Med. Forum, Vol. 32, No.5 May, 2021 ISSN 1029-385-X (Print) ISSN 2519-7134 (Online)

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MEDICAL FORUM MONTHLY

ISSN 1029 - 385 X (Print) ISSN 2519 - 7134 (Online)

APNS Member | CPNE Member | ABC Certified

Peer Review Journal | Online Journal | Published Since 1989

e-journal available on: www.medforum.pk

Medical Forum Recognized and Indexed by

PMDC-IP-0048 (1998), HEC-Y-Category (2009), Pastic and PSA, Isd (2000), Medlip,Karachi (2000), NLP, Isd (2000),Pakmedinet, Isd (2011), Excerpta Medica, Netherlands (2000), EMBASE Scopus Database (2008), Index Medicus (IMEMR) WHO (1997), ABC Certification, Govt. of Pak. (1992), Central Media list, Govt. of Pak (1995), Press Reg. No.1221-B Copr (2009)

Published under Reg.No.RP/11256/L/S/18

Medical Academic Foundation

MAF

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Published By: **Prof. Nasreen Azhar,** Gohawa Road, Link Defence / New Airport Road, Opposite Toyota Motors, Lahore Cantt. Lahore.
Mobile Nos. 0331-6361436, 0300-4879016, 0345-4221303, 0345-4221323.
E-mail: med_forum@hotmail.com, medicalforum@gmail.com
Website: www.medforum.pk

Printed By: Naqvi Brothers Printing Press, Darbar Market, Lahore.

Rate Per Copy: **Rs.1500.00**

Subscription Rates: Pakistan (Rs.15000.00), USA & Canada (US$ 500.00),
China, Japan, UK &Middle East (US$ 450.00)

Editorial

Impact of Covid-19 Pandemic on Health Infrastructure of Pakistan

Mohsin Masud Jan

Editor

SARS-CoV-2 infection started trickling out of China at the end of 2019. By March 2020, the impact of this novel viral disease was starting to engulf the whole world. As a general principle, there are very few proven anti-viral treatments in the world. When HIV infections started to ravage communities in the United States in the 1980s, it took decades before antiretroviral medications were developed and even more time to find better drugs that did more good than harm. In the meanwhile, most major viral diseases can be prevented through vaccination.

Before 2020, the shortest time period for developing a working vaccine against viruses was approximately three years. As soon as Covid-19 was declared a pandemic, researchers started working on bridge therapies (to treat the most severe complications) and vaccinations. In April, the whole world saw horrific images from New York City, increasing the impetus to find a solution and fast.

On March 16, 2020, a study on the use of hydroxychloroquine in patients with SARS-CoV-2 was 'published' by Gautret et al in the 'International Journal of Antimicrobial Agents' and purportedly demonstrated "a rapid and effective speeding up of their healing process, and a sharp decrease in the amount of time they remained contagious." This study was conducted in 26 patients and the results were preliminary.

At the time, the pathophysiology of Covid-19 was not clear and there was no clear treatment for severe symptoms of the infection. This one paper gave rise to the false belief, no doubt amplified by short-sighted politicians with minimal exposure to medicine, that hydroxychloroquine was a wonder drug. The US Food and Drug Administration had issued an Early Use Authorization for the use of hydroxychloroquine as treatment for Covid-19 on March 28, 2020, which was later revoked on June 15, 2020, following further examination of preliminary data. Further studies have shown no evidence of hydroxychloroquine being beneficial for treating Covid.

The health and medical education system in Pakistan is not rooted firmly in evidence-based practice of medicine. When the pandemic hit Pakistan, doctors prescribed hydroxychloroquine and other antibiotics, without any evidence. There were also WhatsApp forwards on the benefits of miracle cures that were herbal in nature, also without any scientific evidence. The relatively minimal effects from the first wave of Covid-19 resulted in a false sense of security among medical professionals and non-medical people in Pakistan. Masking and social distancing were either not adopted or were done without much conviction. People kept travelling; and large wedding events and dinner parties did not stop.

There were speculations as to what could cause low mortality and morbidity from the same infectious disease in South Asia compared to Europe or North America. Meanwhile, breakthrough research in the US and other parts of the world resulted in finding optimal management of Covid patients and significantly reducing mortality rate in hospitalized patients. Vaccines against Covid-19 were deployed starting in December 2020, setting records for vaccine development time.

The third wave of Covid-19 in 2021 took a different turn from the first one. There was an increase in the number of cases and deaths across the country. Doctors kept prescribing unnecessary and unproven medications, causing more harm than good. Based on some anecdotal data, I found that the list of unnecessary medications included anti-parasitic drugs, antibiotics, steroids and anticoagulants. Under certain circumstances, steroids have shown to help Covid patients, but they are not indicated for every patient in every setting. The same is true for anticoagulants. Both these drug groups can cause irreparable harm if not prescribed for the right reasons.

Covid-scepticism and using experimental therapy is not unique to Pakistan. However, in countries like the US, the FDA and CDC have issued guidance for managing this novel disease. In Pakistan, it's a free for all. There are limited enforcement mechanisms available for these commissions and they cannot keep our disjointed health system in check on their own. The recent New York Times story on HIV cases in Sindh paints a gloomy picture of our public health system.

While the rest of the world figures out ways to vaccinate populations and manage severe Covid infections, Pakistan has lagged in both vaccinations and preventive measures. The Covid-19 pandemic has exposed the crumbling health infrastructure in Pakistan; unless the power brokers focus on managing the pandemic, we can have another polio-like situation on our hands.

Original Article

Comparison of the Fetal Outcome between Metformin and Insulin in Gestational Diabetes Mellitus

Joveria Sadaf, Anbreen Abbas, Sana Ara and Aslam Mahmood Malik

ABSTRACT

Objective: To compare the fetal outcome in patients taking metformin and insulin for control of gestational diabetes mellitus.

Study Design: Randomized Controlled trial study.

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynaecology, Shahida Islam Teaching Hospital, Lodhran from 1st January 2020 to 31st December 2020.

Materials and Methods: Total 134 pregnant women with gestational diabetes mellitus of gestational age >20 weeks of age 18-40 years were selected. Patients with multiple pregnancies, hypersensitivity to metformin or insulin, IUGR, known diabetics and CRF were excluded. Patients in the group A were given tablet metformin 500mg orally and group B were given insulin by subcutaneous route. Serum sugar levels were done regularly for glycemic control and dose adjustment. Patients were followed regularly by the researcher herself till delivery at which fetal outcome (preterm birth, NICU admission and neonatal hypoglycemia) was noted.

Results: The mean age of women in group A was 27.52 ± 6.02 years and in group B was 26.70 ± 6.56 years. Majority of the patients 95 (70.90%) were between 18 to 30 years of age. The mean gestational age of women in group A was 28.02 ± 3.45 weeks and in group B was 28.43 ± 3.52 weeks. In this study, there were 05 (7.46%) had preterm birth with metformin while 15 (22.39%) had preterm birth with insulin (p-value = 0.015). There were NICU admission in 12 (17.91%) neonates with metformin and 20 (29.85%) neonates with insulin. Neonatal hypoglycemia was seen in 08 (11.94%) neonates with metformin and 20 (29.85%) neonates with insulin.

Conclusion: This study concluded that fetal outcome is better with metformin use in gestational diabetes mellitus as compared to insulin use.

Key Words: gestational diabetes, metformin, preterm birth, insulin

Citation of article: Sadaf J, Abbas A, Ara S, Malik AM. Comparison of the Fetal Outcome between Metformin and Insulin in Gestational Diabetes Mellitus. Med Forum 2021;32(5):2-5.

INTRODUCTION

Diabetes in pregnancy can be divided into two broader types. One is pre-conceptional that can either be type 1 or type 2 and second is gestational diabetes(GDM). It is called gestational when hyperglycemia is first recognized during the pregnancy.[1] Diabetes is a group of metabolic disorders characterized by hyperglycemia resulting from defects in insulin secretions, action or both.[2] Gestational diabetes mellitus is defined as carbohydrate intolerance of variable severity that is first detected during pregnancy, which may or may not revert to normal after delivery.[3]

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Received: January, 2021
Accepted: March, 2021
Printed: May, 2021

Diabetes mellitus is responsible for almost 2-7% of pregnancies that are complicated with diabetes are associated with increased risk of complications and perinatal mortality.[4] When gestational diabetes mellitus is detected and treated timely, it reduces or eliminates the risks for the fetus. It also has a strong positive effect on the woman's quality of life related to health.[5]

Therefore, it is very important that the patient with diagnosed diabetes mellitus should have pre-pregnancy evaluation and counseling. Poor glycemic control in the pregnancy later on leads to macrosomia and its related complications by two to four folds.[9] Perinatal mortality rates (stillbirths and first-week neonatal deaths) in diabetic population is almost 2-4 times higher than non-diabetic population., and perinatal morbidity (neonatal hypoglycemia, macrosomia, LGA, birth asphyxia) is also very high in diabetics.[4,6]

3-5% of pregnancies are complicated by gestational diabetes mellitus and the incidence is higher in obese and older age women.[7] GDM not only increases the risk of developing complications for example pregnancy induced hypertension and adverse perinatal outcome, it also carries the risk of type 2 diabetes mellitus (DM) (75%) later in her life.[8] The purpose of treatment of diabetes in pregnancy is to reduce fetal hyper-

insulinemia by reducing maternal serum sugar levels.[9] Prospective randomized controlled trials have recently concluded that effective control of high sugar levels in GDM can reduce adverse outcomes in the neonates.[10] Traditionally, treatment of gestational diabetes is diet control alone or diet control and insulin. Insulin therapy though in use for decades has its drawbacks. It requires multiple injections per day, patient education and is related with hypoglycemia and weight gain. That why it seems necessary to adopt some oral medications in place of insulin that is not only safe for the mother but also for the neonate. Many studies suggest that metformin is an acceptable replacement for glycemic control in gestational diabetes that has fewer fetal and neonatal complications.[11]

Diabetes mellitus is an important medical problem in pregnancy and associated with adverse effects on mother and fetus both, so its proper and timely diagnosis and management is mandatory. We have decided to conduct this study to compare the fetal outcome of insulin versus metformin in gestational diabetes mellitus. Then based on this empirical evidence, some recommendations can be made in our routine clinical practice for using the better approach towards gestational diabetes mellitus to reduce perinatal mortality and morbidity.

MATERIALS AND METHODS

Study design: Randomized Controlled trial study.

Place and duration of study: Department of Obstetrics & Gynaecology, Shahida Islam Teaching Hospital, Lodhran from 1st January 2020 to 30th December 2020.

Sample Technique: Non-probability, consecutive sampling.

Sample Selection: All the patients presented to Gynaecology and Obstetrics Department Shahida Islam teaching Hospital Lodhran in a period of one year between ages 18-40 with singleton pregnancy and diagnosed as having gestational diabetes were included in the study. Patients with known diabetes mellitus, multiple pregnancy, intrauterine growth restriction, and renal failure (having serum creatinine ≥1.5 mg/dl) were excluded from the studies. Patients having history of hyper-sensitivity to either metformin or insulin were also excluded.

Data Collection Procedure: After permission from the ethical review committee of the Shahida Islam Medical Complex, total 134 women who fulfill the Inclusion criteria were selected. Informed consent was taken from each patient. After this, all patients were divided into two groups by lottery method. All patients were offered to pick up a slip from total mixed up slips (half-slips having letter 'A' and other half-slips having letter 'B') and she was placed in that respective group. Patients in the group A were given tablet metformin 500mg orally (dose depending on their sugar levels) and group B were given insulin by subcutaneous route (dose adjusted to their glycemic controls). Serum sugar levels were done regularly for glycemic control and dose adjustment. Patients were followed regularly by the researchers themselves till delivery at which fetal outcome (preterm birth, NICU admission and neonatal hypoglycemia) was noted. This all data was recorded on a proforma.

Data Analysis Procedure: Statistical analysis was performed using SPSS version 20.0. Age, gestational age, body mass index (BMI) and parity were presented as mean and standard deviation. Place of living (rural/urban) and preterm birth (yes/no), NICU admission (yes/no) and neonatal hypoglycemia (yes/no) were presented as frequency and percentage. The fetal outcome in both groups was compared by Chi Square test and p-value ≤0.05 was considered as significant. Effect modifiers like age, gestational age, parity, BMI, place of living were controlled through stratification and chi square was applied to see their effect on fetal outcome. P-value ≤ 0.05 was taken as significant.

RESULTS

Distribution of patients according to age is shown in Table I. Distribution of patients according to gestational age is shown in Table 2. Distribution of patients according to parity is shown in Table lll. Distribution of patients according to BMI of women is shown in Table 4. Distribution of patients according to place of living & lifestyle is shown in Table 5.

In this study, there were 05 (7.46%) had preterm birth with metformin while 15 (22.39%) had preterm birth with insulin (p-value = 0.015). There were NICU admission in 12 (17.91%) neonates with metformin and 20 (29.85%) neonates with insulin. Neonatal hypoglycemia was seen in 08 (11.94%) neonates with metformin and 20 (29.85%) neonates with insulin (Table 6).

Table No.1: Age distribution for both groups (n=134)

Age (years)	Group A (n=67)		Group B (n=67)		Total (n=134)	
	No. of patients	%age	No. of patients	%age	No. of patients	%age
18-30	20	29.85	28	41.79	48	35.82
31-40	47	70.15	39	58.21	86	64.18
Mean ± SD	32.0 ± 6.0		30.0 ± 5.0		31.0 ± 6.0	

Table No.2: Distribution of patients according to gestational age (n=134)

GA (weeks)	Group A (n=67)		Group B (n=67)		Total (n=134)	
	No. of patients	%age	No. of patients	%age	No. of patients	%age
21-30	44	65.67	40	59.70	84	62.69
>30	23	34.33	27	40.30	50	37.31
Mean ± SD	28.02 ± 3.45		28.43 ± 3.52		28.24 ± 3.50	

Table No.3: Distribution of patients according to parity in both groups

Parity	Group A (n=67)		Group B (n=67)		Total (n=134)	
	Frequency	%age	Frequency	%age	Frequency	%age
0-2	55	82.09	52	77.61	107	79.85
3-5	12	17.91	15	22.39	27	20.15

Table No.4: Distribution of patients according to BMI

BMI (kg/m^2)	Group A (n=67)		Group B (n=67)		Total (n=134)	
	Frequency	%age	Frequency	%age	Frequency	%age
≤ 27	35	52.24	26	38.81	61	45.52
> 27	32	47.76	41	61.19	73	54.48
Mean ± SD	29.40 ± 3.58		29.42 ± 3.59		29.44 ± 3.58	

Table No.5: Distribution of patients according to place of living

Place of living	Group A (n=67)		Group B (n=67)		Total (n=134)	
	Frequency	%age	Frequency	%age	Frequency	%age
Rural	30	44.78	35	52.24	65	48.51
Urban	37	55.22	32	47.76	69	51.49

Table No.6: Comparison of fetal outcome between both groups

		Group A (n=67)		**Group B (n=67)**		**P-value**
		Frequency	%age	Frequency	%age	
Preterm Birth	Yes	05	7.46	15	22.39	0.015
	No	62	92.54	52	77.61	
NICU Admission	Yes	12	17.91	20	29.85	0.105
	No	55	82.09	47	70.15	
Neonatal Hypoglycemia	Yes	08	11.94	20	29.85	0.011
	No	59	88.06	47	70.15	

DISCUSSION

The main goal of treatment of gestational diabetes mellitus is to maintain normal blood sugar levels to control peri-natal mortality and morbidity. The used diagnostic criteria to diagnose gestational diabetes will decide that how many patients will require treatment. However, if we keep the diagnostic threshold at those low levels that are currently in use, the proportion of patients with GDM requiring medications is less than in the days where insulin has been the gold standard treatment for GDM after dietary and lifestyle modifications have failed to maintain normal sugar levels. Keeping in view the pathophysiology of GDM, insulin sensitizers would be the first choice of treatment but due to fetal concern it was not practically applied and insulin was remained the main stay of treatment in gestational diabetes. Oral hypo-glycemic agents are cost-effective, easy to take, improves compliance and also more physiological, because the insulin resistance is likely to be the main mechanism in GDM.[12] For decades Metformin has been in used for patients of type II DM and now in insulin-resistant polycystic ovarian syndrome (PCOS) patients for many years.[13] However, its use in pregnancy has been restricted due to fetal concerns.

In a meta-analysis [13] of 5 RCTs involving 1270 participants, in metformin group incidence of preterm birth was significantly more but the incidence of pregnancy induced hypertension was significantly less. The fasting blood sugar levels of OGTT were significantly lower in the patients using metformin alone than in the patients using metformin supplemented with insulin.

Two meta-analysis conducted by Su et al[13] (involving six RCTs) (2014), concluded a significantly better maternal outcome in patients using metformin as compared to patients using insulin in terms of less pregnancy induced hypertension, less weight gain, and pre-eclampsia.as well as neonatal outcomes were also significantly better in patients treated with metformin than insulin when neonatal hypoglycemia was compared in two groups. However, these meta-analyses showed significantly higher preterm birth in the metformin group, compared to insulin group. The results of our study is matching their results however in our study pre-term birth was also lesser in the metformin group.

A small, RCT by Spaulonci et al[5] who compared the control in sugar levels in two groups one taking metformin and other taking insulin, and he found better control in metformin group maternal outcome like les weight gain was observed however no differences in other maternal outcomes such as preeclampsia, prematurity, and caesarean section were noted. The frequency of neonatal hypoglycemia was also lower in the metformin group and there was no increase in preterm birth. One-minute Apgar score and five-minute Apgar score, birth weight and umbilical artery pH at birth were having no statistical difference in two groups. However, the drawback of the study was that the sample size was small, and similar studies with larger sample sizes may strengthen the results of this study.

Study of Arshad R et al[14] also showed better glycemic control in patients having metformin than the patients having insulin for control in gestational diabetes. But neonatal NICU admission was more in metformin group that is less in our study however the difference is no significant. Another RCT by Ashoush S that dealt with identification of poor responders to metformin for gestational diabetes claimed that metformin is superior for glycemic control.[15] Another study by Saleh HS strongly favors the results of our study and recommends

that metformin is equivalent to insulin if not superior in patients with gestational diabetes.[16]

CONCLUSION

This study concluded that the fetal outcome is better with metformin use in gestational diabetes mellitus as compared to insulin use. So, it is recommended that metformin can be an excellent alternative to insulin for treating gestational diabetes mellitus and can help in reducing fetal and maternal morbidity and mortality in such group of patients.

