previous two to three months[1]. A rise in levels show that there has been a poor control of glucose level in the past two months. American Diabetes Association Guidelines (ADA) has approved to use it as a screening and diagnostic test for diagnosing diabetes mellitus[2]. According to the ADA, the levels of HbA1c should be less than 6.5% in diabetic patients and a level of more than 6.6% confirms the diagnosis of diabetes mellitus[3].

Correspondence
Dr. Muhammad Ihtesham Khan
Assistant Professor
Department of Pathology
Khyber Medical College Peshawar
Email: ihteshamkhan9@yahoo.com
Cell: +92-335-9545329
Date received: 01-02-2020
Date revised: 24-04-2020
Date accepted: 20-05-2020

It is now an established fact that it is not only the blood glucose level that effects the HbA1c levels. Its level is also found to be effected by iron deficiency anemia[1,2]. The iron deficiency anemia is common all over the world[1]. The prevalence is higher among those living in developing countries and those with low socioeconomic class[1]. The researchers have tried to explain the reason of changes in HbA1c levels in iron deficiency states by putting forth various possible suggestions[1]. Some of the suggestions are the increased glycosylation of hemoglobin molecule due to changes in the quartenry structure of hemoglobin induced by iron deficiency states and a prolonged survival of red blood cells in iron deficiency states that may result in increased levels of HbA1c levels[1]. Although different mechanisms are suggested for changes in HbA1c levels in iron deficiency anemia, yet the levels of HbA1c in iron deficient patients are still variable in different studies[1]. The results of different researchers are conflicting and the actual reason is still unknown[1]. The International Expert Committee has notified the physicians to be aware of conditions that effect the HbA1c levels other than diabetes mellitus[2,4]. Other conditions that effect the levels of HbA1c include high levels of serum triglycerides and urea, high serum bilirubin levels and alcohol intake[4]. Other common conditions include long term intake of vitamin C supplements and salicylates, pregnancy and opiode addiction[4,5]. All these cause raised levels of HbA1c[4]. The literature suggests that anemias that cause a rapid turn over of the red blood cells lead to a decreased level of HbA1c[4,6]. On the other hand, anemias that slows turn over of red cells result in an elevated levels of HbA1c[4,6,7]. Sluiter proposes that as the age of the red blood cells increase, the level of HbA1c increases in them[8]. A recent discovery is made that in iron deficiency anemia, the levels of malondialdehyde increases, which in turn causes increased glycosylation of the hemoglobin molecule and thus a raised HbA1c[9,10]. As the studies done so far give conflicting results about relation of HbA1c levels and hemoglobin levels in iron deficiency anemia. Therefore, this study was done to find relations ship between levels of HbA1c and hemoglobin levels in cases of iron deficiency, so that physicians and post graduate trainees may be aware of interpreting the results of HbA1c in cases of iron deficiency status in patients.

MATERIAL AND METHODS

It was a Cross-sectional analytical study. It was conducted in Pathology department of Khyber Teaching Hospital, Peshawar, from January 2019 to November 2019 (11 month duration). Ethical approval was obtained from the ethical board. Non probability purposive sampling was done. Patients of all ages and both genders who were non diabetics and had iron deficiency anemia were included in the study. Cases whose blood samples were insufficient were excluded from the study.

The hemoglobin level of less than 13 gm /dl in males and less than 12 gm per dL was taken as cut off for anemia as per WHO recommendations[1,11]. The mean cell volume of less than 75 femtolitre was taken as a cut off for iron deficiency states. HbA1C levels were detected in all the cases. The biggest confounder was cases with thalassemia trait. This was minimized by excluding the cases that had higher red cell count, lower hemoglobin, ratio of mean cell volume to red cell cout below 13, all of which are indications to thalassemia trait.

The HbA1c level was determined by Cobas by immunoturbidity principle under the supervision of consultant chemical pathologist. The hematologist confirmed the cases to have iron deficiency anemia and analysed the blood counts. The percentage of HbA1C was determined by using ratio of concentration of HbA1C to total hemoglobin level. The data regarding age, gender, and glycosyalated hemoglobin level was analyzed. Mean and standard deviations were applied for quantitative data while frequency was used for qualitative data. SPSS version 16 was used to do data analysis. In order to determine the normality of the data, histograms were used visually and Shapiro Wilk test was done. Correlation between hemoglobin and HbA1C was done by Pearson Correlation for parametric data. Linear regression model was applied inorder to determine if value of HbA1c can be predicted for a given value of hemoglobin. A scatter plot was drawn for the relationship between the variables. Durbin Watsin test was applied followed by moderation regression analysis to find the effect of gender on the HbA1c. The moderation effect of gender on HbA1c was shown in scatter box.

RESULT

About 48 non-diabetic cases having iron deficiency anemia were included in the study. Mean age of the population was 38±8.9 years, with range of 12 years to 70 years. Gender distribution in study population is shown in figure 1. The changes in HbA1c levels are shown in table 1 and figure 2. Pearson r data analysis showed a weak negative correlation between the variables (r= -.077, n=48, p= .604). Linear regression model was applied which showed that HbA1C can not be predicted from Hb value (R^2=-.006, p value= .604). Moderation analysis for gender showed a slight yet statistically significant improvement in correlatioin coefficient from .077 to .307 (p <.005) in the presence of gender as a moderator. The correlation in female gender was comparatively better than as compared to male gender (r= .204 for female gender versus r=.144 for male gender).

Table 1: Value of HbA1C in non diabetic iron deficient cases (n=48)

Hemoglobin A1C (%)	Range	Mean ±SD
	12.4 - 4.6	2.3±9.1

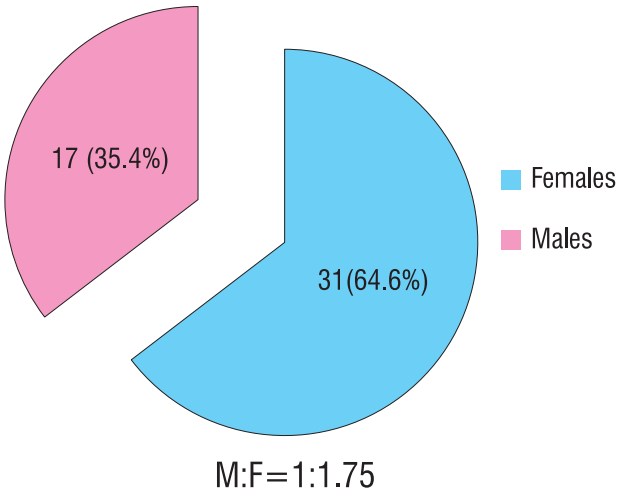

Figure 1: Gender distribution of the study population (n=48)

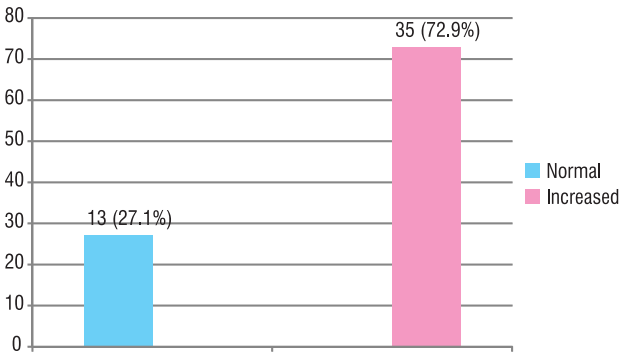

Figure 2: Pattern of changes in HbA1C in study population (n=48)

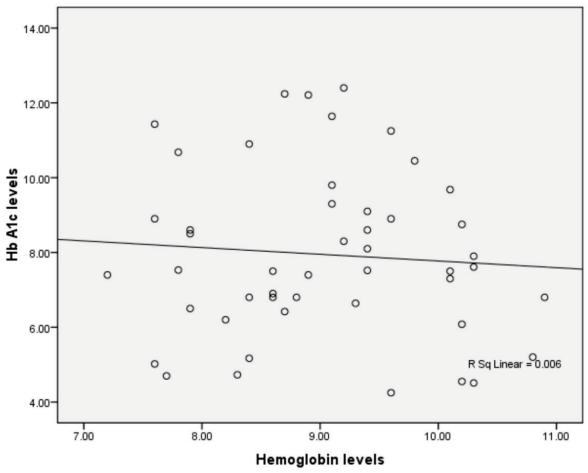

Figure 3: Scatter plot using linear regression model showing effect of hemoglobin on HbA1c (R2=.006).