Author's Contribution:

Concept & Design of Study:	Joveria Sadaf
Drafting:	Anbreen Abbas, Sana Ara
Data Analysis:	Sana Ara, and Aslam Mahmood Malik
Revisiting Critically:	Joveria Sadaf, Anbreen Abbas
Final Approval of version:	Joveria Sadaf

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

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Original Article

The Comparison of Assessment Scores Between Modules Taught Face to Face and Online in Undergraduate Medical Students During COVID-19 Pandemic

Assess the Score Between Face to Face and Online Teaching

Sulail Fatima[1], Sadaf Fatima[1], Fadieleh A. Sohail[2], Sassi Kanwal[1], Kiran Zehra[1] and Saqib Kamran[3]

ABSTRACT

Objective: To study the comparison of the Physiology test score and overall test scores between modules taught face to face and online.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Jinnah Medical and Dental College, Karachi from Jan 2021 to March 2021.

Materials and Methods: The study participants included 2nd year medical students. There were total 96 MBBS students. Out of 96, 90 students attempted the Neuroscience module test and 88 attempted the Endocrine module test. The Neuroscience module was taught face to face on campus before the lockdown for COVID 19 pandemic was implemented. For the endocrine module, online recorded lectures were sent to students. In both the modules, test was conducted online. The Physiology test scores as well as the overall test scores were compared.

Results: The Physiology test score was higher (54.64±20.12) in Neuroscience module that was taught face to face as compared to (31.42±26.00) in Endocrine module that was taught online. Regarding the overall module test score, Neuroscience has a higher score (62.12±13.45) as compared to Endocrine (52.06±16.81). The overall passing percentage was (74%) in Neuroscience module and (48%) in Endocrine module.

Conclusion: The medical students had a higher test score in module taught by face to face teaching method as compared to the module taught online.

Key Words: COVID 19, Physiology, Traditional Teaching, Online teaching, Online assessment

Citation of article: Fatima S, Fatima S, Sohail FA, Kanwal S, Zehra K, Kamran S. The Comparison of Assessment Scores Between Modules Taught Face to Face and Online in Undergraduate Medical Students During COVID -19 Pandemic. Med Forum 2021;32(5):6-9.

INTRODUCTION

COVID 19 is a highly infectious disease[1]. It is considered as a pandemic due to its severity and spread worldwide[1]. This disease spreads through close contact with the affected persons[2]. To prevent this illness, social distancing, medically recommended quarantine process, and maintenance of personal hygiene were advised by health workers[2]. Due to COVID 19 pandemic, all educational institutions including the universities were closed for traditional teaching[3].

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Received: March, 2021
Accepted: April, 2021
Printed: May, 2021

Traditional teaching methods are an integral part of medical studies in which teacher has direct communication with students[4]. This method has been universally accepted[4]. Due to lockdown and closure for indefinite time period, it became a necessity to shift teaching from traditional to e-learning methods[5]. All institutes including the medical colleges had to take online classes[6]. The online classes or e-learning occurs at computers and other media devices with the help of internet. The information was delivered through a browser or media applications (You tube, Google meet, zoom etc.)[4].

Physiology is one of the basic science disciplines taught at undergraduate level in traditional & integrated curriculum in medical education[7]. Its importance lies in its application in clinical practice[8]. Physiology learning is related with understanding the mechanisms and functions of the human body. To understand the physiology concepts, a number of cognitive processes, such as memorization, comprehension, analysis, classification, summarization, calculation, multi-disciplinary connections, and clinical application are required[9]. Due to COVID 19 pandemic, Physiology

classes were also conducted online like all other subjects.

The shift from traditional teaching to online had its own challenges[5]. Most of the teachers in Pakistan were not prepared for this sudden change from in-person teaching to an entire online delivery of instructional content in a matter of days without any comprehensive planning and faculty training[10]. Many institutes including Jinnah medical and dental college instructed their faculty to take recorded lectures. Challenges were faced not only in online teaching but also in online assessment[10]. Many faculty members were deficient in formal training for online assessment such as preparing online exams and conducting them[10]. For the students, acceptability of online/recorded lectures was a big challenge[5].

Studies have been published on online teaching in medical education. In this study we compared the Physiology test scores and the overall test scores of the module taught face to face (Neuroscience) and the module taught online (Endocrine system).

MATERIALS AND METHODS

The study design was cross sectional. The study was conducted at Jinnah Medical and Dental College. The study participants included 96 undergraduate MBBS 2nd year students. The time duration of study was 3 months, from 1st January 2021 to 31st March, 2021. The study was approved by Ethics review board of Sohail University. After getting the ethics approval, the module test scores of students were collected from Examination department of Sohail University. In addition to the fact that Neuroscience was taught face to face and Endocrine taught through recorded lectures, these modules were selected as they had substantial proportion of Physiology content in module teaching. Each module test conducted at JMDC includes a total of 100 questions from the subjects of Anatomy, Physiology and Biochemistry. The number of Physiology questions was 42 out of 100 in Neuroscience module and 45 out of 100 in Endocrine module. We collected the overall test scores and the Physiology test scores of Neuroscience and endocrine modules. The assessment of both modules was conducted online. The Neuroscience module was taught on campus and Endocrine was taught online. The overall scores and Physiology scores of both modules were compared. Out of 96 students, 90 students attempted the Neuroscience module test and 88 students attempted the Endocrine module test.

The data was analyzed using SPSS version 22. The results of quantitative data were expressed as mean ± SD. The passing students' data was expressed in the form of percentage. In statistical analysis, only p-values ≤ 0.05 were considered significant.

RESULTS

The Physiology module test score comparison was shown in table I and the overall score comparison was shown in table II. In figure I, the overall percentage of students passed in both modules was mentioned.

Table I showed the comparison of physiology test scores between modules taught face to face (Neuroscience) and that taught online (Endocrine). There was significant difference between the two modules.

Table 2 showed the comparison of overall test scores between the module taught face to face (Neuroscience) and the module taught online (Endocrine). The significant difference was found between modules.

Figure I showed the comparison of overall passing percentage between module taught face to face and that taught online. The passing percentage was significantly higher in Neuroscience module that was taught on campus.

Table No.1: The comparison of Physiology test score between Neuroscience and Endocrine modules in MBBS II students

Module Name	n	Mean ± SD test Score	p value
Neurophysiology	90	54.64±20.12	<0.001
Endocrinology	88	31.42±26.00	

Table No.2: The comparison of overall test score between Neuroscience and Endocrine modules in MBBS II students

Module Name	n	Mean ± SD test Score	p value
Neurophysiology	90	62.12±13.40	<0.001
Endocrinology	80	52.06±16.81	

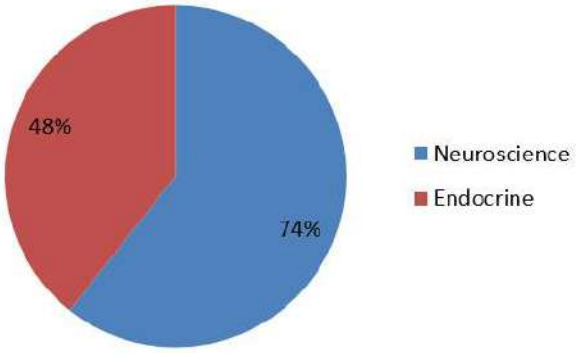

Figure No.1: The comparison of overall passing percentage between Neuroscience and Endocrine modules in MBBS II students

DISCUSSION

The World Health Organization declared the outbreak of COVID-19 in January 2020. The Covid-19 pandemic has raised significant challenges for the higher education community all over the world[3]. One of the urgent and unexpected challenges was the shift of

previously face-to-face university courses to be taught online[11]. Teaching staff of different backgrounds and ages have had to record and their classes at home, with all the practical and technical challenges[11].

In table I, we compared the Physiology test scores of Neuroscience module that was taught on campus by way of traditional or face to face teaching method and the Endocrine module that was taught through recorded lectures during lockdown period of COVID 19 pandemic. There were 42 Physiology questions out of total 100 questions in the Neuroscience module test. Out of a total of 100, there were 45 Physiology questions in Endocrine module. The Neuroscience module test scores were significantly higher in Physiology as compared to the Endocrine module. Physiology is a subject based on concept building and for learning and understanding the Physiological concepts and mechanisms, interaction between teacher and student is required. The reason of getting higher Physiology scores in the module taught face to face as compared to module in which recorded lectures were sent to students, was that the traditional teaching results in better concept building and understanding. This finding was reflected in the module test results.

In table 2, we compared the overall test scores of Neuroscience and Endocrine modules. The test scores were higher in Neuroscience module as compared to the Endocrine module. The study done by Qamar[12] et al reported that the majority of students were in favor of face to face teaching. In a study done by Sahar[13] et al, the majority of students did not prefer e-teaching over face to face teaching. Our study results highlight the same findings as reported in these studies. In our study, the significance of face to face teaching was highlighted in the form of higher scores in the Neuroscience module test that was taught on campus. Kaur[14] et al reported that online teaching can be combined with face to face teaching but it cannot be a replacement of traditional teaching.

In figure I, the overall passing percentage of the two modules was compared. The number of students attempting the Neuroscience module test was 90 and that of Endocrine module test was 88. The significantly higher passing percentage in Neuroscience module (74%) as compared to (48%) in Endocrine reflects the better understanding of all the subjects taught on campus.

Out of 96 students in MBBS 2nd year, 6 students could not attempt the module test paper of Neuroscience and 8 could not attempt the test of Endocrine. The reason of students missing the tests was that although the recorded lectures were sent to students, there was live online assessment done. The major cause of students missing the tests was the internet accessibility and low bandwidth to stream the online module test paper.

To the best of our knowledge, this is the first study done on the comparison of test scores of modules taught face to face and online.

CONCLUSION

The medical students had a significantly higher test score in module taught by face to face teaching method as compared to module taught online.

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

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Original Article

Buccally Displaced Canine

Buccally Displaced Canine. A comparison of Morphologies of Lateral Incisors and 1st Premolar

M. Osman Masood[1], Omer Hafeez Kaleem[4], Muhammad Adeel[2], Muhammad Muddassar[2], Talha Ashar[5] and Mirza Abdul Rauf[3]

ABSTRACT

Objective: To explore differences in mesio-distal and bucco-lingual crown width of naturally fully erupted permanent maxillary lateral incisors and 1st premolars among patients with and without buccal canine displacement.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the Orthodontic department at Islam Dental College, Sialkot for a period of 09 months from Jan to September 2020.
Materials and Methods: Pre-treatment casts were studied for the pervasiveness of maxillary anomalous lateral incisors, mesio-distal (MD) and bucco-lingual (BL) widths of Maxillary permanent teeth, i.e., Buccally displaced Canines, Maxillary Lateral Incisor and Maxillary 1st Pre-Molar were recorded using digital caliper on right and left side.
Results: Larger than normal Mesio-Distal and Bucco-Lingual dimensions were observed for the Lateral Incisors and the 1st Pre-Molar while smaller than average Mesio-Distal dimensions were observed for the Canines on the affected sides. Females were more affected
Conclusion: The results of our study concluded a highly significant result for Mesio-Distal and Bucco-Lingual dimensions of Lateral Incisors and 1st Premolar in patients with Buccally Displaced Canines on the affected side.
Key Words: Bucally displaced Canine (BDC), Maxillary Lateral Incisors (MLI) morphology, Maxillary 1st Premolar (M1stPM) morphology.

Citation of article: Masood MO, Kaleem OH, Adeel M, Muddassar M, Ashar T, Rauf MA. Buccally Displaced Canine. A comparison of Morphologies of Lateral Incisors and 1st Premolar. Med Forum 2021;32(5):10-12.

INTRODUCTION

Ectopically erupting Canines can cause impactions, and some potentially harmful sequalae such as Arch Length Discrepancy, Root resorptions – internal as well as External of the Impacted Canines and adjacent teeth, Dentigerous cyst formation and referred pain, requiring intervention[1]. As a consequence, deviation from the normal path of tooth eruption of maxillary canine i.e ectopia results[2]. The canine either erupt or stay impacted in buccal or palatal location in the dental arch. Palatal canine impaction exceeds Buccal canine impaction by a ratio of 2:1 or 3:1.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Lateral Incisor and the 2nd Pre-Molar erupt directly in the line of the arch followed by the eruption of permanent canine which erupts slightly Buccal to the line of dental arch. Consequently, reduction in space present between the roots of adjacent teeth hinders the movement of canines into the arch resulting in their displaced buccal location[3]. Average tooth dimensions (including all tooth groups) in patients with palatally-displaced canines was significantly less than that in the control group. Significantly smaller tooth size was observed in patients with palatally displaced Canines[4].
PDC (palatally displaced Canines) occurs frequently in subject with Class I Malocclusion. In 16% of the PDC subjects, either lateral Incisor is congenitally absent or Peg-shaped, demonstrating a clear association between palatally impacted Maxillary Canine and anomalous or congenitally missing tooth[5]. In PDC sample, up to 10-fold increased prevalence of the peg-shaped maxillary lateral incisor is observed[6].
Despite adequate space within the dental arch, buccal ectopic eruption of the canines usually occurs. This condition has been defined as primary tooth germ displacement – the tooth develops in a deviant site or with an unusual direction due to an abnormal genetic pattern. No other dental features have been found with

these canines[7]. No dental age discrepancy is observed in 2/3rd of the patients having buccally ectopic canines[8].
A number of studies have been carried out to investigate palatally impacted canines. Lateral Incisors and 1st pre-molars have also been investigated a lot for their role in cases of palatally impacted and displaced canines on the basis of their crown dimensions and root morphology.
However, lateral incisors and 1st premolars have not been investigated for their role in buccally displaced canines. Whether or not their crown morphologies have any effect on the buccal displacement of canines still remains a question at large.
Accordingly, current study was done to measure size of maxillary teeth in buccally displaced canines and to evaluate, weather dentitions with BDC have common features which may be explicit for the condition when compared with normally erupting canines. In particular, the study was carried out, if there exist a significant relationship between…
1. Lateral incisor dimension and buccal displacement of adjacent canines.
2. 1st Premolar dimension and buccal displacement of adjacent canines.
3. Buccal displacement of Canine with Gender.

MATERIALS AND METHODS

Out of 30 subjects, the pre-treatment records of 12 males and 18 females with BDC were selected from a 600 consecutively treated cases in the orthodontic department at Islam dental college, Sialkot. Pre-treatment dental casts of patients aged at least 11 years were included in the sample. Patients included in the sample had one buccally displaced canine. None of the patients has undergone any restorative or orthodontic treatment in the past. Partially impacted, carious and teeth with restorations were excluded and no measurements were noted where the true tooth contour was concealed by calculus or plaque.
According to the established standardized techniques, the BDC was diagnosed on the basis of clinical examination and dental casts. If even part of the canine was visible in the oral cavity, it was considered as erupted.
Following measurements were recorded for both the affected and unaffected sides;
1. The MD dimension of Maxillary Canine, Lateral incisor and 1st Premolar.
Measurements of maximum MD dimension of BDC, erupted maxillary lateral incisors and maxillary 1st premolar were recorded. With the help of a digital caliper and straight tips, the measurements were carried out on the plaster casts to precision of 0.01mm.
2. Independent T-test was used to compare the MD dimensions of the teeth of the affected side with the un-affected side.
3. Skeletal classification.
The skeletal classification was made on the basis of cephalometric analysis.

RESULTS

In our study, the mean mesio-distal dimensions of the lateral incisors on the affected side (7.20 ±0.56 mm) were larger than the mesio-distal dimensions of the lateral incisors on the non-affected side (6.97 ± 0.63mm). The mean mesio-distal width of the canines on the affected side (8.29 ±0.44mm) were smaller than the mesio-distal width of the canines on the non-affected side (8.32 ±0.46mm). However, this difference was not significant (see table 2). The mean mesio-distal dimension of the 1st premolars on the affected side (7.44 ± 0.44mm) was larger than the mean mesio-distal dimension of the 1st premolars on the non-affected side (7.30 ± 0.39mm). It was also observed that it was the females who were more affected than males.

Table No.1: Descriptive statistics for skeletal classes

	Frequency	Percent
Class I	6	20
Class II	18	60
Class III	6	20
Total	30	100

Table No.2

Groups	P Value
Lateral incisors	< 0.001 *
Canines	0.433
Premolars	< 0.001*

*** P value < 0.01 Is highly significant**

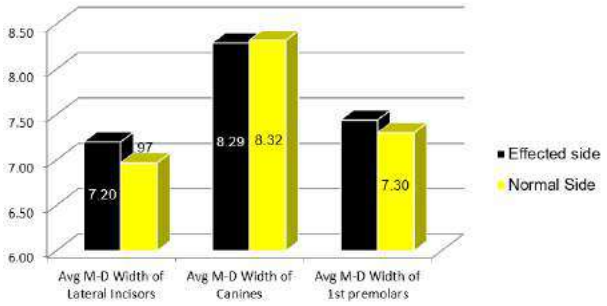

Figure No.1: Comparison of Average Mesio - Distel Widths of teeth on Effected and Normal side

DISCUSSION

The results of our study concluded that larger than normal mesiodistal and buccolingual dimension were observed for the lateral incisor, the 1st premolar and canine on the affected side.
Our findings were consistent with the results of Stella Cchaushu, et al, who reported in a study that patients with bilaterally displaced canines, the mesiodistal width was greater than the mesiodistal dimension with unilateral BDC, statistical significance for lateral incisors only (P<0.01)[7].

In another study by Sharabi S and Becker A, the results showed noticeable sexual dimorphism. Wider than average teeth were existing in BDC females, however teeth in BDC males were normally sized. As compared to the bilaterally affected females, smaller sized teeth were measured for females affected unilaterally[7]. These findings are in agreement with our results which also demonstrated that it was majority of the females who had BDC's.

However, our study showed remarkably contrasting results to a study by Stella Cchaushu, who's results demonstrated that the valuation of bilateral with the unilateral BDC had smaller teeth than normal in the bilateral subjects of both genders, although this difference was small and statistically insignificant[8].

Our results are in striking disagreement with the results of Paschos E et.al, which reported that when the tooth dimensions of central incisors, lateral incisors and canines were noted in patients with unilateral canine displacement, a significant difference was noted for the effected sides compared to those of the non-affected sides in the same patient.[9]

Sune Ericson & Krister Bjerklin documented that the dental follicle of canine varied in its width and shape according to its location in the jaw. Follicles of the canines which were displaced buccally and apically were significantly wider than the follicles of normally positioned canines. They also observed that the mesiodistal dimension of the dental follicle of an ectopically erupting cuspid was measured to be 2.7-3.2 mm in width compared to 2.3-2.7 mm width of a normally erupting canine. The dental follicle of an ectopically erupting maxillary canine was on average wider than the dental follicle of normally erupting canine.[10] Our findings were inconclusive in this regard as in some cases we observed larger than normal mesiodistal dimension of the canines that were buccally displaced which could have larger than normal mesiodistal dimension in the follicular stage, however a smaller than average crown size was documented for the displaced canines as a group.