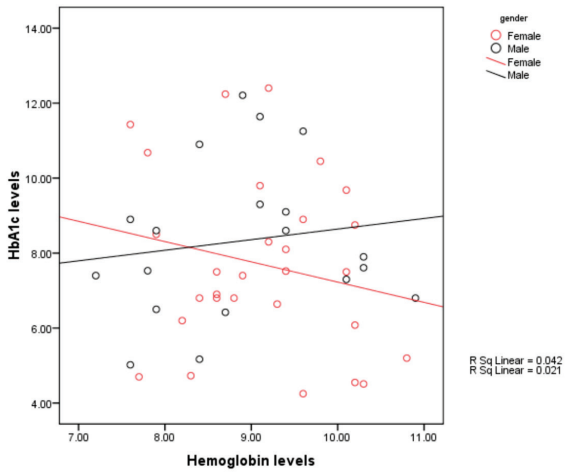

Figure 4: Scatter plot usingmoderation regression model showing effect of gender on relationship between Hemoglobin levels and HbA1c levels.

DISCUSSION

According to the ADA, the levels of glycated hemoglobin can be used to monitor control of blood sugar in diabetics and also to diagnose diabetes mellitus[1]. In 2009, the HbA1c was recommended to diagnose diabetes mellitus, despite acknowledging the fact that the levels may be effected by conditions that effect the lifespan of erythrocytes[12,13]. Both the ADA and American Association of Clinical Endocrinologists suggest that anemia may cause false changes in levels of HbA1c[12,13]. Thus, using HbA1c levels to diagnose Diabetes in already anemic patients may cause falsely raised prevalence of Diabetes Mellitus in general population[13].

Literature suggests conflicting reports about changes in levels of HbA1c in iron deficiency anemia[1,14,15]. The association between iron deficiency anemia and HbA1c levels was first discovered in 1965 by Horton[14]. Horton proposed that in iron deficiency anemia, the levels of HbA1c are low[14]. But later on Brookes proposed a conflicting report in 1980 that the levels of HbA1c were rather increased in iron deficiency anemia[15]. So, the present study was done to detect changes of HbA1c in our setup.

In our study, mean age of the study population was 38 years. Female population was predominant as compared to males. Similar findings was reported by Kalairajan where female population was predominant[1]. This finding shows that iron deificiency anemia is more common in female population.

In our study, the HbA1C levels were elevated in 73% cases of iron deficiency anemia. However, the correlation was better in female gender where a high hemoglobin level predicted a lower HbA1c levels. So in females, the iron deficiency anemia is associated with higher HbA1c levels. Coban and Hardikar reported in their stud-

ies that levels of HbA1c are high in cases of iron deficiency anemia[16,17]. Kannan S and Silvia JF reported same findings[18,]. Kalairajan S showed that HbA1c levels were low in cases of iron deficiency anemia[1]. A meta analysis done by English et al reported that HBA1c levels are raised in cases of iron deficiency anemia[19]. Solomon A from Ethiopia also showed that HbA1c levels were lower in iron deficient diabetics[20]. On the other hand, Sinha N reported that regarding the levels of HbA1C, there is no difference between iron deficient and non irondeficient cases[21]. The conflicting findings in literature has created confusion in the minds of health care providers regarding using HbA1c levels for diagnosis of diabetes mellitus. Also, it is warranted to do more studies to find the underlying mechanism by which iron status effects HbA1c levels[22].

LIMITATIONS OF THE STUDY

The study was done in a single center. Also the number of patients was less. There is a need to do more studies in which larger study group is analysed.

CONCLUSION

There is a weak negative correlation between hemoglobin levels and HbA1c in non diabetic cases. The correlation is somewhat more in female gender as compared to males. So, interpretation of HbA1c levels in iron deficient women must be done carefully as not to mislabel them as diabetic.

RECOMMENDATIONS

Further studies should be done using large sample size and keeping in consideration the other markers of glycemic control as fructosamine and glycated albumin to determine effect of iron deficieny states on HBa1c levels.

ACKNOWLEDGEMENT

I am thankful to Allah for helping me complete this manuscript .

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Rahman S: Data Compilation, Main Idea

Khan MI: Write up, Result analysis, discussion.

Rahman S: Literature Review.

Waqar S: Critcal review, data analysis.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

MINI LAPAROTOMY CHOLECYSTECTOMY; MUSCLE SPLITTING VS MUSCLE DIVIDING INCISION; A RANDOMIZED STUDY

Muhammad Naeem[1], Waleed Mabood[1], Muhammad Rashid Waheed[1], Imtiaz Ahmed Khattak[2], Jawad Mabood[1], Heera Urooj[3]

[1]Department of Surgery Khyber Teaching Hospital (MTI), Peshawar - Pakistan

[2]Department of Surgery, KMU-IMS, DHQ Teaching Hospital, KDA Kohat - Pakistan

[3]Department of Gynaecology & Obstetrics, Lady Reading Hospital (MTI), Peshawar - Pakistan

ABSTRACT

Objective: To compare the short term outcome in muscle splitting vs muscle dividing incision in mini laparotomy cholecystectomy.

Material and Methods: It was a randomized controlled trial conducted at surgery department, Khyber Teaching Hospital, Peshawar-Pakistan. The study period was from May, 2019 to Nov, 2019.Total of 94 patients (47 in each group) with indication of cholecystectomy fulfilling the inclusion criteria were subjected to mini laparotomy cholecystectomy. The pain, mobility after 1st postoperative day and hospital stay was noted in each group and were compared through SPSS (Statistical Package for Social Sciences) version 21.

Results: A total of 94 patients with indication of cholecystectomy were operated, which were divided in two equal groups. Average age was 43.19 years+ 10.85SD. Male to female ratio was 0.70:1. Short term outcome in term of postoperative pain, early mobility and hospital stay were significantly better in muscle splitting as that of muscle dividing groups.

Conclusion: The muscle splitting incision outclasses the conventional muscle dividing incision owing to its less post-op discomfort, less hospital stay and early mobility.

Keywords: Mini Cholecystectomy, Muscle splitting, Muscle dividing, Cholelithiasis.

This article may be cited as: Naeem M, Mabood W, Waheed MR, Khattak IA, Mabood J, Urooj H. Mini Laparotomy Cholecystectomy; Muscle Splitting vs Muscle dividing Incision; A randomized study. J Med Sci 2020 April;28(2):181-184

INTRODUCTION

Gallstone disease is a worldwide problem, previously confined to resource rich countries, but the cases have ever been on rise even in resource poor countries, owing to alteration in diet. This study will aid and encourage surgeons to bring in practice the muscle splitting or muscle dividing technique whenever they need to use mini laparotomy approach for open cholecystectomy. Gallstone disease remains one of the most common surgical problems which lead to the necessity of surgery[1,2].The overall prevalence rate is about 10% in adult population. Based on age statistics, approximately 20% of population in age group above 40 years and around 30% in age group above 70 years have gallstone disease[1]. Minimal invasive technique has taken over for the past to decades for the treatment of symptomatic gallstone disease, laparoscopic cholecystectomy being considered the gold standard[2, 3]. The two cardinal minimal invasive techniques, one being laparoscopic cholecystectomy (LC) and another being the mini- laparotomy cholecystectomy (MC) are widely used worldwide for the treatment of gallstone disease[4-11]. Owing to the complications of laparoscopic approach, it is estimated that 10% of population would still require open technique for treatment of gallstone disease[2].