The results of our study concluded a highly significant difference for the mesiodistal dimension for lateral incisor and 1st premolar with buccally displaced canine on the affected side.

CONCLUSION

The results of our study concluded a highly significant result for Mesio-Distal and Bucco-Lingual dimensions of Lateral Incisors and 1st Premolar in patients with Buccally Displaced Canines on the affected side.

Author's Contribution:

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

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Original Article

A Study on the Psychosocial Predictors of Cardiovascular Diseases: The Major Role of Forgiveness

Iram Abraar[1] and Mozzam Shazeb Abrar[2]

ABSTRACT

Objective: to determine the dimension of forgiveness in Cardiovascular patients and compare them with the normals (without any Cardiovascular history).

Study Design: Cross-sectional comparative study

Place and Duration of Study: This study was conducted at the OPD, Department of Cardiology, Rehman Medical Institute (RMI) from Oct to Dec 2020, Peshawar and Jan to Feb 2021 from twin cities of Rawalpindi and Islamabad.

Materials and Methods: The study was done on a total sample of 163 comprising both cardiovascular heart patients and the normals. Informed consent was obtained from all the participants. A questionnaire was designed and based on translated version of Transgression Related Interpersonal Motivations Inventory (TRIM-18) as developed by McCullough, Root and Cohen in 2006[1]. Data was analyzed using IBM SPSS Version 23. An independent samples t-tests was used for statistical significance.

Results: The results of the study revealed that there is statistically significant difference between the patients and the normals groups on the dimensions of forgiveness. Patients were high in the unforgiveness and low on forgiveness dimension than the normals.

Conclusion: The study concludes that for the effective management of the cardiovascular patients both psychosocial and medical factors should be carefully weighed and assessed in different patients depending on the severity of their disease.

Key Words: Cardiovascular Diseases, Unforgiveness Forgiveness dimension, Revenge, Avoidance, Benevolence

Citation of article: Abraar I, Abrar MS. A Study on the Psychosocial Predictors of Cardiovascular Diseases: The Major Role of Forgiveness. Med Forum 2021;32(5):13-17.

INTRODUCTION

Cardiovascular Diseases are the leading causes of death all over the world[1,2]. Traditionally, in order to manage and control it the focus has only been on reducing the risk factors medically associated with the illness such as elevated levels of blood pressure, cholesterol, obesity, diabetes mellitus, smoking, physical inactivity and drinking in some cases[3]. The medical model of Cardiology emphasizes bio-medical intervention when the patients have already suffered from severe irreversible loss of physical health whereas Primary Prevention of Cardiovascular Diseases take into account socioeconomic risk factors related to short and long term goals apart from the medical ones only[4].

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Received: January, 2021
Accepted: March, 2021
Printed: May, 2021

Toussaint and Cheadle (2011) found unforgiveness to be associated with higher prevalence of cardiovascular conditions such as hypertension, angina, and tachycardia in a healthy sample[5]. Forgiveness has been associated with few physical health compromises, somatic complaints, physical symptoms and stronger immune system etc. (Lawler, Younger, Piferi, Jobe, Edmondson, & Jones, 2005)[6]. Lawler and Piferi in 2006 studied 425 participants with age range of 50 to 95 established connection between forgiveness and cardiovascular disease. Their results indicated that forgiveness enhanced physiological markers of cardiovascular health[7]. Martina et al, have reviewed a large number of studies investigating "the effects of forgiveness on cardiovascular system". They concluded "overall, it appears that forgiveness may be cardio-protective"[8].

Other literature conceptualize forgiveness from the stress coping perspective that can promote health (Worthington and Scherer 2004)[9]. Those who forgive others tend to have stronger immune systems (Seybold, Hill, Neumann, & Chi, 2001)[10], less physiological reactivity (Witvliet, Ludwig, & Vander Laan, 2001)[11], lower blood pressure (Lawler et al., 2005)[6], and overall fewer physical symptoms (Toussaint, Williams, Piferi & Musick, 2001)[12]. Forgiveness has also been associated with lower levels of cortisol in a number of

studies (Berry & Worthington, 2001; Standard, 2004; Tabak & McCullough, 2011)[13-14].

Unforgiveness can thus be understood as a state of chronic mind-body connection as health-endangering wear and tear of a hyper arousal stress response in which negative experiences continue over some time toward a transgressor or a transgression (Elliott, 2011; Harris & Thoresen, 2005; Lavelock, Griffin, & Worthington, 2015; Schnurr & Green, 2004; Worthington et al., 2007)[15-19]. There are protective effects of forgiveness and reactive effects of unforgiveness (Davis, 2015)[20].

For the present study thus an interdisciplinary multi-dimensional model as suggested by Griffin et al. (2015)[21] is being followed. That is, unforgiveness is assumed to increase the negative affect or stress levels, which may partially or fully, directly or indirectly mediate certain cardiovascular diseases. There exists no direct evidence which links the dimension of unforgiveness / forgiveness with cardiovascular diseases (Worthington et al, 2007)[22]. The main purpose of the study is to determine the dimension of unforgiveness forgiveness in Cardiovascular patients and compare them with the normals (without any Cardiovascular illness history).

MATERIALS AND METHODS

A cross-sectional comparative study was conducted using non-probability convenient sampling of 103 Cardiac patients and 60 normals 163 in total. A patients sample was taken after consultation and permission from his cardiologist, himself and family members by a health care professional from Rehman Medical Institute (RMI), OPD, Department of Cardiology Peshawar from Oct to Dec 2020. Patients sample selection criteria included those with already existing and raised documented history of certain risk factors such as diabetes mellitus, hypertension, smoking and / or occurrence of conditions such as Post PCI (Percutaneous Intervention or those who have had stent) or Post Coronary Artery By Pass Surgery (CABG). Data from the control group (normals) was collected from Jan to Feb 2021. The control group comprised of those without any history of the above conditions. Data collection strictly adhered to the rules and ethical guidelines provided by NBC-REC Research Ethics Committee. The purpose of the study was explained to each participant, followed by their consent to participate or withdraw at any point. In both of the samples of 163 there were 101 males and 62 females i.e. 63 males in patients and 38 in normal group; and 40 females in patients and 22 in normals group respectively.

After taking approval from the patients and their cardiologist questionnaires were filled by a health care professional while interviewing the patients. The questionnaire consists of various parts such as questions related to the demographic variables, potential risk factors and their illnesses such as Post PCI or Post CABG and lastly translated versions of Transgression Related Interpersonal Motivations Inventory (TRIM-18) as developed by McCullough, Root and Cohen in 2006[22].

Transgression Related Interpersonal Motivations Inventory is the most widely used forgiveness instrument. Studies support in favor of its psychometric properties with the clinical samples such as its estimated reliabilities, construct and criterion-related validities are strong and consistent. TRIM-18 is used to assess both unforgiveness and forgiveness dimension[25].

RESULTS

The results section comprised of two parts the first one covers the demographic characteristics of data, second includes the inferential statistics which provide information about the tested hypotheses for the current study. A total of 163 comprised the samples of both the patients and normal, where 63.2% (n=103) were patients and 36.8% (n=60) were normal. In age range 24-54 13.6% (n=14) were patients and 88.3% (n=53) normals, in category 55-90 86.4% (89) were patients and 11.7% (n=7) normals. Gender wise 62% (n=101) were males and 38% (n=62) females in both the groups. In patients group there were 63 males, 40 females and in normals 38 males and 22 females. The majority of the participants were from the lower middle class i.e. 63.8% (n=104) with the income less than Rs. 50,000 than the rest 59 with income more than Rs, 200,000.

As far as the risk factors are concerned the cross tab data indicates that out of total 103 patients 65 were having Diabetus Mellitus (DM) and 38 patients did not have it, whereas none of the normal group (n=60) respondent has developed it. The exact same pattern was observed for hypertension risk factor too i.e. 65 patients were having hypertension (HTN) and 38 did not have it, whereas none of the normal group respondent has developed it. As far as the smoking pattern is concerned 34 out of total 103 patients were smokers and rest 69 were nonsmokers where none of the respondent from the normal group was smoker. Regarding serious Cardiac diseases are concerned out of total of 103 patients group 44 patients have had undergone the procedures of Post PCI (Percutaneous Intervention or received stunts) and 36 experienced Post Coronary Artery By Pass Surgery (CABG).

The major objective of the study was to understand and compare quantitatively the patients and the normals group on the dimensions of unforgiveness forgiveness. It was hypothesized that the patients with cardiovascular diseases will score low on forgiveness and higher on unforgiveness dimension as compared to the normals group. An independent samples t-tests was used for statistical significance. The test results showed that the differences between the two groups were

statistically significant on the sub scales revenge (t=-3.513, df=156, p <.001), on avoidance (t=2.79, df=156, p<.006), benelovence (t=4.12, df=156, p <.000) and forgiveness (t=5.13, df=156, p <.000).

Table No.1: Mean, Standard Deviation and t value for normal and patients on TRIM-18 and its sub sclaes (N=163)

Variables	Normals (n=60)		Patients (n=103)				95% C.L	
	M	SD	M	SD	T (156)	p		
Revenge	7.01	3.21	8.78	2.91	3.51	.001	-2.75	-0.77
Avoidance	19.19	4.87	17.34	3.39	2.79	.006	0.54	3.16
Benevolence	20.53	4.35	17.72	3.94	4.12	.000	1.46	4.15
Forgiveness	39.73	4.73	35.06	5.81	5.13	.000	2.87	6.45

Table 1 indicates that there is a significant difference between patients and normal group on the unforgiveness forgiveness dimension as measured by TRIM (Transgression Related Interpersonal Motivations Inventory on the sub scale Revenge with (M=7.01, SD=3.21 and M=8.78, SD=2.91), t (156) = 3.5, p < .001, in other words normals were less revengeful than the patients in their interpersonal relationships. The subscale Avoidance with (M=19.19, SD=4.87 and M=17.34, SD=3.39), t (156) = 2.79, p < .006, that is the normal group is more inclined towards avoidance of their transgressor than the patients group, Benevolence (M=20.53, SD=4.35 and M=17.72, SD=3.94) t (156) = 4.12, p < .000, at the same time normals were more benevolent regarding a transgressor than the patients group and scores of avoidance and benevolence were combined to give total Forgiveness scores (M=39.73, SD=4.73 and M=35.06, SD=5.81) t (156) = 5.13, p < .000 i.e. Forgiveness is operationally conceptualized as a process of avoiding a transgression and increasing benevolence or good will for the transgressor. In other words, when people forgive they experience both avoiding a transgression and increasing their benevolence towards the transgressor. The normals have scored significantly higher than the patients group on both avoidance and benevolence conceptualized as forgiveness.

DISCUSSION

The present study examined the unforgivess forgiveness dimension in Cardiovascular patients and compared them with the normals (without any cardiovascular history). No such studies have been conducted in Pakistan so far. Some of the studies have examined connection between forgiveness and cardiovascular disease (Lawler & Piferi, 2006; Martina et. al)[6-7].

The results of the present study is in accordance with the existing literature[4-7,8-19] and provide empirical evidence to support the hypothesis that cardiovascular patients scored significantly higher on unforgiveness (revenge) and lower on forgiveness (avoidance and benevolence) when compared to the normals. On the sub scale Revenge normals have M=7.01, SD=3.21 and patients M=8.78, SD=2.91. In other words normals were less revengeful than the patients in their interpersonal relationships. In case of Avoidance normals have M=19.19, SD=4.87 and patients M=17.34, SD=3.39, the normal group is more inclined towards avoidance of a transgressor than the patients group. On Benevolence again normals have higher M=20.53, SD=4.35 than the patients M=17.72, SD=3.94 i.e. the normals have good will towards their transgressors than the patients. In combine Forgiveness scores normals have M=39.73, SD=4.73 and patients M=35.06, SD=5.81. This indicates more positive response set of the normals than the patients towards the transgressor whereas patients were still holding to a negative set of emotions and indicated a desire to seek revenge and not inclined to avoid the transgression neither have any good will for their transgressor.

As far as the data on demographics are concerned 62% (n=101) were males and 38% (n=62) females in both the groups. In patients group 63 males, 40 females and in normal 38 males and 22 females. As far as the age range 24-54 years 13.6% (n=14) were patients and 88.3% (n=53) normals, in category 55-90 86.4% (89) were patients and 11.7% (n=7) normals. This may be the increasing age in the patients group contributing towards their illness, because decline in physical health occurs naturally with increasing age.

As far as the risk factors are concerned the data indicates that out of total 103 patients 65 were having Diabetus Mellitus (DM) and 38 patients did not have it, whereas none of the normal group (n=60) respondent has developed it. The exact same pattern was observed for hypertension too. As far as the smoking pattern is concerned 34 out of total 103 patients were smokers and rest 69 were nonsmokers where none of the respondent from the normal group was smoker. Regarding the serious Cardiovascular conditions out of total of 103 patients group 44 patients have had undergone the procedures of Post PCI (Percutaneous Intervention or received stunts) and 36 experienced Post Coronary Artery By Pass Surgery (CABG). In other words, though cardiovascular patients have scored higher on unforgiveness and low on forgiveness still they had not modified their life style patterns which might have contributed towards their ill health.

CONCLUSION

The results of our study that the cardiovascular patients were higher in the dimensions of unforgiveness than their normal counterparts, have implications for the field of Preventive Cardiology. However it should be noted that the case of each patient is unique and for their effective management an overall integrated interdisciplinary approach must be taken up where both medical and psychosocial factors should be carefully weighed and assessed depending on the condition of the patient.

Author's Contribution:

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Acknowledgement: Muhammad Usman Chohan, System Administrator, National Institute of Psychology (NIP), Center of Excellence, Quaid-e-Azam University, Islamabad.

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

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Original Article

Bipolar Diathermy Versus Ligation for Hemostasis in Conventional Tonsillectomy: A Comparative Study

Bipolar Diathermy with Ligation Techniques

Javed Iqbal[1], Zahid Mahmood Raahat[2], Kamran Chaudhry[1], Asif Alam Gul[3], Zaheer Ul Hassan[4] and Rizwana Akhtar[1]

ABSTRACT

Objective: The purpose of this study was to compare the efficacy of Bipolar Diathermy with Ligation techniques in hemostasis, the duration of operation, postoperative pain and incidence and severity of postoperative reactionary hemorrhage.

Study Design: A Prospective Comparative Study

Place and Duration of Study: This study was conducted at the Sughra Shafi Medical Complex, Narowal from June 2018 to December 2020.

Materials and Methods: 98 patients with chronic tonsillitis were included and randomly assigned two groups A and B. 49 patients of group A underwent conventional tonsillectomy under general anesthesia and hemostasis was achieved by Ligation of vessels with 1/0 silk and in 49 patients of group B Bipolar Diathermy was used for hemostasis. The duration of surgery, incidence and severity of Postoperative hemorrhage, severity of post-operative pain was recorded during the stay in the ward and at weekly follow ups for two weeks.

Results: The duration of operation in group B was much less as compare group A. The overall incidence of postoperative haemorrhage was 10.2% with no significant difference in the two groups. The incidence of postoperative pain was recorded in the ward and follow up. Statistically, the difference was not significant with a slight preponderance of pain in group A

Conclusion: Both techniques are equally effective in hemostasis. The bipolar diathermy technique is faster, resulting in saving the time of surgeon and anesthetist and also cost-effective. It is also found to be less painful to the patient on follow ups.

Key Words: Tonsillectomy, Ligation, Bipolar Diathermy, Haemostasis

Citation of article: Iqbal J, Raahat ZM, Chaudhry K, Gul AA, Zaheer Ul Hassan, Akhtar R. Bipolar Diathermy Versus Ligation for Hemostasis in Conventional Tonsillectomy: A Comparative Study. Med Forum 2021;32(5):18-21.

INTRODUCTION

Tonsillectomy is one of the most common surgical procedures performed all over the world by ear nose throat surgeons. It is generally considered a safe and simple operation. It is in fact a major surgery because of peri and post-operative haemorrhage and anaesthesia complications. The bleeding may be life-threatening if not timely and efficiently managed.

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Received: January, 2021
Accepted: February, 2021
Printed: May, 2021

It has been a challenge to secure haemostasis in tonsillectomy since the first operation performed by Aulus Cornelius Celsus almost 2,000 years ago who enucleated tonsil from its bed by fingertip and waited for haemostasis to occur on its own. Galen was the first to use a snare for the lower pole in tonsillectomy. In the 7th century, Paulus Aegineta described in detail the technique of tonsillectomy. Peter Lowe in 1600 AD introduced the technique of tonsillectomy using tonsil holding forceps and snare. He applied ligatures to control bleeding. In the early years of the 20th century, Blunt Dissection Tonsillectomy became a standard technique in Baltimore by Worthington [(1)] in 1907 and London by Waugh [(2)] in 1909. Ligation of bleeding vessels was done on regular basis by all surgeons and since then it is considered an effective technique for haemostasis. The use of the Diathermy technique to secure haemostasis was introduced by Hasse and Noguera [(3)] in 1962 and then by Jhonson [(4)] in 1962 as an alternative suitable and easy method for haemostasis. However, according to Murty and Watson [(5)], the use of Diathermy to secure haemostasis remains controversial in the UK and some other countries, thinking it's

increased post-operative haemorrhage rates and morbidity. Many studies have been done to address this issue with particular regard to the safety and speed of this technique. Two types of diathermy are available, Unipolar and Bipolar. Bipolar is an effective and safer mode of haemostasis, whereas, with unipolar diathermy, it is difficult to control depth of tissue coagulation and subsequent devitalization of tonsillar tissue and adjacent vital structures, resulting in variable post-operative pain. With Bipolar Diathermy, area of tissue coagulation is localized between the fine tips of Diathermy forceps causing less tissue damage which results in less post-operative pain and better early healing. Bipolar diathermy is found to be quite effective to achieve satisfactory haemostasis in a spurting vessel from the deep tissue of the tonsillar bed. Ligation does not cause deep tissue damage but may catch muscle fibers in the floor of the tonsil fossa resulting in more postoperative pain. The ligation technique is relatively difficult particularly for bleeding in the lower pole and has a chance of knot slip with tonsillar bleeding.

MATERIALS AND METHODS

This comparative study was carried out at Sughra Shafi Medical Complex/ Sahara Medical College, Narowal from June 2018 to December 2020. The surgeons performing these procedures were experienced in both techniques and had been performing tonsillectomy for more than last 15 years.