Moreover, the laparoscopic approach requires surgeon's expertise as well as the expensive tools, thus the mini laparotomy cholecystectomy is still very much popular minimal invasive technique in the third world countries was started in 1980's and 1990, proving that conventional open cholecystectomy has a better alternative, that is mini-laparotomy cholecystectomy[6-8]. Even in the face of complicated cases of cholecystitis such as purulent destructive gallbladder, the technique can be safely applied[7].

Correspondence
Dr. Waleed Mabood
Resident Surgeon,
Surgical D Unit, MTI, KTH, Peshawar
Email: waleed.mabood13@gmail.com
Cell: +92-334-9096991
Date received: 20-01-2020
Date revised: 05-04-2020
Date accepted: 20-05-2020

The overall outcome of MC is much better in the form of early and late complications as well as the hospital stay of patients reduced[5-12].

Whenever there is a need of open cholecystectomy, it is known that muscle splitting incision is better than the muscle dividing incision[2]. The muscle dividing incision has been held responsible for the post-operative pain along with local and systemic effects, thus the use of muscle splitting incision is favored. The muscle splitting group experienced less pain as compared to muscle dividing group. Moreover, the muscle splitting group required less post-op analgesia as compared to muscle dividing group[13].

In our population of developing countries, the laparoscopic technique and expertise is still not widely available, thus surgeons still practice the open technique for gallstone disease. In order to minimize the short term complications in form of pain, immobilization and length of hospital stay, it is evident in open techniques that muscle splitting technique is better than muscle dividing incision. For MC, there is no evidence present currently on the short term outcomes of patients' recovery in the muscle splitting and muscle dividing technique. Thus, this study will help me provide the evidence needed to know whether muscle splitting incision has any positive aspects in mini laparotomy cholecystectomy. This will further aid and encourage surgeons to bring in practice the muscle splitting technique whenever they need to use mini laparotomy approach for open cholecystectomy.

MATERIAL AND METHODS

This randomized study was conducted in Surgery Department, Khyber Teaching Hospital once the ethical board committee gave its approval. The study took place from May, 2019 to Nov, 2019 over 94 patients selected by non-probability consecutive sampling method. All patients meeting the inclusion criteria which included patients with symptomatic gallstones between age of 20 and 60 years of either gender were counted in the study and a written informed consent were obtained. All the patients after history and clinical examination were subjected to baseline and specific investigations.

The patients were randomly allocated in two groups by lottery method; Group A were muscle splitting while group B being the muscle dividing group. The cholecystectomy was performed through mini right transverse subcostal laparotomy incision for both the group keeping the incision length between 3 to 5cm.

Post operatively, all patients in both the group were kept under observations for 3 days for pain, mobility and days taken to be discharged. Postoperative pain scoring was assessed using Verbal rating scale as 0=no pain, 1=mild pain, 2=moderate pain3=severe pain measured at several times for the 1st three post-operative days. Mobility was also measured 8 hours post-operative as predetermined distance (50 meters) walked by patient from his/her resting bed and declared completely mobile once the patient traveled this distance. Time period from day of operation till day of discharge was recorded as well. The final outcome of all three variables was measured on day of discharge. A single experienced Fellow Surgeon performed all procedures.

Strict exclusion criteria (HBs Ag or HCV positive, pregnant, jaundiced, diabetic, complicated cholecystectomy and placement of drain) was followed to control confounders and bias in the study results. SPSS 21.0 was used to analyze data. Mean ± Standard deviation were calculated for quantitative variables like age, weight and outcome variables (pain score, hospital stay).Chi square test was applied to compare the mobility between muscle splitting and muscle dividing technique while independent T-test was applied to compare the hospital stay and post-op pain. P value of < 0.05 was considered significant. Outcome was stratified among age, gender, weight, education level and residence and post stratification chi-square test or independent T-test (as appropriate) were applied keeping p-value ≤ 0.05 to see the effect modifications.

RESULTS

A total of 94 patients with indication of mini open cholecystectomy were operated, which were divided in two equal groups A & B. Group A were subjected to muscle splitting and patients in Group B were subjected to muscle dividing. Sex wise distribution shows that out of 47 patients 20(42.6%) were male and 27(57.4%) were female in Group A while group B contains 19(40.4%) male and 28(59.6%) were female. Male to female ratio was 0.70:1. Sex distribution among the groups was insignificant with p-value=0.834

Average age was 43.19 years+ 10.85SD with range of 20-60 years. Group A contained 9(19.1%) patients in less than 30 years, 8(17%) patients 31-40 years, 13(27.7%) patients 40-50 years and 17(36.2%) patients have the ages of more than 50 years. While group B contained 10(21.3%) patients in less than 30 years, 5(10.6%) in 31-40 years, 16(34%) patients 41-50 years and 16(34%) patients were over 50 years. The age distribution among the group was also insignificant with p-value 0.781. Education wise stratification shows that short term outcome were insignificant. Similar results were found when residence was stratified among short term outcome in both the groups.

Table 1: Short term outcome of patients in both the groups.

		Groups		P-value
		A	B	
Mobility	Yes	39	30	0.036
		83.0%	63.8%	
	No	8	17	
		17.0%	36.2%	
Hospital Stay (in days)	<= 2.00	39	30	0.036
		83.0%	63.8%	
	3.00+	8	17	
		17.0%	36.2%	
Postop Pain	Yes	27	37	0.027
		57.4%	78.7%	
	No	20	10	
		42.6%	21.3%	

DISCUSSION

For over a century, surgeons performed open cholecystectomy routinely[15]. With the advent of minimal invasive techniques, laparoscopic cholecystectomy replaced the conventional methods[20,21]. Gallstone disease, with a prevalence of about 16% in Pakistan is a very common problem[1,2]. Majority of them will go unnoticed but many of them will experience its symptoms once complicated which warrants timely intervention[3].

Not until late 1980s and 1990, surgeons realized they could perform open cholecystectomy with much smaller incision, giving rise to a concept of mini laparotomy cholecystectomy, the pioneers being Dubois and Berthelot[22]. In our study majority of the patients were female (90-97%), which isconsistent with the national and international studies[14,16,17]. Meanage and minimum age is slightly less than reported in otherstudies[18,19].

The average pain in muscle splitting group was 4.74$\pm$0.73SD while in muscle dividing group was 5.08$\pm$0.71SD which shows that muscle splitting group have significantly less pain as that of other group. Muscle splitting technique preserves the neurovascular supply of muscle, as indicated by Merril, hence its outcome would be less painful in comparison to spasmodic condition of muscle once its divided[23]. The mobility in muscle splitting group was quick due to non-complaint of pain and due to which the hospital stay of the patients in this group was also less as that of muscle dividing group. Baguley in hisstudy reported the same results to that of our study[24].