Inclusion Criteria: A complete medical history was recorded and a detailed ENT (ear,nose,throat) examination was performed before including patients in this study. All patients suffering from chronic tonsillitis (Acute tonsilitis, with more than 6-7 episodes in one year, five episodes per year for two years, or three episodes per year for three years) were included in this study till a total of 98 patients were operated. There were 68 males and 30 females. These 98 patients were randomly assigned in two groups of 49 each. Each group consisted of 15 females and 34 males.

Exclusion Criteria:

1. Patients with hemoglobin below 10 g/dl or with any bleeding disorder.
2. Patients unfit for general anaesthesia for any reason.
3. Patients not willing for admission and stay in the ward for at least 4 days.

In both groups' conventional tonsillectomy (Dissection method) was performed and hemostasis in group A was secured by Ligation method and in group B by Bipolar diathermy. The efficacy of both techniques in securing hemostasis, duration of surgery, post-operative pain during the stay in the ward and on follow-ups were compared. The incidence of primary and secondary hemorrhage was also compared.

RESULTS

Out of 98 patients, 52 belonged to the age group of 5 to 10 years and 36 were between 11 to 20 years of age. The youngest patient being 5 and the eldest being 40 years of age as shown in Table I.

The success of haemostasis: Both techniques were equally effective in controlling bleeding during the operation. During operation Bipolar Diathermy (**group B**) failed to achieve adequate hemostasis in 1 out of 48 cases and Ligation was unsuccessful in 2 out of 48 cases. Bipolar Diathermy failed to control active spurting blood from the deep vessel, whereas Ligation could not achieve hemostasis of diffuse oozing from tonsillar fossa. In case Diathermy failed, hemostasis was obtained by Ligation. The diffuse tonsillar ooze was controlled by the application of Diathermy. Postoperatively patients were observed in the recovery room when fully conscious and shifted to the ENT ward. In the ward, the incidence of postoperative bleeding was observed as shown in table II.

Cases with postoperative haemorrhage were immediately attended by the operating surgeon. Minor bleeding was controlled by ice cold gargles and simple observation of the patient. Moderate degree bleeding was treated IV fluids, removal clot from tonsillar fossa and IV antibiotics. One case of major bleed was transferred to operation theatre and under general anesthesia the bleeding vessel was ligated. The patient was transfused one unit of whole blood and placed on IV antibiotics as shown in Table III.

Post-Operative Pain: All patients in both groups received paracetamol in appropriate dosage. Incidence of post-operative pain is shown in Table III. Statistically, the difference is not significant and there is as light preponderance of pain in group A. Pain and discomfort were taken as a refusal of the patient to take ice cream/fluids on the first day and semifluid diets the next day and onwards as shown in Table IV.

Table No.1: Age wise distribution

Age Group (Years)	Diathermy	Ligation	Total Cases
5-10	26	26	52
11-20	15	15	30
21-30	6	6	12
31-40	2	2	4

n(98)

Table No.2: Incidence of Post-Operative Hemorrhage

Incidence	Diathermy	Ligation
No Hemorrhage	43	43
Primary Hemorrhage	4	3
Secondary Hemorrhage	1	2

n(98)

Table No.3: Severity of Post-Operative Hemorrhage

Severity	Diathermy	Ligation
Minor	3	4
Moderate	1	1
Major	0	1

n(10)

Table No.4: Post-Operative Pain

Post Op Day	Diathermy	Ligation
1	48	48
2	40	36
3	15	20
4	4	7

DISCUSSION

Peri and post-tonsillectomy hemorrhagere main the most serious and fatal complication of tonsillectomy [6]. It is always frightening for both, patient and the surgeon. Minor bleeding does not need any active measure but major bleeding necessitates prompt attention, evacuation to operation theatre, exploration of bleeding area and control of bleeding. Primary haemorrhage is generally considered to be related to surgical technique whereas, secondary haemorrhage is due to factors that influence wound healing. Mortality from bleeding is 2 in 10,000 tonsillectomies [7].

This study aimed to compare the efficacy of Bipolar Diathermy and Ligation in haemostasis during a tonsillectomy, duration of time consumed during tonsillectomy in each technique, post-operative pain experienced by the patient during the stay in the ward. The results of our study have shown that both techniques are equally effective for the control of haemostasis. The use of Bipolar Diathermy is easy and takes less time than Ligation, resulting in shorter operation and anaesthesia time. We assessed our patients in the ward for complaints of post-operative pain and discomfort and their willingness to take ice cream/fluids orally, there was no significant difference in both groups with regards to their pain. Many local and international have been reviewed and results compared. Papangelou [8], Ritter & Fank [9], Goycoolea [10] in their respective studies, found little difference in the incidence of postoperative haemorrhage rates but Diathermy has produced much-reduced pain. Roye [11] studied 370 cases and found no difference in haemorrhage cases but found a 40% reduction in operative time with Diathermy. However, in this series there was increased pain, they used zonal coagulation with Unipolar Diathermy. Malik [12] conducted a trial in 450 cases and found no difference in haemorrhage cases but Diathermy was faster than Ligation. Watson [13] conducted a prospective randomized study of 1,036 cases and found no difference in postoperative haemorrhage with either technique however, operation time was shorter in Diathermy cases. In one study conducted by P.K. Moonka [14], Diathermy failed to achieve adequate haemostasis in 4 out of 188 cases and Ligation was unsuccessful in 6 out 188 cases. He concluded that Bipolar is as effective as Ligation in control of haemorrhage. Arif Raza Khan [15] and colleagues conducted a study at a tertiary care hospital of Peshawar, they reported no difference at all in the rate of primary Hemorrhage (6.66%) whether haemostasis was achieved by Bipolar Diathermy or Silk Ligation. In a large series of 1,500 patients studied in Karachi, Rafiq Gudda [16] and colleagues observed only 2 patients with major reactionary Hemorrhage necessitating a return to the operation theatre. In another study by Adel S [17] and colleagues in Iraq noted primary bleeding in 6 patients (2.4%) with bipolar diathermy haemostasis as compared to 13 patients (5.2%) with silk ligation Shiv Kumar [18] and colleagues in India conducted a study of 100 cases, they found that incidence of primary Hemorrhage was same using Diathermy and Ligation as the method of haemostasis. Roberts [19] studied 1,090 cases prospectively& found slight excess of primary bleeding associated with ligation and a slight excess of secondary haemorrhage with Diathermy.

CONCLUSION

Our study has shown that Bipolar Diathermy is equally effective as Ligation for haemostasis during tonsillectomy. Bipolar Diathermy is easier to use and consumes less time so it is cost-effective. Bipolar Diathermy is not significantly more painful postoperatively. It is not quite effective to control haemostasis in spurting blood vessel. The spurting blood vessel needs Ligation. In case of diffuse oozing from a scarred tonsillar fossa where ligation is unable to achieve satisfactory haemostasis, Diathermy is useful. However, it is recommended that all ENT surgeons must be expert to tie ligature in tonsil fossa as the situation may arise when it is necessary e.g., profuse spurting blood vessel, failure of Diathermy equipment or power failure.

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

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Original Article

Empowering the Student as a Stakeholder; Through Incorporating Their Feedback in Modifying Curriculum of Oral Biology

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ABSTRACT

Objective: To empower student as a stakeholder by incorporating their feedback in modifying curriculum of Oral Biology, which may be helpful for improving it.

Study Design: Qualitative explorative study

Place and Duration of Study: This study was conducted at the A qualitative explorative study was conducted during 6 month period, from Feb to Aug 2020 was done at Foundation University College of Dentistry(FUCD), Islamabad.

Materials and Methods: Equally stratified students were involved in focus group discussion (FGD) in two session as per their academic accomplishments i.e. high highfliers (70-80%) and low fliers (56-62%) scores in Oral Biology. In both FGD session, 14 students participated.

Results: Students expressed 6conjoint themes on which are the followings; i) Teaching mode, ii) Problems in First year BDS (Bachelor of Dental Surgery) education, iii) Teachers/Students cooperation, iv) Faculty qualification/ experience status ,v) Student's role in curriculum development and vi) Lack of interactive sessions.

Conclusion: Our study findings indicate that the curriculum status can be made better by integrating multiple teaching modes and by including feedback of student as a substantial source of analytical input. The weaknesses highlighted by the feedback of student's regarding curriculum, syllabus, teachers and methods of evaluation are essential for high quality learning.

Key Words: Oral Biology, Curriculum, Student's feedback, BDS students.

Citation of article: Sheikh QM, Chaudhry MWG, Abbas BZ, Chaudhry SYG, Durrani AU. Empowering the Student as A Stakeholder; Through Incorporating Their Feedback in Modifying Curriculum of Oral Biology. Med Forum 2021;32(5):22-26.

INTRODUCTION

An effective curriculum meets the basic cultural and societal demands and serve the prospects of the population.[1] Curriculum development has to be revisited continuously based upon the feedback and reviews[2]. The latest curriculum may differ from the conventional curricula which was more discipline based, and quite difficult to integrate[3].

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

The most important pillar of curricular development is the subject specialists and teachers, who utilizes their knowledge and ideas for an effective output[4]. Feedback can be referred as a phenomenon of identifying the breach between the existing and expected levels of knowledge/skill[2]. Previously, the feedback was thought to be the way of the teacher's viewpoint towards the students, and was mandatory for the teachers and was more teacher centric[5]. In contrary to that, a learning centered feedback involves the learners along with the teachers in the development of the curriculum. This view of feedback has identified various lags, and helped cover them in grasping more advantage from the system[5].

As a health care expert do we ever sense that what dental students undergo during their professional studies? This question captivated me to conduct a study regarding students opinion about our dental educational system.

It is quite hard to comprehend in our medical/dental educational system it seems as to why the students should have a say in development the dental curriculum, whereas students' feedback in this reference is greatlycommended[6].

A thorough assessment of today's medical education system reveals that students role is passive, and they are

overlooked by university authorities in improvement of the curriculum, scrutinizing/evaluating. This results in lack of comprehension of the medical education system that results in demotivation of thestudents[7].

To have students a meaningful role in curriculum designing as encouraged by WFME 2015 document; active role of students in medical education department of the institute will result in improved understanding of course content and autonomy ,which can result in less psychological pressure.

MATERIALS AND METHODS

A qualitative explorative, study was conducted at Foundation University College of Dentistry, Islamabad for a 6 month period starting from Feb to Aug 2020. A purposeful sampling type was used.

Sample comprised of students of Second year BDS in the Oral Biology subject, divided in two groups as per their score i.e. high achievers (70-80%) and low achievers (56-62%).A 2sessions FGD was conducted, by allotting them into groups of 7 each. The top achiever group comprised of female students only while the low achiever group had four females and three males.

The moderator of the sessions was there searcher himself .Prior to the start of each FGD session a informed consent was taken from students in written form. Six set of questions were inquired from them and their answers were written as well as audio. Each session was conducted in duration of 60 to 90 minutes. Result formulation was done in terms of weaknesses and strengths of Oral Biology curriculum by compiling student's feedback.

DATA ANALYSIS

The data was transcribed and properly documented for every FGD. Arrangement of the written material resulted in achievement of Conformability, student's responses were Manual Scanning and key messages were noted. Transcribed responses were aligned to each question and continuous statements and phrases were underlined. Coding was done by thematic analysis;

Selective codes, Open codes and Themes were derived.

To authenticate outcome triangulation and member checking was performed.

RESULTS

High Achieving Students (70-80%):

Expectations about curriculum:

Nearly all the students pointed out that they had high hopes of dental education when they joined Dental studies. As per their idea the class sessions will be as enlightening as in pre-medical intermediate classes.

Approximately 10% subjects indicated that their anticipations about curriculum were met; thus the experience of being a dental student was good.

Difficulties in 1st year BDS with regards to curriculum:

Many students said that they had an idea that there will be marked difference between intermediate and BDS curriculum as in pre-medical intermediate they had to study one book for each subject, however, in BDS alongwith presentations and discussion there are two different books.

Teaching method: They had to adjust to a new teaching approach; mostly there were presentations and slides.

Communication between teacher and student: Teachers communication style was unsatisfactory reported by most of the students (75%). Lectures were delivered as PowerPoint slides.

Theoretical and practical modes of study: More than 50% students preferred the practical session of OSPE. One student said, "Comparatively to the theory exam, the OSPE were quite easy".

Role of students in curriculum development: When the respondents were asked to give feedback on how the institute can help them to meet their anticipations, a majority (75%) of students stated that they should be given chance to give input in the curriculum.

Communication skills: Some students were of the opinion that there is communication gap between teachers and students in lectures.

Interactive sessions and discussions: Majority of the students pointed out that there should be interactive sessions and group discussions in the curriculum.

Student's presentation and competition: Students have to study in detail for preparing for a presentation.

Satisfaction of students regarding teaching methods: Fewer students (20%) stated that they are satisfied with the mode of education, however they mentioned there was a room for improvement.

Low Achieving Students (56-62%):

Difficulty in Oral Biology: Curriculum of oral biology was reported tough by many students .One student said that, "I think the curriculum was a bit difficult for a normal student."

Teaching method: Many students pointed out that the methods of teaching were not proper. As one student said, "I couldn't understand Oral Bio from the beginning, because teacher's way of teaching was the reason".

Unmet expectations: Almost 80% of the students said their expectations to Oral Biology curriculum were not met. As one of the students said that, "I think my expectations were not met, I was hoping that they will teach us only the basic concepts".

Satisfactory curriculum: Fewer students (20%) were of the opinion that the curriculum is acceptable as per their expectations. As one student stated that, "I really had no issues with the curriculum, because there were limited numbers of books".

Cooperation between teachers and students: There should be a harmonization among students and teachers. As one student said, "I had a few problems

with our teachers, because the slides were very basic but the course was very lengthy".

Table No.1: Demographic data of participants, high fliers.

Gender	Student codes
Female	A1
Female	A2
Female	A3
Female	A4
Female	A5
Female	A6
Female	A7

Table No.2: Demographic data of participants, low fliers.

Gender	Student codes.
Male	B1
Male	B2
Male	B3
Female	B4
Female	B5
Female	B6
Female	B7

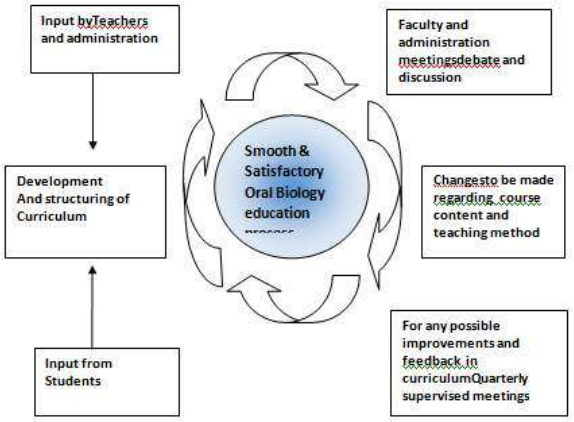

Figure No.1: Conceptual framework of student's engagement in curriculum development

Role of students in curriculum development: The faculty should take in the opinions of Dental students when deciding the pattern of study. As one student said that, "Teaching style should be changed, they should put more attention towards us, and they should give more time to us, and I think there wasn't too much concern towards us".

Check and balance of teaching staff: According to one student. "Institute should check the teachers if they are delivering the lectures according to the need of the students".

Flaws in curriculum: According to majority of the students the curriculum has flaws in point of view of teaching methodology.

Self-study: One student stated that, "in the end we had to study by ourselves to understand the concepts, & answer to any questions, we were told that to look in this book &that particular page. It was difficult in the beginning".

Earlier difficulty, later comfort: One student stated that, "it was difficult for us to capture things, take the concept on the 1st go, but as the year progressed we were like use to it & tried to go with it as it is, & managed by ourselves".

DISCUSSION

Curriculum as the foundation of any institute which shows the roadmap of events taking place during the whole academic year, but it is a dynamic state so it always needs improvements as per community needs, for this, feedback of students being an important part indicates the problems they are facing which leads to further improvement in the curriculum.

Themes we identified are consistent with those identified by Delva et al regarding determinants of feedback-seeking.[8] Consistent with prior studies, participants in our 2 groups described the importance of teachers creating a safe environment for feedback Dijksterhuis MG, Schuwirth.[4,9] As per this study the curriculum of Oral Biology is quite inadequate and it needs to be revised. The following are the 6 themes that were highlighted by both FGD;

1. Teaching mode
2. Problems in 1st year BDS education
3. Teachers/Students cooperation
4. Faculty qualification/experience status
5. Student's role in curriculum development
6. Lack of interactive sessions.

In this study, there is deviation from the student's feedback in the current status of medical curriculum, specially, in basic dentistry subject like Oral Biology.[10]

The literature too, raise the issue of lack of trained faculty who are involved in medical teachings also that need of monitoring it[11].

Students faced problems in the first year taking into account the difference between intermediate and BDS education system. So an experienced teaching faculty plays a vital role in such a situations. These basic issues must be addressed and finalized in curriculum designing thusintroducing interdisciplinary teaching and learning strategies that successfully inspire and educate students[5]

In the present study, qualifications/experience and communication skills of the teaching faculty are marked observations by students. Dissatisfaction was shown for teaching of Oral Biology and also that the content was not matching the course book recommended by them, this made the student's poor understanding of the subject, which is backed by Eva &Regher.[12,13] These findings highlight the significance of student's

involvement in medical curriculum formulation.[14,15] In our institute, the MBBS (Bachelors of Medicine Bachelors of Surgery) students give a proper feedback in curriculum development, whereas no BDS students are involved.[1]

Research suggest numerous examples that support student's involvement in the curriculum reforms and about their advantages.[13,16] A research done by D'Haese et al has shown that student's involvement in curriculum reforming led to a great improvement in Ghent University, Belgium. After having a few sessions of discussions that involved study body, academicians and college administrations the duration of study was revisited, that reduced from 7 to 6 years[17,18].

Fujikawa H et al studied that when student contributes in the curriculum reforms, also they associate with brilliant and influential peers, which results in having a positive professional approach and behavior[7].

Another study conducted by Mahmood K revealed the difficulty to have professionals who are knowledgeable and skillful for certain disciplines[19,20].

To meet the 21st century challenges, the current curriculum design is not appropriate.[21,22]

Medical or dental students who can take stress, score highest. Institutes stress more on delivering knowledge, instead of emphasizing on concept-building and evidence based learning.[23]

The students need to have better comprehension of other areas of health e.g. population health, healthcare systems, health policies.[24]

The institutes of medicine in Pakistan may need to shadow the pathways of international medical institutes and to give equal chances to all the stakeholders for designing the curriculum.[18]

The current study has these key benefits;

1. For improvement of BDS curriculum only a few studies are student centric.
2. Student's say in medical education using FGDs gives them an prospect to express their experiences regarding curriculum[2,25]. This builds up their professionalism which is the need of the hour.[25]

This study limitations were linked to how the FGDs were composed, which includes few males as compare to the females.