While laparoscopic cholecystectomy has become the standard procedure for symptomatic gallstones, it is likely that 10% of patients will require an open cholecystectomy whether owing to contraindications to the laparoscopic approach or because conversion to the open technique became necessary following laparoscopy. Although the trend towards smaller open cholecystectomy incisions has led to a reduced hospital stay, much of the postoperative morbidity can be ascribed to wound pain. Muscle splitting incisions tend to be less painful than muscle dividing incisions. The muscle splitting technique was significantly ($P < 0.001$) less painful than the muscle dividing method as evaluated by the short form of the McGill pain questionnaire. Similarly, a significantly greater proportion of patients were fully mobile on the first and second postoperative day in the muscle splitting group compared with the muscle dividing group. Analgesia requirements, however, were not statistically significant between the two groups. When compared to our study, Age a wise distribution in both the groups shows that short term outcome was better in younger age group and decreases with the increase of age. The patients having less than or equal to 30 years of age have shown mobility in 7(77.8%) in Group A while 4(40%) in Group B. We can see that mobility in both the group when stratified among the age, it shows insignificance. Almost similar results were found for postoperative pain and hospital stay, which is consistent with the studies mentioned[23,24].

When short term outcome were stratified among the gender in both the groups it showed all the short term outcome were significantly better in female as that male patients in both the groups, hence consistent with the said studies[23].

We recommend it in setups where the facility of laparoscopic cholecystectomy is not available or resource poor areas, mini laparotomy cholecystectomy can be safely applied which has attained almost comparable results to the minimal invasive technique. The study being carried out in a single setup makes it a limited data resultant study; hence a more comprehensive study would be the need of the hour to assess whether this could be applied to a larger population.

CONCLUSION

Overall, the muscle splitting approach resulted in better outcome in terms of pain, hospital stay and mobility. Thus, it is safe to conclude that this technique outclasses the muscle dividing technique, hence gaining the popularity for mini laparotomy cholecystectomy in resource poor countries.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Naeem M: Concept.

Mabood W: Design, drafting, data acquisition, proofreading

Waheed MR: Data Collection.

Khattak IA: Drafting.

Mabood J: Data collection, proofreading.

Urooj H: Bibliography.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

A FRONTLINE WARRIOR

Shumaila Javed, Iqbal Haider

Department of Medicine, Khyber Teaching Hospital, Peshawar - Pakistan

Waking up to the alarm clock and a quick get-ready session was all normal, but things following the usual ones were NEW-NORMAL.

I was Rushing through the corridors of Khyber Teaching Hospital after 20 minutes of smooth road travel as I needed to reach the old casualty block for the 8:00 am shift. There it is- The Isolation Unit. Let's mask up in the three-layered stifling PPE. Suddenly, a thought crosses over the mind 'Stay safest'. My Happy lark'! I knew while I left those protective boundaries of home; there was somebody praying for me back there.

Freaked out with the sight of reflecting face shields, unconscious bodies, the cacophony of coughing, no chatter but beeping monitors over the rhythmic hiss of pressured air, the displayed alarming vitals, the balancing fluids, and "US"-the front-liners.

There was one that drew my attention repeatedly because of the red-alert monitor beep. High-grade fever, non-invasively ventilated, low blood pressure, low oxygen saturation, dropping outputs, VERY CRITICAL, I documented.

Consultant visiting, round being conducted, close eye on every monitor, adjusting anaesthesia, suctioning the secretions out, checking the blood gases, monitoring the urine outputs, balancing the fluids, adjusting pillows, moving them prone, counselling family, updating on-call consultants, informing administration, and repeating the same.

I worked the hardest I could. Delaying toilet breaks, avoid sipping water either, skipping meals, and missing naps for the ones I never knew before, neither did they had any idea about me.

I had that very habit of reading before I sleep every night, this piece was entitled as 'Some of us will die'.

In an ideal world, physicians would be using PPE routinely and testing patients immediately but lack of access puts all health care professionals at risk. And while the exact virulence of the disease is not known some will become critically ill and DIE.

It's weird, the feeling that your job could take your life.

We as medical students were always taught to put patients first and I continue to do so even now. We have forsaken ourselves at so many levels that we have to suffer the burnt-out at higher rates than any other profession.

Add up the untoward load and perks of the 2020 pandemic, a physician taught to put the patient first is now under even more pressure than ever before in life. This is a struggle we deal with daily nowadays. Just like everyone else, we have difficulties in processing the new post-pandemic realities apart from the workplace at homes and with families.

While we are supposed to be on toes, serve more, be sympathetic, show more responsibility, be selfless, we meanwhile do have fear, anxieties, sadness, concerns, reservations, immense feelings that seem to come out of nowhere like a tidal wave and scare us. We choke them down to do our jobs- The service to humanity.

The VERY CRITICAL monitor beeping- impending arrest. Video-called with family, prayers said, his daughter ripping apart, tears dropped, my trembling hand moving to ionotropic support, treatment stopped, infusion withdrawn, ventilator turned off, wait, thinking about the family while I am a daughter myself, standing by, waiting. This is clearly not what I used to do. BEEEEEEEEP disturbing ears and tearing apart my heart. Lifelines straightened. Choked my feelings. Time of death: 3:00 p.m.

The Walking out, mask off, the same corridor but exhausted to every bit and piece. Reaching home and running to a hot shower before letting anyone come close. Rinse, wash, disinfect. This isn't what I used to do. The NEW-NORMAL was testing us hard. Looking into the mirror, tidal waves of emotions set in, CHOKED them but made sure I remember one thing:

If I can stop one heart from breaking,

I shall not live in vain.

If I can ease one life the aching,

Or cool one pain,

Or help one fainting robin,

I shall not live in vain!

COVID-19 AND HEALTHCARE WORKERS IN PAKISTAN: ARE WE LOSING THIS FIGHT?

Saqib Ali[1], Sara Noreen[2], Imran Farooq[1]

Department of Biomedical Dental Sciences, College of Dentistry, Imam Abdulrahman Bin Faisal University, Dammam - Saudi Arabia

Department of Medicine, Khyber Teaching Hospital, Peshawar - Pakistan

This article may be cited as: Ali S, Noreen S, Khan S, Farooq I. COVID-19 and healthcare workers in Pakistan: Are we losing this fight?. J Med Sci 2020 April;28(2):186-188

INTRODUCTION

The first case of novel coronavirus disease 2019 (COVID-19) emerged from Wuhan, China in December 2019[1]. Ever since, it has spread globally and affected almost every country in the world[2]. For this reason, the World Health Organization (WHO) has declared it as a pandemic[3]. The symptoms of COVID-19 include fever, cough, dyspnoea, and pneumonia[4]. The disease spreads by inhaling air droplets, by directly contacting the contaminated surfaces, or by contacting a person with an already existing condition[5]. As some of the patients suffering from COVID-19 appear symptomless, the advice given currently is to practice hand hygiene and social distancing[6].

Healthcare workers (HCWs) all over the world are fighting on the frontlines to curb the spread of this disease[7]. Just like a soldier who goes to war needs protective equipment (Kevlar and helmet) and weapons, HCWs also need personal protective equipment (PPE), supportive medicines, and essential equipment like ventilators[8]. Unfortunately, reports are emerging from different countries that HCWs are getting infected with the COVID-19. The International Council of Nurses (ICN) has reported that COVID-19 infection affecting HCWs in Italy makes up 9 % of the total reported cases.9 In China, more than 3,000 HCWs are infected with COVID-19 as of 1st April, 2020[10]. The HCWs who got secondary COVID-19 infection from a hospital setting makes up 15% of the total reported cases in Spain[11]. In France, 490+ HCWs working in government sector are now reported to have contracted COVID-19[12].

The situation in Pakistan is regrettably not so different from these above-mentioned countries. According to the news report published in Khaleej Times, 253 HCWs are now infected with COVID-19 in Pakistan[13]. Among these are 124 doctors, 39 nurses, and 90 paramedics and the province of Punjab tops the list followed by Sindh, where HCWs are affected most with COVID-19[13]. There are many reasons for the HCWs to get COVID-19 globally and in Pakistan. One of the most important reasons is the inadequate supply of PPE[14]. Another important reason is the lack of complete understanding of disease transmission mechanisms and the absence of its vaccine[15].