At the beginning of this study, there were two medical colleges were choosen, but due to technical & logistics problems, only one college was included. Another limitation is that our faculty members as well as administrators were not included.

Students learn better in an atmosphere in which they can get and use feedback about what they don't know without fearing negative reactions from their teacher.[27]

CONCLUSION

Students are one of the pillars in the educational communities so their input is always necessary; we need to hear from them to guide ourselves in our mode of instruction thus basing our curriculum on what students really need.

This study opinionates a selective group of BDS students views in a medical institute. For generalization of these findings further large-scale research studies should be done.

This study should lead educators who are interested in exploring the possibilities of using student feedback as a source of input into curriculum development.

Author's Contribution:

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Acknowledgement: Dr. Muhammad Rizwan**,** Department of Oral Pathology, Foundation University College of Dentistry, FUCD, Islamabad.

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

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Original Article

Aminotransferase in Patients of Type 2 Diabetes Mellitus

Kaleemullah Kakar[1], Gulandam[1], Maria Abid[2] and Mohammed Atif Gulzar[1]

ABSTRACT

Objective: To estimate the frequency of raised ALT in T2DM patients of Quetta and evaluate the risk factors.
Study Design: A cross-sectional, prospective study
Place and Duration of Study: This study was conducted at the conducted in the department of Internal Medicine, Sandeman Provincial Hospital Quetta for a period of six months from Jan to June 2015.
Materials and Methods: The study was approved from institutional review board. Patients of both genders diagnosed type 2 diabetes mellitus were included after attaining informed consent. Serum ALT levels were done for all patients in the hospital laboratory. Demographic and clinical characteristics were recorded. Data was entered and analyzed using SPSS v. 18.0.
Results: There were 144 patients in the study –37 (25.7%) women and 107 (74.3%) men. Their mean age was 43.8 ± 7.2 years. Elevated ALT levels were seen in 30 (20.8%) patients of T2DM. Patient gender, body mass index, and duration of diabetes were not statistically related to elevated ALT levels in patients of T2DM ($p>0.05$).
Conclusion: Serum alanine aminotransferase was frequently high in patients of type 2 diabetes mellitus. It was not associated with gender, body mass index, or duration of diabetes.

Key Words: serum alanine aminotransferase, T2DM

Citation of article: Kakar K, Gulandam, Abid M, Gulzar MA. Aminotransferase in Patients of Type 2 Diabetes Mellitus Med Forum 2021;32(5):27-30.

INTRODUCTION

Diabetes mellitus is a glitch of pancreas where it doesn't deliver sufficient insulin or the body has issue in utilizing insulin. Type 2 diabetes mellitus (T2DM), in which an individual isn't reliant on insulin, is more regularly detailed than type I diabetes mellitus in which an individual is totally subject to insulin. As per World Health Organization (WHO) in excess of 220 million individuals are experiencing diabetes mellitus around the world, 80% diabetic patients are from agricultural nations and consistently 5% of passings trait to diabetes mellitus [1,2].

T2DM carries with itself a range of metabolic dysfunctions including liver brokenness. Patients with T2DM are much of the time seen with raised liver proteins (RLEs); which might possibly show clinically [3]. The association of diabetes mellitus has been grounded with Non-Alcoholic Fatty Liver Disease (NAFLD) [4].

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Insulin obstruction is the fundamental guilty party in both the sicknesses. Diabetic patients with RLEs have been a significant talk for the two doctors and examiners. If not oversaw successfully during the underlying stages, the drawn out inconveniences and outcomes or NAFLD can have critical weight on persistent visualization and healthcare cost [5].

Serum levels of liver transaminases backhanded reflect liver capacity. RLE are found in liver brokenness and NAFLD[6]. Raised serum Gamma-Glutamyl Transferase (GGT), Aspartate Aminotransferase (AST), and Alanine Aminotransferase (ALT) levels have been accounted for to increment of hazard of T2DM and cardiovascular and metabolic brokenness [7]. NAFLD is additionally connected with heftiness, hypertension (HTN), and dyslipidemia which are likewise essentially related to metabolic condition and insulin opposition [8]. In the western populace, where 35% of healthy non-comorbid people have NAFLD, the frequency ascends to 75-90% in high-hazard gathering of diabetic and stout people [9]. NAFLD is a main source of persistent liver infection which thus is additionally related to metabolic disorder [9]. Likewise, T2DM patients with NAFLD with or without RLE are at higher danger of miniature and full scale vascular entanglements [10].

There is still little proof of association liver capacity in diabetic patients from Pakistan. In a new observational examination from South Pakistan, 35% of diabetic patients had raised ALT which was genuinely related to male sex, and higher serum fatty substances yet no related to hemoglobin A1c (HbA1c), cholesterol, high thickness lipoproteins (HDL), and low thickness lipoproteins (LDL) [11]. We intended to assess the

recurrence of brought ALT up in T2DM patients of Quetta.

MATERIALS AND METHODS

A cross-sectional, prospective study was conducted in the department of internal medicine, Sandeman Provincial Hospital Quetta. The study was conducted for six months after approval from the institutional review board. All patients were only included after attaining informed consent.

The investigation test size was Sample size was determined utilizing World Health Organization (WHO) test size mini-computer. With a certainty level of 95%, expected recurrence of raised ALT 10.4% [12], supreme accuracy 5%, the example size blocked out to be 144. Non likelihood back to back inspecting method was adjusted. Patients of the two sexual orientations analyzed sort 2 diabetes mellitus were welcome to take an interest. Patients with history of liquor utilization, clinical or biochemical proof of viral or immune system hepatitis, essential biliary cirrhosis, hemochromatosis, Wilson's illness, or some other hepatic sickness were rejected from the investigation.

Patients satisfying consideration and prohibition standards were selected for concentrate in the wake of depicting the investigation convention and educated composed assent was taken by the analyst. Secrecy in regards to their clinical and non-clinical subtleties was kept up. A semi-organized proforma was built to record patient data. It incorporated their age, sex, body weight, tallness, weight file (BMI) [weight in kg/(stature in meter)], and their blood pressures. Serum ALT levels were accomplished for all patients in the clinic research center. Serum ALT > 35 IU/L was taken as raised in this investigation [11].

Data was entered and dissected with the assistance of measurable bundle for sociologies (SPSS v. 18.0). Mean and standard deviation (SD) was processed for quantitative factors like age, weight, tallness, circulatory strain, BMI, ALT level and length of diabetes. Recurrence and rate were introduced for subjective factors like sex and raised ALT levels. The outcomes were introduced as tables and diagrams. The impact modifiers were dealt with by delineation based on sex, BMI and length of diabetes mellitus.

RESULTS

There were 144 patients included in the study. There were 37 (25.7%)women and 107 (74.3%) men. The mean age of the study sample was 43.8 ± 7.2 years (range: 26-50 years). Their demographic and clinical characteristics are shown in table 1.

Table No.1: Demographic and clinical characteristics of the study participants (N=144)

Patient characteristics	Frequency n (%)	Mean ± SD
Gender		
Male	107(74.3%)	—
Female	37 (25.7%)	—
Age, years	—	43.8 ± 7.2
Duration of diabetes mellitus, years	—	9.4 ± 4.4
Less than 10 years	92 (63.9%)	
10 years or more	52 (36.1%)	
Body weight, kg	—	62.4 ± 14.3
Height, cm	—	157.8 ±18.0
Body mass index, kg/m^2	—	25.4 ± 4.5
Less than 30	101(70.1%)	
30 or more	43 (29.9%)	
Systolic blood pressure, mmHg	—	124.6 ±19.1
Diastolic blood pressure, mmHg	—	82.9 ±14.2
Serum alanine aminotransferase (ALT), IU/L	—	41.4 ± 16.2
ALT raised	30 (20.8%)	—
ALT normal	114(79.2%)	—

As seen in table 1, 30 (20.8%) patients of T2DM in our study had elevated ALT levels. Serum ALT levels were then compared with patient characteristics as shown in table 2. It is evident from table 2 that patient gender, body mass index, and duration of diabetes were not statistically related to elevated ALT levels in patients of T2DM.

Table No.2: Comparison of serum ALT levels with patient gender, body mass index, and duration of diabetes (N=144)

Patient characteristics	Serum alanine aminotransferase (ALT), IU/L		P value
	Raised (n=30; 20.8%)	Normal(n=114; 79.2%)	
Gender			
Male	24 (80%)	83 (72.8%)	0.42
Female	6 (20%)	31 (27.2%)	
Body mass index, kg/m^2			
Less than 30	24 (80%)	77 (67.5%)	0.18
30 or more	6 (20%)	37 (32.5%)	
Duration of diabetes mellitus, years			
Less than 10 years	17 (56.7%)	75 (65.8%)	0.35
10 years or more	13 (43.3%)	39 (34.2%)	

DISCUSSION

Twenty percent diabetic patients in our study had elevated ALT which was not related to their gender, BMI, or duration of diabetes. In spite of nearby confirmations, our examination announced less diabetic patients with raised ALT. In a new review investigation from Karachi, 35% members had raised ALT [11]. In another examination from Lahore, 82% diabetic patients had ALT >42 IU/L when contrasted with just 18% non-diabetics; in any case, the distinctions were not huge [13]. Ahmed et al. revealed that their diabetic patients had a mean ALT level of 76.94 ± 35.9 IU/L [14] when contrasted with 41.4 ± 16.2 IU/L in our report. In their examination test, 84% had ALT <100 IU/L and 14% had alt >100 IU/L [14]. In an Indian examination, mean ALT has been pretty much as high as 293.2 ± 42.54 IU/L and was essentially higher than non-diabetic gathering [15]. Provincial data has additionally revealed the recurrence of brought ALT up in diabetic patients. These incorporate 10.4% from Iran [16] and Jordan [12], 18.5% in Myanmar [17], 40% in Ethopia [18], and 16% in Italy [19].

Patient sex, BMI, and term of diabetes were not related with their ALT levels in our investigation. Be that as it may, a few associations are found in the writing. Diabetic patients with higher ALT were guys, somewhat more youthful, and had higher fatty oils (TGs) [11]. In a different investigation, diabetic patients with raised ALT had a chances proportion (OR) =1.57 for raised TGs as well as =1.47 for augmented midriff boundary [19]. In a Jordanian report, male sexual orientation had an OR of 2.35 for raised ALT, high abdomen perimeter OR =1.9, OR =12.4 for patients matured 25-45years, and OR=1.7 for non-insulin use [12].

Other than ALT, GGT is additionally altogether connected with diabetes. It very well might be anticipated by expanded abdomen bigness, BMI, hypertension, raised TGs, and low high-thickness lipoproteins [20]. Liver proteins including ALT and GGT are proxy indicators of liver injury. RLE signal fundamental hepatic steatosis [21]. Long haul diabetes and its complexities bring about enzymatic variations, which is the reason RLE are not generally related to fundamental liver harm. There is helpless association of disturbed liver proteins with the histological profile of liver [15]. In an examination with T2DM patients having ordinary serum ALT levels, as numerous as 56% had NAFLD and half has non-alcoholic steatohepatitis (NASH) [22]. RLEs can't be the lone solid indicator of hepatic injury in diabetic patients. Connection with broad liver capacity tests and radiological and histological confirmations are urgent [15].

CONCLUSION

Serum alanine aminotransferases are frequently high in patients of type 2 diabetes mellitus. However, there was no association with gender, body mass index, or duration of diabetes. Isolated elevated ALT has little value in predicting liver injury in diabetes patients. Supporting radiological and histological evidences hold great value.

Author's Contribution:

Concept & Design of Study:	Kaleemullah Kakar
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Data Analysis:	Maria Abid, Mohammed Atif Gulzar
Revisiting Critically:	Kaleemullah Kakar, Gulandam
Final Approval of version:	Kaleemullah Kakar

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

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Original Article

Activity Functional Outcome of Poor Prestroke Glycemic Control in Diabetic Patients with Acute Ischemic Stroke

Gulandam[1], Kaleemullah Kakar[1], Maria Abid[2] and Mohammed Atif Gulzar[1]

ABSTRACT

Objective: Diabetes mellitus (DM) is an independent risk factor of cerebrovascular events including for ischemic stroke. In diabetic patients, prestroke glycemic control is known to impact the functional outcome of acute ischemic stroke. Therefore, we conduct this study to see the activity Functional outcome of poor Prestroke glycemic control in Diabetic patients with acute ischemic stroke.

Study Design: A prospective, cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Internal Medicine, Sandeman Provincial Hospital, Quetta from January till July 2014.

Materials and Methods: All patients of diabetes mellitus type II admitted in the hospital with acute ischemic stroke were included. HbA1c levels were done and correlated with functional outcome of stroke. Data was entered and analyzed using SPSS v 19.0.

Results: The study was completed by 136 patients. Their mean age was 53.2 ± 8.4 years. There were more males than females (60% vs. 40%). Hba1c was ≥10% in 82 (60.3%) patients. Poor functional outcome was reported in 94 (69.1%; p=0.000) patients. Poor functional outcome was statistically related to older age (≥40 years) (n=81; 86.2%), hypertension (n=68; 72.3%; p=0.000), smoking (n=54; 57.4%; p=0.01), and Hba1c ≥10% (n=69; 73.4%; p=0.000).

Conclusion: In diabetic patients, the predictors of poor short term functional outcome of acute ischemic stroke include age ≥40 years, hypertension, smoking, and Hba1c ≥10%.

Key Words: acute ischemic stroke, cerebrovascular events, glycemic control

Citation of article: Gulandam, Kakar K, Abid M, Gulzar MA. Activity Functional Outcome of Poor Prestroke Glycemic Control in Diabetic Patients with Acute Ischemic Stroke. Med Forum 2021;32(5):31-34.

INTRODUCTION

Type 2 Diabetes mellitus (T2DM) is the commonest metabolic illness. It has been recognized as an independent risk factor of cerebrovascular events including for ischemic stroke. Patients of DM have an increased of ischemic stroke by 1.8–6 times [1]. As many as 21–44% patients of ischemic stroke patients have coexisting T2DM [2]. In almost all cases of ischemic stroke, underlying atherosclerosis is the major causative agent. Atherosclerosis results from immune mediated mechanisms as a result of modifiable metabolic risk factors such as T2DM [3].

Some researchers have reported that as compared to non-diabetic individuals, T2DM patients have an adverse outcome of stroke [1].

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

However, not all studies have shown consistent results. In a study from Africa, the mortality rate in ischemic stroke was similar for both T2DM and non-diabetic individuals [4]. Glycemic control remains the major therapeutic objective for prevention of acute and chronic complications related to the disease. HbA1c has become the gold standard for monitoring long term glycemic control; lowering it by proper T2DM management reduces the risk for complications [5]. Hyperglycemia may occur in as many as 30-40% of ischemic stroke patients including those with no T2DM history [6]. The functional and neurological outcomes of stroke are dependent on demographic and clinical characteristics including glycemic status of the patient at the time of admission[7].

It has been recommended by American Diabetic Association that glycosylated hemoglobin is a reliable parameter for determination of glycemic control [8]. In a multicenter registry, Kamouchi et al. found poor functional outcomes in patients of acute ischemic stroke with poor prestroke glycemic control (PSGC) [1]. In this study poor functional outcome was noted in 65.5% patients who had poor PSGC, showing a negative association of poor functional outcome with prestroke glycemic control [1].

It has been found that patients with high level of glycosylated hemoglobin are at higher risk for neurological deterioration [9]. Patients with T2DM are at

greater risk of death or dependency and of recurrent stroke in comparison to non-diabetic patients [10]. Blood glucose level has been found inversely related with the prognosis of ischemic stroke patients [11]. This association of T2DM and poor outcome has not yet been revealed very much in our population. Therefore, results of our study helped in identification of patients who may have worst outcome so that timely preventive management actions can be taken in this group of patients.

MATERIALS AND METHODS

It was prospective, cross-sectional study conducted in the Department of Internal Medicine, Sandeman Provincial Hospital, Quetta. The study was conducted from 25th January till 25th July 2014. All patients were included after attaining informed consent. The study was approved by institutional review board.

Sample size was calculated using World Health Organization sample size calculator. With an anticipated 65.5% frequency of poor outcome [1]; confidence level of 95%; and absolute precision of 8%; the sample size calculated was 136. Non-probability consecutive sampling technique was adapted and all patients of T2DM admitted in the hospital with acute ischemic stroke were included.

Computed tomography (CT) scan of the brain was done for all patients to exclude intracranial bleed seen as hyper density on CT scan. Patients with intracranial bleed, patients who were unaware of time of onset of stroke, patients with underlying malignancy, and patients who refused for participate were excluded from the study.

A semi-structured questionnaire was constructed to record demographic, clinical, and biochemical information, and outcome of stroke. HbA1c levels were routinely done in all ischemic stroke patients, as a part of acute ischemic stroke management keeping in view the current standard guidelines. No additional investigations were performed. Departmental protocol was followed for the management of the patients.

In order to assess the functional outcome of stroke, Modified Rankin Scale (mRS) was used [12]. It is scored from 0–6. The scores are defined as follows: Score 0 – no symptoms at all. Score 1 – no significant disability despite symptom; able to carry out usual duties and activities. Score 2 – slight disability; unable to carry out all previous activities but able to look after own affairs without assistance. Score 3 – moderate disability; requiring some help but able to walk without assistance. Score 4 – moderately severe disability; unable to walk without assistance and unable to attend to own body needs without assistance. Score 5 – severe disability; bedridden, incontinent, and requiring constant nursing care. Score 6 – dead. Score 0–1 represents good outcome and score 2 or more represents poor outcome.

Data was entered and analyzed using Statistical Package for Social Sciences (SPSS v 19.0). Mean and standard deviation was calculated for continuous variables. Frequency and percentages were calculated for categorical variables. For statistical correlation, chi square test was applied. P value $\leq$0.05 was taken as significant.

RESULTS

The study was completed by 136 patients. Their mean age was 53.2 ± 8.4 years (range: 36-61 years). There were more males than females (60% vs. 40%). Their demographic and clinical characteristics are summarized in table 1.

Table No.1:

Patient characteristics	Frequency n (%)
Age in years	
Mean SD	53.2 ± 8.4
Less than 40	42 (30.9%)
40 or more	94 (69.1%)
Gender	
Male	81 (59.6%)
Female	55 (40.4%)
Risk factors	
Hypertension	81 (59.6%)
Smoking	57 (49.3%)
Obesity	54 (39.7%)
Hba1c	
Less than 10%	54 (39.7%)
10% or more	82 (60.3%)

Poor clinical outcome was reported in 94 (69.1%) patients and the remaining 42 (30.9%) patient good functional outcome. Outcome was correlated with patient factors which is summarized in table 2. Table 2 showed that poor functional outcome was statistically related to older age (≥40 years), hypertension (HTN), smoking, and Hba1c ≥10% (table 2).