It is the responsibility of the health regulatory bodies and government to support our frontline HCWs in this critical time and meet their just demands. All the frontline HCWs should be trained according to the latest guidelines of WHO in order to prevent secondary transmission of COVID-19 from a hospital setting[16]. This training should include rational use of PPE, maintaining sanitation, personal hand hygiene, and waste management of COVID-19 patients[16,17]. By following these steps, secondary transmission of COVID-19 could be curtailed in an effective manner. In addition, the authors suggest that aged HCWs or those with underlying systemic conditions should not directly treat COVID-19 patients. The staff of the hospital should undertake routine medical checks, should be assessed psychologically intermittently, and should take rest between long duty hours. Amidst COVID-19 outbreak, stress levels are high and HCWs should also use coping techniques like eating a well-balanced diet, taking proper rest, engaging in physical activity, and contacting friends and family over phone and through video chats. These proposed coping strategies are summarized in Fig 1.

The HCWs should be protected against COVID-19 as if this trend continues; their hospitals could serve as an epicenter for the virus spread. We are already having a difficult time restraining the spread of COVID-19 but this battle against COVID-19 pandemic cannot be won if we keep on losing a large number of our frontline soldiers. It should be the highest priority of our government to safe guards their HCWs from getting infected. If they are in good health and spirits, only then can we win this battle against the COVID-19.

Correspondence
Dr. Saqib Ali
Department of Biomedical Dental Sciences, College of Dentistry, Imam Abdulrahman Bin Faisal University, Dammam 31441, Saudi Arabia
Email: drsaqiibali@gmail.com
Cell: +966546992734

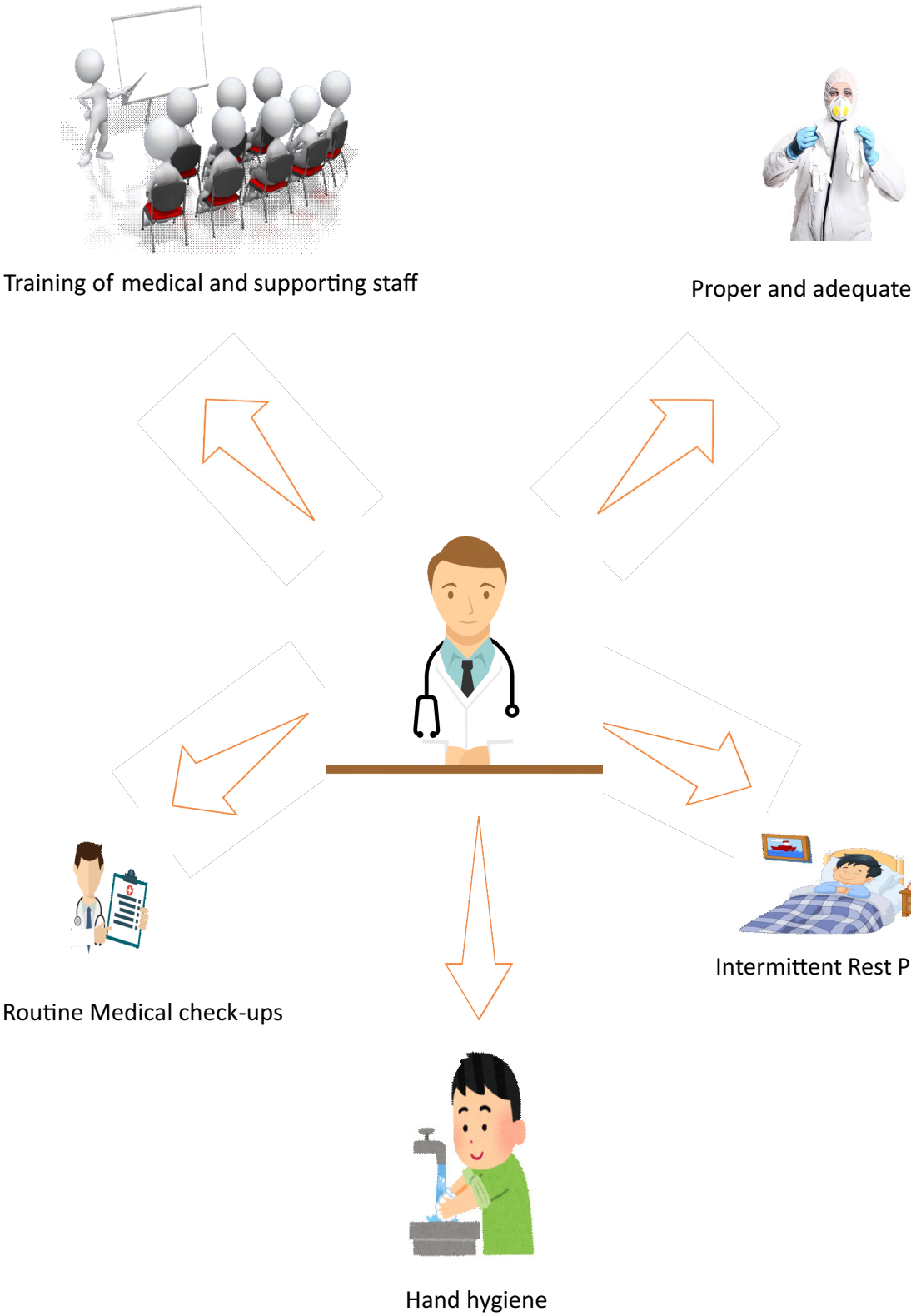

Figure 1: Possible strategies to protect HCWs from getting infected with COVID-19.

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PESHAWAR CITY IN PAKISTAN: A POTENTIAL HOTSPOT FOR COVID-19 OUTBREAK DUE TO INFLOW OF TRAVELLERS

Waqar Ahmed Afridi[1], Tanveer Hussain[2]

[1]Department of Biotechnology, Virtual University of Pakistan, Peshawar Campus - Pakistan

[2]Department of Molecular Biology, Virtual University of Pakistan, Lahore Campus - Pakistan

This article may be cited as: Afridi WA, Hussain T. Peshawar city in Pakistan: A potential hotspot for COVID-19 outbreak due to inflow of travellers. J Med Sci 2020 April;28(2):189-190

DEAR EDITOR,

Peshawar is the capital city of Khyber Pakhtunkhwa (KPK) Province of Pakistan, with a population of over 2 million[1]. Despite the large population, Peshawar remained relatively unaffected by the COVID-19 outbreak in Pakistan with the first confirmed case on 26th February 2020[2]. However, now the city is reporting many cases of coronavirus and as of today (10th May 2020), the number of confirmed cases reached one thousand eight hundred and ten. There have been one hundred and forty-one casualties which are the highest number reported within the province (https://twitter.com/HealthKPGovt/status/1259132782569230337). The number of cases is expected to rise and with the limited testing capacity, residents are now harboring feelings of immense stress and fear that the cases reported may be far less than actual numbers.

The sudden spread of the novel coronavirus in Peshawar is mainly due to the influx of people who have returned back from other countries. As passengers continue to return home, most after performing the Muslim pilgrimage or Umrah from the corona-stricken Saudi Arabia, there are chances that the number of people affected in Peshawar may increase. Negligence, carelessness, and ignorance of these travellers can have serious consequences for not only the local residents of Peshawar but also neighbouring cities. One such case has already been reported whereby a resident of Mardan (adjacent city) threw a grand party for his kith and kin after returning from Umrah, instead of government advise of self-isolation and quarantine at home. Without realizing that he had acquired the viral infection, he transmitted it to a large number of people including many from Peshawar, and died soon afterwards[4]. As a result, local transmission of the disease has already been reported in the city of Peshawar due to the carelessness of local residents and not abiding by the official lockdown instructions.