Table No.2:

Patient characteristics	Functional outcome		P value
	Poor (n=94)	Good (n=42)	
Age in years			
Less than 40	14 (14.9%)	28 (66.7%)	0.000
40 or more	81 (86.2%)	13 (30.9%)	
Gender			
Male	53 (56.4%)	28 (66.7%)	0.12
Female	42 (44.7%)	13 (30.9%)	
Risk factors			
Hypertension	68 (72.3%)	13 (30.9%)	0.000
Smoking	54 (57.4%)	14 (33.3%)	0.01
Obesity	40 (42.5%)	14 (33.3%)	0.24
Hba1c			
Less than 10%	26 (27.6%)	28 (66.7%)	0.000
10% or more	69 (73.4%)	13 (30.9%)	

DISCUSSION

According to epidemiological reports, in patients with T2DM, the relative risk of stroke is 1.5-3 times higher than non-diabetic healthy individuals. If stratified for gender, the risk is 2-3 times higher for diabetic males and 3.6.5 times for diabetic females [13-17]. In another large cohort from Kingdom, diabetic patients had twice the absolute rate of stroke as compared to non-diabetics. Women had 8 times the risk as compared to 4.6 times in men [18]. In our study, female to male ratio was 1:1.4 and the incidence of stroke was higher in older diabetic participants. In our study, more stroke patients were of older age group (≥40 years); however, literature has reported that the risk of stroke in T2DM patients decreased with age [18]. Another population based report concluded that the risk of stroke is highest in diabetic patients of age <65 years [19] which is in agreement to our results as the maximum age of our sample was 62 years.

Of all the diabetic patients, 60% were hypertensive, 50% were smokers, 40% were obese, and 60% had poor glycemic control in our study. Results from a Chinese stroke registry showed that among their diabetic patients of ischemic stroke, only 7% were obese, 35% were smokers, and 77% had HTN [2]. In our study, poor clinical outcome was seen in 70% patients. In a Chinese report, 57% of diabetic patients had poor outcome of stroke at follow-up as compared to 43% with good outcome (p-0.01) [20]. Increased age, smoking, HTN, and poor glycemic control were the predictors of poor outcome in our study. A systematic review has identified older age as a prognostic factor for poor outcome in stroke [21]. HTN has been reported to be significantly associated with diabetes in ischemic stroke patients ($p \leq 0.05$) but smoking has been more commonly seen in non-diabetic Chinese individuals [2].

The most important predictor of adverse stroke outcome was poor glycemic control – 70% patients with poor PSGC had poor outcome after stroke. Poor PSGC has been associated with both acute and long term mortality in ischemic stroke. In a comparative study with diabetics and non-diabetics, higher Hba1c was associated with increased of developing ischemic stroke [22]. In an epidemiological report from Sweden, hazard ratio (HR) for acute mortality was 1.45 and 1.29 for long-term mortality in stroke patients with uncontrolled diabetes mellitus. With HbA1c>6%, the odds ratio (OR) of acute stroke severity increased to 1.29 [23]. In Tanaka et al., ischemic stroke patients were followed for 30-days. Poor outcome (mRS: 2–6) was significantly associated with the diabetes group as compared to non-diabetic and pre-diabetic groups (OR =3.6; p <0.001) [24]. As many as 47% cases of ischemic stroke with poor glycemic control had functional dependency even after three months of stroke [3]. In a local study with non-diabetics, incidence of stress induced hyperglycemia increased the relative risk of mortality in ischemic stroke patients to 2.36 (p-0.004) [25]. To the best our knowledge, no local study investigated the impact of poor PSGC on functional outcome, although the international evidence is robust[1,2].

CONCLUSION

Diabetes mellitus is a metabolic syndrome with impacts on all major systems of the body. Its cardiovascular consequences can have great morbidity and mortality. Ischemic stroke is not uncommon in T2DM patients. Patients of T2DM do not have promising outcome of ischemic stroke. Poor outcome is associated with older age, active smoking, comorbid HTN, and poor glycemic control. Such patients become high-risk groups and are vulnerable to adverse complications.

Author's Contribution:

Concept & Design of Study:	Gulandam
Drafting:	Kaleemullah Kakar, Maria Abid
Data Analysis:	Maria Abid, Mohammed Atif Gulzar
Revisiting Critically:	Gulandam, Kaleemullah Kakar
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

HIV Infection among Tuberculous Patients in Tertiary Care Centers Khyber Pakhtunkhwa

Ziauddin[1], Naveed Iqbal[1], Muhammad Abbas[2], Shahab Uddin Zia[3], Shah Zeb[2] and Jamal Nasir[2]

ABSTRACT

Objective: To know the frequency of HIV infection among tuberculous patients, presenting to tertiary care hospitals in Khyber Pakhtunkhwa.

Study Design: Descriptive study

Place and Duration of Study: This study was conducted at Departments of Medicine in two tertiary level hospitals (Lady Reading Hospital Peshawar and Madan Medical complex Mardan in Khyber Pakhtunkhwa (KPK) from 1st October 2020 to 31st March 2021.

Materials and Methods: KPK is one of the four provinces of Pakistan situated on the northwest part of the country. KPK has an area of 101,741 Km^2 and comprises of thirty five districts. The estimated population was 35.53 million in the year 2017. These two hospitals provide clinical care, diagnostic and treatment services to TB and HIV infected individuals. Patients are referred from primary care physicians, private practitioners and TB centers.

Results: Study population comprised of 160 patients. Frequency of HIV was 8.1%. Most affected age group was 51 to 60 years. Of the 13 HIV – Positive cases in tuberculous patients, 10(76.9%) patients had pulmonary TB, whereas 03(23.0%) cases had extra pulmonary TB, including 02(66.6%) cases of tuberculouspleuritis and 01(33.3%) patient of TB lymphadenitis.

Conclusion: All newly diagnosed tuberculous patients should be assessed and screened for HIV co-infection.

Key Words: Tuberculosis, HIV Infection, Khyper Pakhtunkhawa

Citation of article: Ziauddin, Iqbal N, Zeb S, Zia S, Abbas M, Nasir J. HIV Infection among Tuberculous Patients in Tertiary Care Centers Khyber Pakhtunkhwa. Med Forum 2021;32(5):35-39.

INTRODUCTION

Tuberculosis (TB) is a diseases affecting mankind for very long time. Research studies performed on human skeleton predict that it has affected humans for thousands of years.[1]Its causative agent was unknown until 24 March 1882, when Dr. Robert Koch discovered the bacillus responsible it. Later on the bacillus was named Mycobacterium tuberculous. The disease spreads from one person to another when people who are sick with tuberculosis expel bacteria into the air by coughing or sneezing. Lungs are the primary organs affected by tuberculosis (pulmonary TB) but other organs can also be affected by it such as brain, bones, eyes etc., which is called extra pulmonary tuberculosis.[2]

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Received: April, 2021
Accepted: April, 2021
Printed: May, 2021

An estimated 10.0 million cases of tuberculosis were reported to World Health Organization (WHO) worldwide in 2019. Out of these cases of tuberculosis 8.2% were among people living with HIV.[3] Both HIV and tuberculosis are main public health problems throughout the world and have synergistic affect. The prevalence of tuberculosis in Pakistan is very high and it is ranked 5th (5.7%) among high burden countries in the world.[4] Co-infection with tuberculosis and HIV is an emerging challenge in poor and developing countries such as Pakistan. HIV and Acquired Immune Deficiency Syndrome prevalence among general population in Pakistan is less than 0.1% but it is increasing in our country in high risk population.[5] Estimated number of HIV positive cases were more than 130,000 in 2016. Coinfection with HIV among tuberculous patients showed an estimated prevalence of 0.42% in Pakistan.[6]

In our health care system patients with newly diagnosed active TB are not properly screened for HIV. Patients with active tuberculosis and a latent HIV infection leads to rapid deterioration of the immune system and hence causes increased mortality. The number of HIV cases has increased in Khyber Pakhtunkhwa province of Pakistan, with the number rising to as many as 4,600 patients, out of which 415 being reported in the past year. To be added 4.5% of all HIV cases reported in the country is from the our province .[7]

This study is aimed to highlight this hidden life-threatening infection in newly diagnosed tuberculous patients. There is scarcity of local data on the topic. This study may provide local statistics which may lead to further research. In the context of recent clusters of HIV cases in some parts of the country, the importance of this study is further emphasized.

MATERIALS AND METHODS

Study setting: This descriptive study was conducted at departments of Medicine in two tertiary level hospitals (Lady Reading Hospital Peshawar and Madan Medical complex Mardan in Khyber Pakhtunkhwa (KPK) from 1st October 2020 to 31st March 2021. KPK is one of the four provinces of Pakistan situated on the northwest part of the country. KPK has an area of 101,741 Km^2 and comprises of thirty five districts. The estimated population was 35.53 million in the year 2017 .[8]

These two hospitals provide clinical care, diagnostic and treatment services to TB and HIV infected individuals. Patients are referred from primary care physicians, private practitioners and TB centers.

Sampling methods and sample size: A total of 160 patients were observed to determine the frequency of HIV infection in patients diagnosed with TB. Consecutive non-probability sampling technique was used. Study duration was six months, from October 2020 to March 2021. Our study was approved by ethical committee of Bacha Khan Medical College/ Mardan Medical Complex, Mardan. All patients > 12 years of age of either gender who were diagnosed to have TB as per operational definition were included. Seriously ill, those who refused to consent to HIV screening and known HIV patients who developed TB were exclude

Data collection and Validation: Data was collected using a structured data collection form. For each participant included in the study; we determined the status of marriage, socioeconomics, travelling, drug use and co-morbidities such as diabetes mellitus (DM), history of surgery and sexual history. The study team included trained technical staff for Gene Xpert testing, sputum sample collection for Xpert testing, digital X-ray processing and laboratory techniques (RDT testing for HIV). A medical officer. Chest physician and medical specialist were available for clinical diagnosis and evaluations.

Operational definition: For the study purpose, we defined TB patients if any participant detected Mycobacterium Tuberculosis (MTB) by Xpert testing or clinically diagnosed by study physician after an abnormal finding on digital X-ray. HIV patients who confirmed on three serial testing RDTs.

Screening methods: Tuberculosis.

Digital Chest X-ray: All participants were screened through a digital X-ray machine connected with CAD4TB software in radiology departments of the two hospitals. The CAD4TB software gives a probability percentage of normal versus abnormal consistent with TB.[9]

Sputum analysis: As per National TB guideline presumptive TB cases identified by digital chest X-ray, were tested for tested for MTB assay by Gene X-pert machine. Samples of sputum were obtained through front-loading technique[10]. Samples were stored in specimen transporting boxes and transported to Xpert laboratory, located in Pulmonology units of both the hospitals. Sputum samples were processed on the same day.

Extra-pulmonary TB: Diagnosis of extrpulmonary TB was established by performing body fluid analysis, tissue biopsy or fine needle aspiration and cytology (FNAC) of lymph node.

HIV: Newly diagnosed tuberculous patients with informed consents were screened by third generation ELIZA method. All positive reported patients of HIV were confirmed by Western Blot technique.

Data analysis and statistics: Data was entered, validated and analyzed using statistical package for social Sciences (SPSS) Version 22. Categorical variables were summarized using frequency and percentages. Continuous variables were compared using a median test, while on the other hand categorical variables were compared using Chi-square test. The statistical significance level was defined as P value < 0.05.

RESULTS

Our study included 160 individuals who met eligibility criteria. The median age of study participants was 37 years with SD + 3.87. Among enrolled subjects, 90(56.2%) were males and 70(43.8%) were females. Majority of them were illiterate (70.6%). The socio-demographic characteristics are summarized in Table1.

Table No.1: Socioeconomic demographic characteristics of participants.

	Number(n)	**Percentage(%)**
Gender		
Male	90	56.2
Female	70	43.8
Total	**160**	**100**
Educational Status		
Literate	47	29.4
Illiterate	113	70.6
Total	**160**	**100**
Marital Status		
Married	115	71.9
Single	45	28.1
Total	**160**	**100**

Among 160 analyzed cases, 13(8.1%) of these were HIV positive, including 10(6.2%) males and 03 (1.9%) females. Of the 10 HIV–TB co-infected males,

08(80.0%) were laborers, and 02 (20.0%) were office workers. All 03 affected females were house wives. In terms of route of transmission, 07 patients were intravenous drug users, 05 had past history of surgery & blood transfusion and one had history of heterosexual relationships. The most commonly affected age group was 51—60 years (Table 2).

Table No.2: Stratification of Status of HIV * Age of the Participants (No 160)

		Age of the participants						Total
		14-20 Years	21-30 Years	31-40 Years	41-50 Years	51-60 Years	61-75 Years	
Status of HIV	Positive Count	0	0	1	0	10	2	13
	% within Status of HIV	.0%	.0%	7.7%	.0%	76.9%	15.4%	100.0%
	% within Age of the participants	.0%	.0%	2.4%	.0%	37.0%	16.7%	8.1%
	% of Total	.0%	.0%	.6%	.0%	6.2%	1.2%	8.1%
Status of HIV	Negative Count	18	39	41	22	17	10	147
	% within Status of HIV	12.2%	26.5%	27.9%	15.0%	11.6%	6.8%	100.0%
	% within Age of the participants	100.0%	100.0%	97.6%	100.0%	63.0%	83.3%	91.9%
	% of Total	11.2%	24.4%	25.6%	13.8%	10.6%	6.2%	91.9%
Total	Count	18	39	42	22	27	12	160
	% within Status of HIV	11.2%	24.4%	26.2%	13.8%	16.9%	7.5%	100.0%
	% within Age of the participants	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	11.2%	24.4%	26.2%	13.8%	16.9%	7.5%	100.0%

*HIV= Human Immunodeficiency Virus

Of the 13 HIV – Positive cases, 10(76.9%) had pulmonary TB, whereas 03(23.0%) cases had extra pulmonary TB, including 02(66.6%) cases of tuberculouspleuritis and 01(33.3%) patient of TB lymphadenitis (Table 3).

Table No.3: Type of Tuberculosis in HIV Positive Patients

		Type of Tuberculosis		Total
		Pulmonary	Extra-Pulmonary	
Status of HIV	Positive Count	13	0	13
	% within Status of HIV	100%	0%	100%
	% within Type of Tuberculosis	14.9%	0%	14.9%
	% Total	8.1%	0%	8.1%
Status of HIV	Negative Count	74	73	147
	% within Status of HIV	50.3%	49.7%	100%
	% within Type of Tuberculosis	85.1%	100%	91.9%
	% Total	46.2%	45.6%	91.9%
Total	Count	87	73	160
	% within Status of HIV	54.4%	45.6%	100%
	% within Type of Tuberculosis	100%	100%	100%
	% Total	54.4%	45.6%	100%

*HIV= Human Immunodeficiency Virus

DISCUSSION

It is very important to know the HIV status in newly diagnosed tuberculous patients as the HIV epidemic continues to inflame the worldwide TB epidemic. The HIV prevalence in TB patients is a delicate marker of the spread of HIV in to the general population. Although TB cases are increasingly being detected in many districts of KP, the majority of HIV cases are not and newly diagnosed tuberculous patents are not screened for HIV. The present study describes the frequency of HIV-TB co-infection in patients among a dense population of Peshawar and Mardan, along with a comparative analysis of different earlier studies.

The overall frequency rate of HIV in newly diagnosed tuberculous patients was 8.1% in current study, which more or less reflects the prevalence in most of districts of KP. A figure (8.2%) of HIV-TB co infection was observed in a similar study in Vietnam in 2010.[11] In United Kingdom surveys revealed increase in HIV prevalence among TB patients from 5% in 2000 to 8% in 2005 .[12] The prevalence of co-infection in Sub-Saharan Africa in one study of about 41.2% [13]. Studies conducted in different regions of the world except few countries in Africa, have reported that HIV-TB co-infection is much higher among males than females[13]. Same pattern was observed in our study. Almost all males and females belonged to low socioeconomic background. It is imperative to note that the most affected age group in our study was patients aged 51-60 years.

As far as mode of transmission is concerned we found that, 07(53.8%) patients were intravenous drug abusers, 05 (38.4%) had past history of blood transfusion and surgeries, while 01(7.6%) patient declared history of heterosexual and extramarital relationship. In sub-continent, the most common route of HIV infection is through heterosexual transmission and sharing needles, followed by blood transfusion[14, 15]. In the United States of America the most common HIV transmission route is intravenous drug use.[16]

In the present study HIV was diagnosed in a significant number (8.1%) of newly diagnosed pulmonary and extra-pulmonary TB patients. This is most likely due deterioration of immune system associated with HIV infection. Similar pattern has been observed by Jain SK et al, Ahmad Z et al and Susheel B et al in their research work.[14, 1718,]

In our studied patients, we observed tuberculous-pleuritis (66.6%) as the common form of Extra Pulmonary tuberculosis, followed by lymphadenopathy (33.3%). However other researchers have reported the lymphatic system to be more common than pleural involment.[15,19,]

Our research work was conducted in two large hospital Medical and Teaching Instituting Lady Reading Hospital Peshawar and Mardan Medical Complex of district Mardan with a catchment area that includes Peshawar, Mardan, Kohat, Nowshera and Swabi districts. Hence, the study population may not exactly reflect the general population of Khyber Pakhtunkhwa which is limitation of this study.

CONCLUSION

It is concluded from our study that all newly diagnosed tuberculous patients should be assessed for risk factors for HIV and screening should be offered to them to detect the underlying HIV co infection in them. On the contrary, all HIV positive cases should be screened for TB.

Author's Contribution:

Concept & Design of Study:	Ziauddin
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Data Analysis:	Shahab Uddin Zia, Shah Zeb, Muhammad Abbas
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Final Approval of version:	Ziauddin

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

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Original Article

Effectiveness of Oral Zinc Sulphate in Reducing the Serum Bilirubin Level in Neonates Having Unconjugated Hyperbilirubinemia

Muhammad Sarfraz Alam, Ubaid Ullah Khan, Mimpal Singh and Hamid Raza

ABSTRACT

Objective: To determine the effectiveness of oral zinc sulphate in reducing the serum bilirubin level in neonates having unconjugated hyperbilirubinemia.

Study Design: Randomized Control Trial study.

Place and Duration of Study: This study was conducted at the in Neonatal Unit Paediatric Medicine Unit II Mayo hospital Lahore in one year from January 2019 to December 2019.