People from Peshawar often visit European countries for jobs or businesses as well as vacations. Cases of local transmission have been reported from friends and families of those who travelled recently to Europe, which has been adversely affected by the COVID-19 outbreak[5,6]. People returning from abroad generally demonstrated a lack of responsibility in this regard and have contributed to the spread of disease within the city. One such case was identified in the locality of Hayatabad-Peshawar where a professor was infected by his brother who had returned from London[7]. Cases within the Shiite community of the city are also being reported. The community has been infected as a result of their Ziarah visits to Iran, which has the ninth-highest number of reported deaths in the world owing to the corona outbreak[8].

The western border of Peshawar is linked with Afghanistan through the Khyber agency. The cross-border movement of thousands of people every day under Afghan-Transit Trade has further enhanced the risk of the spread of the virus across boundaries. There is a high risk of spreading this disease in Peshawar if there will be any mismanagement or lack of proper monitoring at the Pakistan-Afghanistan border. Proper and stringent policies are a must requirement at the moment on these border checkpoints otherwise it may lead to serious consequences and Peshawar may become a nucleus of COVID-19 in the days ahead. The provincial government, however, has ordered strict monitoring at the border entry and exit points. Moreover, as per instructions of the federal government, rigorous checking procedures are being adopted at the Bacha Khan Airport, Peshawar as well. Under the current circumstances, it is the local population that needs to be sensitized towards the severity of this issue. To prevent the spread of COVID-19 within the city, it is imperative that

Correspondence
Tanveer Hussain
Department of Molecular Biology, Virtual University of Pakistan, Lahore - Campus
Email: tanveer.hussain@vu.edu.pk
Cell: +92-336-9337873
Date received: 15-06-2020
Date revised: 18-06-2020
Date accepted: 20-06-2020

the residents must show a responsible attitude and take follow the official instructions and precautionary measures to save Peshawar from becoming a hot spot of COVID-19.

FUNDING

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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INSTRUCTIONS FOR AUTHORS

Manuscript Submission

The Journal of Medical Sciences follows the uniform requirements for manuscripts submitted to Biomedical Journals as approved by the International Committee of Medical journal Editors as updated in Oct. 2004 and available at www:icmje.org. Manuscripts are accepted for consideration if neither the article nor any of its contents has been or will be published or submitted elsewhere before appearing in Journal of Medical Sciences.

Manuscript Formatting Guideline

While submitting the document on JMS website, the authors are advised to follow the following guidelines:

1) Always use MS Word format. Don't send any tables in JPG format.

2) Always use Calibri fonts.

3) use 12 size fonts.

4) Double space the manuscript.

5) Justify the margins

6) Keep the main headings bold and in size 14.

7) No extra spaces between paragraphs.

8) Black text on white background only.

Title and Authors Name

The first page of the manuscript must give the title of the article that should be concise and descriptive. Also include on this page the name(s) of the author(s), highest academic degrees, the name of the department and institution in which the work was done, the institutional affiliation of each author, and the name and address of the author to whom reprint requests should be addressed.

Any grant/support that requires acknowledgement should be mentioned on this page. Abstract's word count and article (excluding references) word count should appear at the bottom of this page.

Abstracts

Abstract must not exceed 250 words and the **article must not exceed 3000 words** (excluding references). Articles exceeding the word count or not conforming to "Instructions for authors" will be returned without processing. It is further emphasized that results must not be duplicated in text/tables/figures/graphs.

Key words

Three to 10 key words or short phrases should be added to the bottom of the abstract page. Terms from the Medical subject headings (MeSH) list of Index Medicus should be used.

Introduction, Material and Methods, Results, Discussion, Conclusion, Acknowledgments and references should all start on a separate page from page 03 onwards.

References

The total number of references in an original article must not exceed 40 while in the review articles maximum limit is 100. References must be written double-spaced and numbered as they are cited in the text.

The references must be written in Vancouver style. The style for all the types of references is given in the "Uniform requirements for manuscripts submitted to biomedical journals" at the website of International Committee of medical journal editors. **www.icmje.org**

List all authors when there are six or fewer. If there are more than six, list the first six followed by "et al".

Tables and Illustrations

Each of the tables and illustrations should be on a separate page, must have a title and be on a double space.

Figures should be professionally designed. Symbols, lettering and numbering should be clear and large enough to remain legible after the figure has been reduced to fit the width of a single column. The back of each figure should include the sequence number, the name of the author and the proper orientation (e.g. "top"). If photographs of patients are used, either the subjects should be unidentifiable or their pictures must be accompanied by written permission to use the figure. Duplication of results given in tables and into figures must be avoided.

Ethics

When reporting experiments on human subjects, indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (Institutional or regional) and with the Helsinki Declaration of 1975, as revised in 1983. Do not use patients names, initials, or hospital numbers especially in illustrative material. When reporting experiments on

animals, indicate whether the institution's or a national research council is guide for, or any national law on the case and use of laboratory animals was followed. No article will be entertained without prior ethical approval from ethics committee/ board.

Units of Measurements

Authors should express all measurements in conventional units, with System International (SI) units given in parentheses throughout the text.

Abbreviations

Except for units of measurements abbreviations are discouraged. The first time an abbreviation appears it should be preceded by the words for which it stands. However title and abstract must not contain any abbreviation.

Statistics

Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible quantify findings and present them with appropriate indicators of measurements error or uncertainty (such as confidence intervals). Avoid relying solely on statistical hypothesis testing, such as the use of ρ values, which fails to convey important quantitative information. Discuss the eligibility of experimental subjects. Describe the methods for and success of any binding of observations. Report complications of treatment. Give numbers of observations. Report losses to observation (such as dropouts from a clinical trial). Specify any computer programs used.

Put a general description of methods in the Methods Section. When data is summarised in the Results Section, specify the statistical methods used to analyse it. Restrict tables and figures to those needed to explain the argument of the paper and to assess its support avoid non technical uses of technical terms in statistics, such as "random" (which implies a randomizing device) "normal" significant, "correlation", and sample.

Define statistical terms, abbreviations, and most symbols.

Drug Names

Only generic names should be used.

Permissions

Materials taken from other sources must be accompanied by a written statement from both author an publisher giving permission to the journal for reproduction.

Case Report

Short report of cases, clinical experience, drug trials or adverse effects may be submitted. They must not exceed 500 words, 5 bibliographic references and one table or illustration. The report must contain genuinely new information. The format is title, abstract, introduction, case report, discussion, references.

Review and Action

All articles on receipt for publication are immediately acknowledged but that does not imply acceptance for publication.

Submitted manuscripts are reviewed for originality, relevance, statistical methods, significance, adequacy of documentation, reader interest and composition. Manuscripts not submitted according to the instructions will be returned to the author for correction prior to beginning the peer review process. All manuscripts considered suitable for review are evaluated by a minimum of two members of editorial board. The manuscripts is then sent to two or more than two reviewers who may take a couple of months time to review the manuscript. The ultimate authority to accept or reject the manuscript rests with the Editor.

Revised manuscripts are judged on the adequacy of responses to suggestions and criticisms made during the initial review. All accepted manuscripts are subject to editing for scientific accuracy and clarity by the office of the Editor. When the manuscripts is deemed fit for publication, letter of acceptance is issued to the author. No article is rejected unless similar comments are received from at least two reviewers.

FOR DETAILS, SEE OUR EDITORIAL POLICY IN THE NEXT SECTIONS

AUTHORS AGREEMENT

Journal of Medical Sciences (KMC Peshawar pISSN 1997-3438)

ArticleTitle_____

The undersigned author (after reviewing criteria for authorship as defined by International Committee of Medical Journal Editors [ICJME] found at 'http://www/icmje.org/' and have participated reasonably in the intellectual content, analysis of data and writing of the article) jointly and severally, hereby transfer and assign all rights, title, and interest therein, including any and all copyrights in all forms and media now or hereafter known, to the Journal of Medical sciences. The author/s retain the nonexclusive right to use part or all of the article in future work of their own, provided proper credit is given to the Journal of Medical Sciences. In case, the submitted article is not published, the Editorial Board agrees to release its rights therein.

I certify that

A) None of the material in the manuscript has been published previously/currently under consideration for publication elsewhere.

B) The article has not been accepted for publication elsewhere

C) I have not signed any right or interest in the article to any third party

D) I am able/willing to produce the data on which this article is based, should the Editorial Board of the Journal of Medical Sciences request such data.

E) Animal Care Committee/Institutional Review Board approval was granted for this study.

I (including spouse and children), disclose financial interest at the level

a) Nothing to disclose b) Financial interest to the amount of _____

F) I/We confirm to comply fully with the suggestions/critical views of the reviewers/editor, failing which my/our article may be rejected at the sole discretion of the editor. I/we further confirm that if our article is rejected (whihc is the sole discretion of the editor) I/we will have no right to complain against the journal/editor/representative of the journal/printer in any forum including the court of law.

G) I/we suggest the following two overseas reviewers to review our article.

1) _____	_____	_____
2) _____	_____	_____
Name of reviewer	Postal address	Email address & Telephone No.

_____	_____	_____
Author name	Author signature	Author e-mail address

Note: Author agreement form must be signed by each author (one page for each) and submitted with the article.

Author's Checklist:

i) Eliminate nonstandard abbreviation in the titles
ii) Supply full author names (including institutional affiliation and contact informations)
iii) Contribution of individual authors
iv) Nomination of first 3 co-authors by the principal author
v) Abstract: 200 words, Article: 2000 words (excluding references).
vi) Supply references in Vancouver style, accurately cited in the text in numerical order
vii) Cite tables in the text in numerical order
viii) Send 03 Hard copies and on a R/W CD (in MS Word), in a protective envelop, do not use clips
ix) Cite figures in the text in numerical order
x) Author agreement is signed by all authors.
xi) Departmental Permission Letter for the study.
xii) Letter of ethical review of concerned hospital/study place.
xiii) Bank draft for Rs. 5000/- (Rs. Five Thousand) in the name of Journal of Medical Sciences, Peshawar, Pakistan/or deposit in cash with Managing Editor Account No. 4048685170 (3548-9) Can be transferred ONLINE to the Account No. 4048685170 (3548-9) Branch Code 0388 at National Bank of Pakistan, University Campus Branch, Peshawar.

EDITORIAL POLICY

EDITORIAL POLICY OF JOURNAL OF MEDICAL SCIENCES (JMS), KHYBER MEDICAL COLLEGE, PESHAWAR

OVERVIEW

This document highlights the mission, objectives and editorial policy of JMS in regard to publication process by adhering to the guidelines by COPE (Committee in Publication Ethics) and ICMJE (International Committee of Medical Journals Editors). Each component of the editorial policy is explained in the next sections.

A MISSION OF JMS

To publish relevant, scientific and accessible material to help medical students and health professionals in their practice, teaching and learning, and career development

B OBJECTIVES OF JMS

a To publish clinical, epidemiological, public health, educational, translational, and allied sciences research to enable the scientists, clinicians and researchers to learn about developments and innovations in these disciplines

b To publish high quality descriptive and experimental research, review articles, editorials and case reports to enhance the understanding of scientific community regarding clinical practice and education

c To provide a platform for scientific community in promoting their career development through publishing quality research

C EDITORIAL POLICY

1 Open access

JMS is an Open access scholarly literature source that is free of charge and often carries less restrictive copyright and licensing barriers than traditionally published works, for both the users and the authors. However, it complies with well- established peer review processes and tries to maintain high publishing standards.

2 Peer review process

The review process of JMS is following a "triage approach". Upon submission of a manuscript, either online or physical, the document undergoes a preliminary open (un-blinded) review in the office of the chief editor. The document is either accepted for further review, sent for revision back to the authors, or rejected at that time. Further review of JMS is following a blinded approach, where the article is sent to 2 reviewers, a local and international. During this process, all the relevant information about the authors and reviewers is kept confidential. However, we encourage to share reviewers' comments with co-reviewers of the same paper in a blinded manner, so reviewers can learn from each other in the review process. We also encourage the readers to send us the post publication reviews about a research work in the form of letters to the editors, which are then published and shared with the authors of relevant articles. The editorial board has the authority to retract an article if serious violation of credibility or quality of research is found after the article is published.

The journal is under no obligation to send submitted manuscripts for review, and under no obligation to follow reviewer recommendations, favourable or negative at all times. The editor of a journal is ultimately responsible for the selection of all its content, and editorial decisions may be taken by issues unrelated to the quality of a manuscript, such as suitability for the journal. An editor can reject any article at any time before publication, including after acceptance, if concerns arise about the integrity of the work.

3 Authorship

According to the ICMJE criteria, authorship is based on 4 criteria; (1) conceptualization and designing, (2) AND, data collection, (3) AND, writing and critical review, (4) AND, taking responsibility for the authenticity and integrity of all the research process. All those designated as authors should meet all these 4 criteria. The

co-authors should declare their roles and contributions in the research process explicitly. Those who do not meet all 4 criteria should be ACKNOWLEDGED only. If agreement cannot be reached about who qualifies for authorship, the institution(s) where the work was performed, not the journal editor, should be asked to investigate. If authors request removal, addition or change in the sequence of an author after manuscript submission or publication, journal editors should seek an explanation and signed statement of agreement for the requested change from all listed authors and from the author to be removed or added. The corresponding author is the one individual who takes primary responsibility for communication with the journal during the manuscript submission, peer review, and publication process. The corresponding author typically ensures that all the journal's administrative requirements, such as providing details of authorship, ethics committee approval, clinical trial registration documentation, and disclosures of relationships and activities, are properly completed and reported.

4 Submission of manuscript

The manuscript should be submitted through journal website which is using the Online Journal System (OJS) along with the Institution research and ethics board (IREB) certificate. The article should have the following format:

4.1: The abstract should be structured with word count of not more than 250 words. 4.2: The fonts should be Calibri, with size 12, and spacing of 1.5, with justified margins in MS office format.

4.3: The whole document should not be more than 3000 words (excluding references and appendices).

4.4: The number of figures and tables should not exceed 5 in the whole document.

4.5: The pictures and tables should be black and white in color.

4.6: Copied pictures and tables from other sources will not be entertained, unless a written approval from the original researcher and publisher is provided

5 Institutional research and Ethics board (IREB) certificate

Under no circumstances, an article will be accepted if approval from the relevant ethical board / committee is not taken before the start of a research. The board / committee should assess the proposal of a research in both ethical and technical aspects before giving a certificate of approval.

6 Conflict of interest

To ensure transparency in the research conduction, writing and publication, the authors, peer reviewers and editors have to declare conflicts of interest regarding financial aspects, academic competitions, and relationships during writing, reviewing and publishing the manuscripts. Details of sponsors along with their roles and access to data should be clearly stated.