Materials and Methods: Total 100 neonates (50 patients in each group) were enrolled by non-probability, consecutive sampling. Study population was divided in to two groups. Baseline serum bilirubin level was measured of each neonate included in study. Group A was given oral zinc 10 mg / day in once daily dose orally in suspension form. Total serum bilirubin was measured after every 24 hours in both groups. Percentage reduction in total serum bilirubin level was measured on 3rd and 5th day with baseline serum bilirubin of each neonate and results were compared among both groups. The neonates having total serum bilirubin in phototherapy zone in both groups were given phototherapy. Duration of phototherapy was compared between groups. Data was entered SPSS-20. Comparison of two groups, placebo group and zinc sulphate apply independent sample t-test. P-value ≤ 0.05 was taken as significant.

Results: After 24 hours phototherapy, the mean indirect bilirubin of group A patients were 13.50±3.68 mg/dl whereas the mean indirect bilirubin of group B patients was 12.35±3.77 mg/dl. After 48 hours the mean indirect bilirubin of group A patients were 10.99±3.19 mg/dl whereas the indirect bilirubin of group B patients was 10.35±2.94 mg/dl. After 72 hours the mean indirect bilirubin of group A patients were 9.30±2.99 mg/dl whereas the mean indirect bilirubin of group B patients was 9.35±3.33 mg/dl. Similarly, after 96 hours the mean indirect bilirubin of group A patients were 9.33±2.58 mg/dl whereas the mean indirect bilirubin of group B patients was 9.60±0.75 mg/dl. Regarding indirect bilirubin at follow up, there was statistically insignificant difference between the study groups i.e. p-value>0.05. The median duration of treatment in group A was 3.00 days (range=2-4) while in group B was 2.50 days (range=2-4). The difference was insignificant (p>0.05).

Conclusion: Oral zinc sulphate has no effect in reducing the total serum bilirubin level in full term and near term neonates having unconjugated hyperbilirubinemia.

Key Words: Unconjugated Hyperbilirubinemia, Neonates, Serum Bilirubin, Zinc Sulphate

Citation of article: Alam MS, Khan U, Singh M, Raza H. Effectiveness of Oral Zinc Sulphate in Reducing the Serum Bilirubin Level in Neonates Having Unconjugated Hyperbilirubinemia. Med Forum 2021;32(5):40-43.

INTRODUCTION

Unconjugated hyperbilirubinemia can result from increased production, impaired conjugation, or impaired hepatic uptake of bilirubin, a yellow bile pigment produced from hemoglobin during erythrocyte destruction.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Nearly sixty percent of full term or near term newborn develop jaundice in 1st week of life.[1] The main purpose of treating jaundice in neonates is to prevent encephalopathy caused by bilirubin and its sequela. Neonatal jaundice has mainly been treated by phototherapy and exchange transfusion but both treatments have many complications. But the later poses more threats which may include graft versus host disease and even death. [2]

Many researchers have done different studies to establish a relationship between micronutrients and their role in reducing neonatal jaundice by decreasing the absorption of zinc through enterohepatic circulation, which showed different results[5]. Zinc is an essential micronutrient for growth of neonate. Different studies both on humans and animals have shown the role of zinc in reducing total serum bilirubin and duration of phototherapy in neonatal jaundice.[3] Zinc lowers the

bilirubin levels by inhibiting the normal enterohepatic circulation of unconjugated bilirubin by binding with it.[4] Mendez et al. proved the role of zinc in decreasing the serum bilirubin in hamsters with Gilbert syndrome.[4] Hashemian S et al. had reported that administration of oral zinc sulfate decreases the duration of phototherapy and total serum bilirubin in neonates having neonatal jaundice.[5] Mafinejat et al. from lran reported that administration of zinc sulfate neither affected hyperbilirubinemia nor delayed appearance of jaundice. However, fewer admissions and phototherapy duration was reported in the zinc group.[6] Ashok et al. studied the role of oral zinc in idiopathic neonatal jaundice and concluded that oral zinc is not effective in management of idiopathic neonatal jaundice[7]

The objective of this study was to determine the effectiveness of oral zinc sulphate in reducing the serum bilirubin level in neonates having unconjugated hyperbilirubinemia. We hypothesized that oral zinc sulphate has no role in reducing the total serum bilirubin level in full term and near term neonates having unconjugated hyperbilirubinemia.

MATERIALS AND METHODS

This randomized control trial was conducted in Neonatal unit Paediatric Medicine Unit II Mayo hospital Lahore in one year. Total 100 neonates (50 patients in each group) were enrolled [estimated by using 5 % level of significance and the power of test as 90% along with expected mean value of bilirubin 10.3+-2.09 with zinc sulphate and 11.9+- 1.74 with placebo group] by non-probability, consecutive sampling. Neonates with age 24 hours-28 days of both sexes, weight more than 2500 g, full term or late pre-term neonates with unconjugated hyperbilirubinemia within phototherapy zone, physiological jaundice without identifiable cause in phototherapy zone were included. Rh and ABO incompatibility, hypoxic ischemic encephalopathy grade III, and sepsis were excluded.

Based on inclusion criteria sample was taken from admitted patients of Neonatology unit of Paediatric Medicine Unit 2 of Mayo hospital Lahore. First of all, informed written consent was taken from the parents of the patients. Study population was divided in to two groups i.e group A and group B by computer generated random table number. Baseline serum bilirubin level was measured of each neonate included in study. Group A was given oral zinc 10 mg / day in once daily dose orally in suspension form. Total serum bilirubin was measured after every 24 hours in both groups. Unconjugated hyperbilirubinemia was defined as unconjugated serum bilirubin level more than 80% of total serum bilirubin. Percentage reduction in total serum bilirubin level was measured on 3rd and 5th day with baseline serum bilirubin of each neonate and results were compared among both groups. The neonates having total serum bilirubin in phototherapy zone in both groups were given phototherapy of a standard wavelength 460-490 nm and at a distance of 40 cm. Duration of phototherapy required for the baby to out of phototherapy zone was measured and comparison was made with placebo group.

Data was entered SPSS-20. Quantitative variables like age was presented as mean ± SD. Qualitative variables like gender was presented as frequency and percentages. Comparison of two groups, placebo group and zinc sulphate apply independent sample t-test. P-value ≤ 0.05 was taken as significant.

RESULTS

In this present study, total 100 neonates were enrolled. The mean age of the neonates was 6.85±4.32 days. Mean age of the neonates in group A was 6.64±4.402 days whereas the mean age of neonates of group B was 7.06±4.28 days. Mean value of gestational age of the neonates was 36.93±0.902. Mean value of gestational age of neonates in group A patients was 36.92±0.922 weeks whereas the mean value of gestational age of the mothers in group B patients was 36.94±0.890 weeks. Mean weight at admission of neonates was 3.284±2.53 kg with minimum and maximum weights of 2.5 & 4.0 kg respectively. Mean weight at admission of group A patients was 3.578±3.55 kg whereas the mean weight at admission in group B patients was 2.99±0.43 kg.

Test of normality was applied and normality of indirect bilirubin level was tested. P-value of Shapiro-Wilk test was insignificant showing that data is following normal distribution. So mean±SD was calculated for indirect bilirubin level and independent samples t-test was applied to check significant difference between groups. According to this study after 24 hours phototherapy, the mean indirect bilirubin of group A patients was 13.50±3.68 mg/dl whereas the mean indirect bilirubin of group B patients was 12.35±3.77 mg/dl. After 48 hours the mean indirect bilirubin of group A patients were 10.99±3.19 mg/dl whereas the indirect bilirubin of group B patients was 10.35±2.94 mg/dl. After 72 hours the mean indirect bilirubin of group A patients were 9.30±2.99 mg/dl whereas the mean indirect bilirubin of group B patients was 9.35±3.33 mg/dl. Similarly, after 96 hours the mean indirect bilirubin of group A patients were 9.33±2.58 mg/dl whereas the mean indirect bilirubin of group B patients was 9.60±0.75 mg/dl. Regarding indirect bilirubin at follow-up there was statistically insignificant difference between the study groups i.e. p-value>0.05. (Table 2)

Test of normality was applied and normality of duration of treatment was tested. P-value of Shapiro-Wilk test was significant showing that data is not following normal distribution. So median and range were calculated for duration of treatment and Mann-Whitney U test was applied to check significant difference between groups. The median duration of treatment in

group A was 3.00 days (range=2-4) while in group B was 2.50 days (range=2-4). The difference was insignificant (p>0.05). (Table 3).

Table No.1: Comparison of age, gestational age, weight on admission in both groups

		Study Groups		P-Value
		A	B	
Age on Admission (Days)	n	05	05	0.630
	Mean	6.64	7.06	
	SD	4.402	4.28	
Gestational age (Weeks)	n	05	05	0.912
	Mean	36.92	36.94	
	SD	0.922	0.890	
Weight on Admission (KG)	N	05	05	0.247
	Mean	3.578	2.99	
	SD	3.55	0.43	

Table No.2: Comparison of indirect bilirubin (mg/dl) at different time intervals in both groups

	Time (Hours) after phototherapy started	Study Groups		P-Value
		A	B	
Indirect bilirubi (mg/dl)	24	13.50± 3.68	12.35± 3.77	0.129
	48	10.99 ± 3.99	10.35± 2.94	0.302
	72	9.30± 2.99	9.35± 3.33	0.957
	96	9.33± 2.58	9.60± 0.75	0.872

(Note: Time in this table is duration of phototherapy, not the age of neonate)

Table No.3: Comparison of duration of treatment (days) in both groups

Duration	Study Groups	
	A	B
Median	3.00	2.50
Minimum	2	2
Maximum	4	4
Range	2	2

Mann-Whitney U test value = 1203.000
P-value = 0.716 (Insignificant)

DISCUSSION

Hyperbilirubinemia is a common disease and unconjugated hyperbilirubinemia has been seen mainly in neonates. In recent years, substantial researches have been carried out to predict neonates who are most likely to develop hyperbilirubinemia. Reliable predictions can reduce hospital stay for low-risk neonates resulting in their early discharge and identifying high-risk neonates facilitating their closer follow-up. Zinc is one of the essential elements in neonatal growth, protein synthesis and regulation of inhibitory and stimulatory synapses of the brain. Zinc lower the bilirubin levels by inhibition of the normal enterohepatic cycling of unconjugated bilirubin (UCB).[3,8]

This study results showed no significant effect of reducing the serum bilirubin level in neonates by administration of oral zinc sulphate. In our study total serum bilirubin, direct bilirubin, indirect bilirubin all showed statistically insignificant difference between groups after 24, 48, 72 and 96 hours phototherapy follow up. Some of the studies are discussed below showing the results in favor of our study and few showed contrary results. One recent study by Mousa Ahmadpour-kacho et al [9] demonstrated in their study results that there is no significant effect of administration of oral zinc sulphate for decreasing serum bilirubin level. According to their study after intervention the mean difference of decrease of serum bilirubin level in both groups was 8.8 & 8.3. This difference was statistically insignificant i.e. p-value>0.05. The study by Rana et al. in New Delhi, India showed that early administration of zinc sulfate had not decreased the incidence of neonatal jaundice; however, it decreased the length of stay for phototherapy.[3]

The study by Nabavi Zadeh et al. in full-term neonates on the age 2-7 days with non-complicated hyperbilirubinemia, who were hospitalized in Imam Sajjad Hospital of Yasuj, Iran, showed that although oral zinc salts can reduce bilirubin levels through the inhibition of intestinal-hepatic circulation of bilirubin, but they are not effective in treating neonatal physiologic jaundice.[10]

Another study by by Mamouri et al in Mashhad, Iran (2013) on 151 neonates (35 weeks and over), administration of 10 mg oral zinc sulfate was shown that zinc administration had no significant difference with placebo in serum bilirubin level reduction. However, the need for phototherapy was less for neonates in the experiment group.[6] Patton et al. studied the effect of oral zinc on 60 neonates with hyperbilirubinemia. The neonates were divided into the study group receiving 5mg oral zinc twice daily for five days and the control group. They reported that bilirubin level measurement on day 5 of treatment have showed no significant difference in the duration of hyperbilirubinemia between the two groups.[11]

The recent meta-analysis by Mishra et al. (2015)[12] on 18 published studies, only the study, which was done by Rana et al got the criteria to enter to the meta-analysis. He showed that there was insufficient evidence on the effectiveness of zinc in reducing the serum bilirubin level.[12] On the other hand in a study by Vitek et al. in 2005,[13] the oral administration of zinc salts efficiently decreased serum bilirubin levels in hyperbilirubinemic rats, most probably due to the inhibition of enterohepatic circulation of bilirubin. They suggested that this approach might be useful in the treatment of severe unconjugated hyperbilirubinemia.[13] Mendez-Sanchez et al. proved the role of zinc in decreasing the serum bilirubin in patients with Gilbert syndrome.[4] Hashemian S et al. Conducted a study showing that administration of oral zinc sulfate

decreases the duration of phototherapy and total serum bilirubin in neonates having neonatal jaundice.[5]
Further studies are recommended to be conducted in future with a larger sample size, formulation of zinc and with more precise laboratory studies to confirm the findings of our study.

CONCLUSION

This study results concluded that the Oral zinc sulphate has no role in reducing the total serum bilirubin level in full term and near term neonates having unconjugated hyperbilirubinemia.

Author's Contribution:

Concept & Design of Study:	Muhammad Sarfraz Alam
Drafting:	Ubaid Ullah Khan, Mimpal Singh
Data Analysis:	Mimpal Singh, Hamid Raza
Revisiting Critically:	Muhammad Sarfraz Alam, Ubaid Ullah Khan
Final Approval of version:	Muhammad Sarfraz Alam

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

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Original Article

Prevalence of Hepatitis B and Hepatitis C Among Patients of Thalassemia Major at a Teaching Hospital in Larkana

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ABSTRACT

Objective: To assess the frequency of Hepatitis B and Hepatitis C among patients of Thalassemia Major at a teaching hospital in Larkana.

Study Design: Descriptive cross-sectional study

Place and Duration of Study: This study was conducted at the conducted at Paediatric department, Shaheed Benazir Bhutto University Hospital, Larkana from June, 2017 to June, 2018.

Materials and Methods: In the study total of 237 children with beta Thalassemia were selected by apply Non-probability consecutive technique sampling.

Results: Prevalence of hepatitis B and C, was observed in 31(%) and 73(%) among thalassemia patients. More viral infections Hepatitis B and C seemed in the male in male than female and low socioeconomic population. Data were analyzed by using SPSS 19 version.

Conclusion: Hepatitis B and C are quite more prevalent among Thalassaemic patients. It is significant, an alarming circumstance having a lot of aspects behind it, but it needs to be taken immediately. So a great need for proper screening of blood before transfusion to such patients and educational programs for these patients and their parents.

Key Words: Thalassemia; Spleenectomy; Hepatitis B; Hepatitis C; Child

Citation of article: Puno SN, Gemnani VK, Parkash O, Naz L, Kumar R, Abro K. Prevalence of Hepatitis B and Hepatitis C Among Patients of Thalassemia Major at a Teaching Hospital in Larkana. Med Forum 2021;32(5):44-48.

INTRODUCTION

Thalassemia major (an inherited autosomal recessive disorder) is the most common hematological disorder characterized by a genetic insufficiency in the formation of beta-globin chains.[1] Thalassaemia major is diagnosed early in childhood when the affected child develops symptoms like pale skin, irritability, growth retardation, swelling of the abdomen due to enlargement of the liver and spleen (hepatosplenomegaly) with jaundice, even as in the homozygous state result severe transfusion-dependent anemia. [2]

Globally, the increased incidence rate has seemed in South East Asia, the Indian subcontinent, and Burma.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

In Pakistan, the most prevalent inherited disorders and an estimate, over 4,000 cases of thalassemia are born per year in the country.[3,4] As this is transfusion-dependent, these patients require regular blood transfusion within the first two years of life to prevent severe anemia and its physical consequences by maintaining hemoglobin level above 10 gm/ dl. Overall regular blood transfusions and chelation therapy improve the survival of thalassemia major patients but it has potential threats of acquiring lethal infections like absorptive iron overload and transfusion-transmitted infections (TTIs) such as hepatitis B & C virus (HBV & HCV) infection as well.[5] According to data from World Health Organization, about 170 million people are infected by HCV while approximately 240 million people are chronically infected with HBV in the world.[6]

Globally, hepatitis prevalence rates in thalassemic patients range from 0.3% to 5.7% for hepatitis B surface antigen (HBsAg) positivity,[7] and that around 55%-85% would progress to chronic liver disease, 15%-30% would progress to cirrhosis and 1%-5% are expected to die due to decompensated cirrhosis and HCC.[8]

A Swat study reported that 21.76% of patients with thalassemia were found to have hepatitis C virus (HCV) antibody positive. While another study documented that out of 180 beta-thalassemia major patients were

enrolled at the two sites. Out of these 75 (41.7%), children were hepatitis C positive. [9]

Our nation is also severely hit by this infection and its burden is still increasing because of lack of awareness regarding blood transfusion safety measures, use of unsterilized syringes, barber shaving, tattooing, injury with contaminated sharp instruments, and sexual abuse. In this scenario, patients with thalassemia major are at greater risk of hepatitis C due to blood transfusion from donors infected by HCV and HBV whereas HCV is among the leading causes of severe liver anomalies, including hepatic carcinoma and cirrhosis-related end-stage liver disease. In Pakistan, both Hepatitis B and C are too severe public health problem .[10]

It is suspected that HCV is responsible for the majority of cases of non-A, non-B hepatitis post-infection in a patient with thalassemia major. According to one study, the average weight of hepatitis B antigen in the pediatric population was 2.4% (range 1.7–5.5%) and 2.1% (range 0.4–5.4%) for hepatitis C antibodies. But regarding 13-TM patients the condition is severe.[11]

MATERIALS AND METHODS

Study Design: Cross–sectional descriptive study.

Study Setting: Paediatric Department, Shaheed Benazir Bhutto Medical University Teaching Hospital, Larkana.

Study Duration: During the period of 01-06-2017 to 15-06-2018.

Sample Size: The sample size was calculated by using the WHO Sample size calculator taking the prevalence of HCV 5.88%[12] with a confidence level of 95% and margin of error of 0.05 then the estimated sample size was n= 237

Sampling Technique: Non-probability consecutive sampling.

Sample Selection:

Inclusion Criteria:

· Patient of age between 2 months up to 12 years
· Patients of both genders
· Confirmed diagnosis of Beta Thalassemia Major as per operational definitions
· The willingness of parents by providing written informed consent.