7 Confidentiality

The editorial board in no way should publicize the work of a researcher in any form unless it is published. They should not publicize the comments and critique given by reviewers. Similarly, the reviewers are bound to keep the confidentiality of the work of researchers during and after the review. The work of researchers and the critique should never be discussed or exemplified in forums. The confidentiality of the researchers should be maintained in every possible way when the documents are sent for review. However, our review process is open (non-blinded) in the first phase, as per policy of the journal. In this case, the policy is clearly displayed on journal`s website for the researchers. Reviewers must not retain the manuscript for their personal use and should destroy paper copies of manuscripts and delete electronic copies after submitting their reviews. If a manuscript is rejected, it should be deleted from the editorial system. If an article is published, the manuscript along with its reviews and other relevant documents should be retained for a period of 3 years and then deleted. The only situation where confidentiality needs to be breached is when a situation of fraud or misconduct is found during the review process or after publication. Still, the authors and sometimes the reviewers, have to be notified.

8 Correction and retraction of articles

The guidelines for correction and retraction of articles are as follows:

8.1: A specific page is allocated in the journal (both electronic and printed) that will be used for news related to corrections in articles published in previous journals.

8.2: The editor should also post a new article version in the journal with details of the changes from the original version and the date(s) on which the changes were made.

8.3: Previous electronic versions will prominently note that there are more recent versions of the article (that will be placed at the end of abstract). Similarly, the more recent version should be cited by the authors or others.

8.4: If the error is judged to be unintentional, and the underlying science appears valid, and the changed version of the paper survives further review and editorial scrutiny, then retraction with republication of the changed paper, with an explanation, allows full correction of that research paper.

8.5: If serious violation of credibility or quality of a research paper is found after the publication, the article has to be retracted after approval of at least 3 members of the editorial board in consultation with chief editor. The whole process will follow the guidelines presented by Committee on publication ethics (COPE).

8.6: The retracted article should clearly be notified on the website and the word “retracted” should be mentioned along the title of the article.

9 Correspondence

Correspondence for submitting an article in JMS will be through a corresponding author. The duties of a corresponding author have already been presented in a previous section. Correspondence regarding debating an article is given high value and a separate page for letters to the editors has been allocated. Derogatory and demeaning letters are screened and letters which promote debates and critique are encouraged to be published. However, correspondence about the articles published in the last 1 year will be included only.

10 Fee submission process

The editorial board in a recent meeting has fixed a fee of 7000/- Rs (Pakistani), for local authors and 250 $ (US) for international authors. The fee should be submitted at the time of submission of paper in the office of managing editor, and if the paper is rejected at any stage, and will be non-refundable.

11 Roles of editorial board, editors and members

The editorial board of JMS is following the Higher Education Commission (HEC) policy for research journals. The roles of the editorial board for JMS are mentioned below:

11.1: The roles of the Editorial Board are:

11.1.1: To offer expertise in their specialist area

11.1.2: To review submitted manuscripts

11.1.3: To advise on journal policy and scope

11.1.4: To work with the Editor to ensure ongoing development of the journal

11.1.5: To identify topics for special issues of the journal or recommend a Conference which would promote the journal, which they might also help to organize and/or guest edit

11.1.6: To attract new and established authors and articles

11.1.7: To submit some of their own work for consideration, ensuring that they adhere to Conflict of Interest rules and stating their relationship to the journal. This is very important as the journal cannot be seen to publish only papers from members of the Editorial Board.

11.1.8: It is important that Editorial Boards have a regular communication forum with other boards of similar nature, either face to face in person (depending on their country of origin, funding availability, etc.) or as more journals are doing today, communicating by teleconference, Skype or other web platforms.

11.2: The Patron is usually the Dean of the institute, and is overall incharge of the

journal, who needs to be kept informed of the decisions taken by the editorial board. The patron is the final authority to approve the decisions and policies of the editorial board.

11.3: The Chief Editor:

11.3.1: The criteria for selection of Chief Editor are:

i. Expertise and experience in the specialist field related to the journal

ii. Publication record of a number of articles and /or books (usually in / related to the specialist field)

iii. Being a reviewer for an international peer reviewed journal

iv. Senior research position with equivalent experience in research and scholarship

v. Enthusiasm to undertake the Editor role

vi. Preferably a diploma, master or doctoral degree in Education and Research. It is not necessary to fulfill all the criteria to become a chief editor.

11.3.2: The roles of Chief Editor are:

i. The key role of a journal`s chief editor is to promote scholarship in the specialist field associated with the journal, whilst also promoting the journal as the best journal to publish in. For any journal, the editor will need to encourage new and established authors to submit articles and set up a reliable panel of expert reviewers. Editors are also responsible for offering feedback to reviewers when required and ensure that any feedback to authors is constructive.

ii. An editor should also familiarize themselves with the Committee on Publication Ethics (COPE) 'Code of Conduct and Best Practice Guidelines for Journal Editors'.

iii. Depending on how the journal is managed and how it is structured, an Editor may have to make all the decisions regarding which articles to accept or reject for publication.

11.3.3: Managing editor:

The roles of manging editor are:

i. To help the chief editor to achieve the above-mentioned goals

ii. To communicate with the authors, reviewers, publishers and other agencies for smooth running of the journal

iii. To regularly evaluate the research work

iv. To communicate with funding and regulating agencies (HEC and others) for grants and accreditations.

11.3.4: Executive editor:

The roles of executive editor are:

i. To evaluate the research articles presented for publication

ii. To help the editorial board in policy making

iii. The help the editorial board in smooth publishing

iv. To communicate with reviewers and collaborate with external agencies for relevant purposes

11.3.5: Section editors:

Section editors are allotted different responsibilities. Some of these are mentioned below:

i. Bibliography

ii. Proof-reading

iii. Academic writing reviewing, grammar and spell checking

iv. Dissemination of articles for review

v. Contact with publishers under the supervision of senior editorial team

vi. Training of future reviewers, young members and other faculty members

vii. others

11.3.5: Editorial advisory board:

Editorial advisory board members consist of national and international senior academicians, researchers, clinicians and others to help the current ed-

itorial board in designing, implementing and evaluating policies regarding upgrading the quality of research work. These people also share best practices to help the editorial team to refine their research work.

12- Policy regarding recruitment and continuation of editorial board Policy for recruitment and continuation of the editorial board is based on the guidelines discussed in the previous section. The chief editor, managing editor and executive editors are recruited by the patron in-Chief. Members are then selected by them from amongst the faculty who have an aptitude for research, and their names are endorsed by the patron. The tenure of editorial board is decided by the Patron after a period of 3 years whether to continue or recruit a new team or member. The editorial advisory board members are recruited for indefinite period by the editorial team of JMS.

13 Plagiarism policy

The journal is following the plagiarism policy of Higher Education Commission of Pakistan, and for this purpose, a plagiarism standing and review committee has been established under the chairmanship of Chief Editor of JMS along with 4 members amongst senior faculty. The committee has been given the authority to review research papers and plagiarism complaints related to published work in the journal.

14 Contact information

The office of managing editor or chief editor should be contacted anytime in working hours or can be contacted through their emails for correspondence.

15 Journal funding

Main funding of the journal is from HEC, which provides funds once on yearly basis and it depends upon the category of HEC recognised journals. We also receive funding from our institute on need basis. Another source of funding is through research paper processing fee amounting to Rs: 7000/- or 250 US$ (for overseas researchers). We also receive funding through annual subscription by different national libraries amounting to 5000/- annual (500 US$ for overseas libraries).

REFERENCES

1. ICMJE recommendations
2. COPE guidelines
3. SCOPUS

This document is developed by including the recommendations of ICMJE (2019) and COPE guideline and in case of any conflict, lack of clarity and ambiguity, the recommendations of latest ICMJE recommendation and COPE will prevail.

KHYBER MEDICAL COLLEGE, PESHAWAR - PAKISTAN