Exclusion Criteria:

· Age <2 years and >12 years
· Previously diagnosed case of HBV/ HCV
· The child already vaccinated for HBV
· The child already taking interferon therapy of HCV
· HIV infected/ AIDS & Fungal infections
· Taking corticosteroids for at least six weeks

Data Collection Procedure: Patients diagnosed as cases of Beta thalassemia major (meeting the inclusion criteria) will be enrolled in the study from the pediatrics department after informed consent has been given by the parents of the patient. They will be explained the purpose and procedure of the study. Data will be collected on a pre-defined questionnaire containing demographic variables like name, age, gender, residence, and socio-economic status of parents. Other variables include the duration of illness, weight, height, BMI (weight in Kilograms divided by height in meters square) & the number of transfusions required per month.

A blood sample of 5 ml will be taken under strict sterile technique for Hepatitis B virus surface antigen & Hepatitis C virus antibody (both through ELISA). Positive samples will be confirmed using the DNA PCR technique. The data on the outcome variable (frequency of Hepatitis B and Hepatitis C positivity) will be collected on proforma.

Statistical Analysis: SPSS version 19 was used for data entry and analysis. Continuous variables like age, duration of illness, weight (Kgs), height (meters), BMI, etc was analyzed as mean ± Standard deviation. Frequencies & percentages were expressed for gender, residence, the frequency of Hepatitis B and C positivity (outcome variable), etc. Stratification was done further to control effect modifiers like age, gender, socioeconomic status of parent, etc. Chi-square was applied. P-value < 0.05 was taken as significant.

RESULTS

A total of patients were included in the study. The mean age of the patients was found to be 6.13 ± 2.75 years and range 2 to 12 years. Patients were further categorized according to age groups into 2 groups i.e. 2-6 years showed more frequency 155(65.5%) and 7-12 group showed 82(34.5%). Table 1. The gender-wise male participation is more than 140(59%), while female participation showed 97(41%). Also, most of the patients had lower socioeconomic status, details are summarized in table 1.

Table No.1: Frequencies Distribution Among Patients Among Thalassemia

Frequencies Distribution Among Patients Among Thalassemia			
Age of patients	2-6 years	155	65.4
	7-12 years	82	34.5
Gender of patients	Male	140	59
	Female	97	41
Socio-economic Status	Lower	109	45.9
	Middle	89	37.5
	Hyearigher	39	16.4
Duration of Symptoms	≤1 Year	85	35.8
	≥1Year	152	64.1
BMI	≤ 25Kg/m^2	77	32.4
	≥25Kg/m^2	160	67.5
No. of Transfusions	≤2Transfusion	105	44.3
	≥2 transfusion	132	55.6

The mean duration of symptoms was found as 2.48 ± 1.76 years and regarding stratification < 1 year showed

85(35.8%) and > 1 year showed 152(64.1%) is given in table 01.The BMI was calculated as 27.3 ± 4.07 kg/m2 after stratification ≤25 kg/m2 showed 77(32.4%) and >25 kg/m2 seemed more frequencies 160(67.5%). The mean number of transfusions needed/ month was 1.24 ± 0.79 in this variable 105(44.3%) patients were observed 2 or less transfusion while 132(55.6%) were needed more than 2 transfusions. Table 1.

In this study, frequencies of Hepatitis B 31(13.8%) and Hepatitis C 73(30.8%) were observed among Thalassemia major patients. Stratification of outcome variables (hepatitis B and hepatitis C) was done for age, gender, socio-economic status, duration of symptoms, BMI, and no. of transfusion/month. All details are summarized in tables 2 and table 3.

Table No.2: Stratification of Hepatitis B with Different Variables

Stratification of Hepatitis B with different variabl				
Variable		Hepatitis b		P-value
		Yes	No	
Age of patients	2-6 years	22	133	0.484
	7-12 years	9	73	
Gender of patients	Male	25	115	0.008
	Female	6	91	
Socio-economic Status	Lower	18	91	0.351
	Middle	9	80	
	Higher	4	35	
Duration of Symptoms	≤1 Year	19	66	0.001
	≥1Year	12	140	
BMI	≤ 25Kg/m^2	18	59	0.001
	≥25Kg/m^2	13	147	
No. of Transfusions	≤2Transfusion	4	101	0.000
	≥2 transfusion	27	105	

Table No.3: Stratification of Hepatitis C with Different Variables

Stratification of Hepatitis C with different variables.				
Variable		**Hepatitis c**		**P-value**
		Yes	No	
Age of patients	2-6 years	46(29.68%)	109(70.32%)	0.606
	7-12 years	27(32.93%)	55(67.07%)	
Gender of patients	Male	51(36.43%)	89(63.57%)	0.024
	Female	22(22.68%)	75(77.32%)	
Socio-economic Status	Lower	39	70	0.245
	Middle	22	67	
	Higher	12	27	
Duration of Symptoms	≤1 Year	29	56	0.408
	≥1Year	44	108	
BMI	≤ 25Kg/m^2	21	56	0.414
	≥25Kg/m^2	52	108	
No. of Transfusions	≤2Transfusion	17	88	0.000
	≥2transfusion	56	76	

DISCUSSION

Globally beta-thalassemia is the most common genetic disorder that affects thousands of children. Worldwide, around 50,000-60,000 new cases of beta-thalassemia being born each year, while 80-90 million around the population are the carrier of beta-thalassemia.[13,17]

High prevalent of beta-thalassemia in the population of Asia, the Mediterranean countries, middle east, Africa, though in Pakistan high frequency of carrier around 5 to 7% of beta-thalassemia.

A total of 273 recorded patients from thalassemia, were screened for HBV and HCV infection. Regarding hepatitis B, it was found in 31 of 237 patients (13.08%) in this study, and hepatitis C was found in 73 of 237 patients (30.8%) respectively. All patients who were positive for hepatitis B were not vaccinated against the hepatitis B virus.

In the current study, a high prevalence rate of hepatitis B infection (13.08%) among thalassemia patients has seemed as compared to previous studies, was carried out to the same region 3.13% (0.66% to 7.4%).[14] A low prevalence of hepatitis B infections was observed as compared to HCV infection might be due to the availability of HB vaccine in the national EPI program, while still there is no vaccine available for hepatic C virus globally.

In our study, 31% of patients were positive for HCV. Globally, wide variation was observed in the prevalence of HCV in multi-transfused thalassemia patients in different regions, as seemed from the review of the literature. In Malaysian and Iranian patients, ranges from 5% to 63%.[15,16] While in a systematic review of Pakistani studies (2011-2019), observed HCV 26%(5.56% to 68.2%) among Beta-thalassemia major patients. The result is almost equal to our findings.[17]

Also, a study conducted in Pakistan by Ali (2016) reported that 32.6% of patients were positive for hepatitis C virus among thalassemia patients,[18] while another study recorded 27% of patients were positive for hepatitis C the results are almost comparable to our findings.[19] One Indian study showed that serotype antibodies against hepatitis C virus were 51 (24.6%) thalassemia patients.[20] In research meta-analysis, 27 studies were examined, the cumulative prevalence of HCV in thalassemia patients was 31.81% (95% CI: 20.27-44.59%) in Sindh, Pakistan.[21] In the current study, the number of men affected (27.95%)) was higher than that of women (17.51%), although the difference was not statistically significant (P>0,05). Our findings are consistent with previous report.[22,23]

Sociodemographic variables among thalassemic patients about the residence, language, economic status, and blood group seemed a random distribution of Hepatitis C virus with no statistical significance. This has seemed that the first study that highlights the sociodemographic aspects among thalassemic patients. However, efforts are required at the national or regional level to provide an accurate estimate.

Family history was summarized to explain the distribution of thalassemia and hepatitis concerning sporadic and familial representation and other family

attributes. The proportion of familial to sporadic thalassemia was 1: 1.7.[24] The average number of normal siblings was observed to be higher for family cases compared to sporadic ones. This may be because families with their first affected child are reluctant to have newborns. As noted, the prevalence of hepatitis was significantly higher in sporadic cases (55%) compared to family cases (18%).[25,26] This study also had some limitations. It was a unique study, so I recommend a multi-center study on the subject.

CONCLUSION

Hepatitis B and C are quite prevalent among patients with Thalassemia. It is quite an alarming situation having a lot of factors behind it, but it needs to be taken immediately. So I recommend proper screening of blood before transfusion to such patients and educational programs for these patients and their parents.

Author's Contribution:

Concept & Design of Study:	Saeed Nazir Puno
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Online Physiology Teaching and Assessment in Undergraduate Medical Students during COVID-19 Pandemic

Sadaf Fatima[1], Fadieleh Sohail[2], Sulail Fatima[1], Sara Rafique[1], Mohammad Sultan[1] and Abdul Aziz[1]

ABSTRACT

Objective: To study the perceptions of medical students on online Physiology teaching-learning during COVID-19 pandemic and to evaluate the preference of medical students on online teaching, traditional teaching or both.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Jinnah Medical and Dental College, January to March 2021.

Materials and Methods: The study participants included 62 MBBS 2nd year students. A questionnaire was distributed to each student. The questionnaire included 22 items regarding online teaching and online assessment. The medical students were asked to select a response for each item on the questionnaire including the preferred teaching method from online, traditional or both. The online recorded lectures were uploaded on student portal of JMDC website during COVID 19 pandemic period. The data was presented in terms of percentage for individual item, for preference in theory, practical, tutorial, assessment and the overall preferred teaching method.

Results: The medical students were of the opinion that presence of teacher (74.2%), presence of colleagues (67.7%), asking the queries to teacher (71%) giving feedback to teacher (71%) were more important aspects for traditional teaching. Regarding the online recorded lectures getting enough time to understand the lecture (53.2%) and studying at own pace (54.8%) were found to be more important. In the preference of teaching method for theory (53.2%), practical (77.4%) tutorial (48.4%) and assessment (54.8%) the majority of students selected traditional method. The overall percentage of traditional method (56.5%) was higher as compared to online (27.4%) and both (16.1%).

Conclusion: The majority of 2nd year medical students had a preference for traditional teaching methods in Physiology.

Key Words: COVID 19, Physiology, Traditional Teaching, Online teaching

Citation of article: Fatima S, Sohail F, Fatima S, Rafique S, Sultan M, Aziz A. Online Physiology Teaching and Assessment in Undergraduate Medical Students During COVID-19 Pandemic. Med Forum 2021;32(5):49-52.

INTRODUCTION

COVID 19 has been declared as a pandemic by World Health Organization in March 2020[1]. The spread of the disease is through close contact with the affected persons[2]. The lockdown restrictions were implemented worldwide to control the severity and rapid spread of disease[3]. Due to COVID 19 pandemic, the teaching activities were disrupted in all educational institutions including the medical schools[4].

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Received: April, 2021
Accepted: April, 2021
Printed: May, 2021

In medical education, traditional teaching methods are essentially employed in which teachers impart knowledge and interact with students[5]. As the lockdown restrictions were imposed for indefinite time period, it became a necessary requirement to switch teaching from traditional to e-learning methods[6]. For the e-learning, computers and other media devices are needed with the help of internet. The information is transmitted through a browser or media applications (You tube, Google meet, zoom etc.) [5].

Physiology is a segment of core curriculum for all students studying medicine[7]. It needs to be taught effectively to be placed in the context of disease when the students practice in the community[8]. Physiology is a complex and continuously evolving subject[9], teaching it requires expertise to make students understand the mechanisms and functions of human body. Due to COVID 19 pandemic, Physiology was also taught online as all other subjects.

The transition of medical teaching from traditional to online gave rise to many challenges[3]. The faculty

members were not ready for this rapid change in mode of teaching from traditional to online delivery of educational content[10]. The medical teachers were instructed to take online recorded lectures[11]. It was a big challenge to prepare the medical students for acceptability of online recorded lectures[12]. Moreover, there were issues related to internet connectivity and low bandwidth to stream video lectures or download large size video lecture files[10]. Students living in rural areas often complained of issues with live streaming of lectures and attending video conferences for lectures[10]. Both the students and faculties confronted many challenges while engaging in online medical education during the COVID-19 pandemic.

Several studies have been published on online teaching in medical education including effectiveness of online teaching, advantages and disadvantages of online teaching, challenges and barriers of online teaching, students' perception on online teaching in general. In this study we collected data of perception of students regarding online Physiology teaching & assessment and also about the preferred teaching method.

MATERIALS AND METHODS

The study design was cross sectional. This study was conducted at Jinnah Medical and Dental College. The study participants were 96 undergraduate MBBS 2nd year students. The duration of study was 3 months, from 1st January 2021 to 1st March 2021. The study was approved by Ethics review board of Jinnah Medical and Dental College. After getting the ethics approval, the participants were enrolled in the research study. Informed consent was obtained from each participant. Participants were explained the purpose of study. A questionnaire was distributed to each student who gave consent to participate in the study. The questionnaires were collected and the data was analyzed.

In order to study the perceptions of students regarding online Physiology teaching and assessment in COVID 19 pandemic, questionnaire was distributed to 2nd year medical students. The questionnaire included 22 items from online teaching and assessment. The questionnaire used in our study, was developed by Vala[5] et al. in which evaluation of e-learning classes in medical students during COVID 19 pandemic was studied. The questionnaire was modified. Some questions were added and some were removed. The students were asked to select a response for each item on the questionnaire. The medical students provided their perceptions on online teaching and online assessment. They also selected preferred teaching method between traditional classes, online classes or both.

The sample size was calculated from Raososoft Sample size calculator. There were 96 students studying in MBBS 2nd year at Jinnah Medical and Dental College. Sample size was calculated keeping 96 population size, 5% margin of error, 95% confidence interval and 50% response distribution. The minimum recommended sample size was of total 77 students. Out of which, 62 gave consent to participate in the study.

The data was analyzed using SPSS version 22. Descriptive statistics was used for analysis of data. Data was expressed in terms of percentage for each item, for preference in theory, practical, tutorial, assessment and the overall preferred teaching method.

RESULTS

The mean age of students was 19.5± 0.6 years (male 38% & female 62%). Figure I showed comparison of individual items 1 to 8. Figure II showed the comparison of individual items 9 to 18 on the basis of preference of traditional, online or both teaching methods. Figure III showed the comparison of items 19 to 22 for preference of teaching method in theory, practical, tutorial and assessment. Figure IV showed the overall comparison of teaching method.

In figure I, the x-axis showed the item numbers and the y axis showed percentage of individual items that students selected in the form of Yes and No. In most of the items, the students selecting the yes response had a higher percentage.

In figure 2, the x-axis showed the item numbers and the y axis showed percentage of individual items that students selected for their preferred teaching method. In most of the items in this section, the students preferred the traditional teaching method. The individual items include the importance of presence of teacher in class, presence of other students in class, online education giving more freedom, hindering of online teaching and assessment due to internet, alignment of online teaching and online assessment, time for understanding the lecture, asking queries from teacher, giving immediate feedback to teacher, interest in learning and retention of information for assessment.

In figure 3, the x-axis showed the item numbers and the y axis showed percentage of preference of teaching method for theory, practical, tutorial and assessment. In all the items in this section, the students preferred the traditional teaching method.

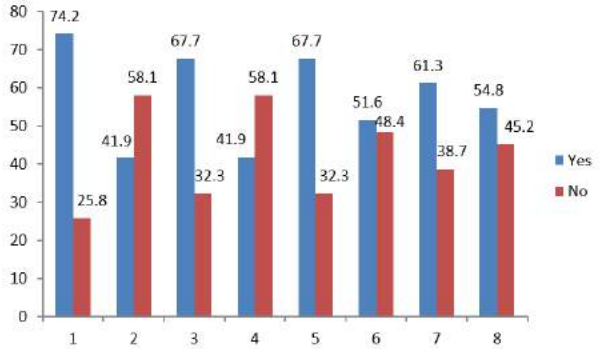

Figure No.1: The comparison of individual items 1 to 8 in MBBS 2nd year students

In figure 4, the percentage of Traditional, online and both teaching methods is mentioned. Traditional teaching method has got the highest percentage.

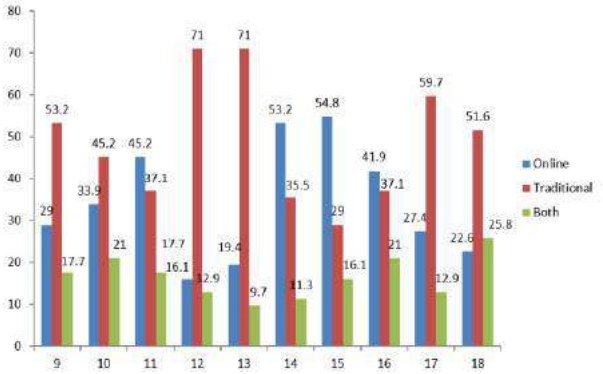

Figure No.2: The comparison of individual items on the basis of teaching methods in MBBS 2nd year students

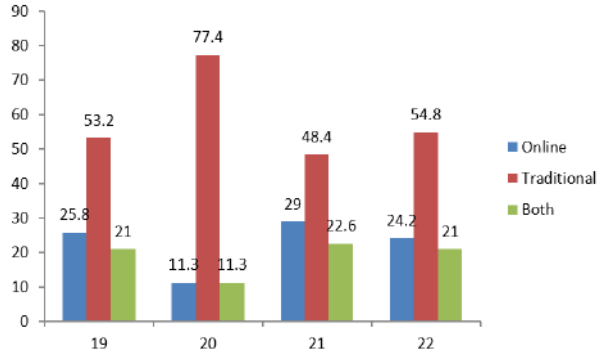

Figure No.3: The comparison of preference of teaching method in theory, practical, tutorial and assessment in MBBS 2nd year students

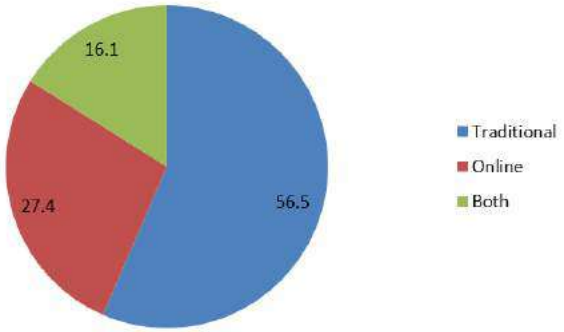

Figure No.4: The comparison of overall preference of teaching method in MBBS 2nd year students

DISCUSSION

In this study the perceptions of students regarding online Physiology teaching and assessment in COVID 19 pandemic was studied. In Figure I, majority of students selected the 'Yes' option for item 1, 3, 5, 6, 7 and 8. Students were in favor of traditional teaching where the presence of teacher (item 1) and colleagues (item 3) is required. Item 5 was related to conducting traditional classes first followed by online classes. Item 6 and 7 were regarding the accessibility of internet hinders online classes and online assessment. The item 8 was regarding the alignment of online teaching with online assessment. The item 2 and 4 of questionnaire was related to the online classes giving freedom and if students felt more personalized with online classes. The majority of students selected the option 'No' for item 2 and 4. In majority of items our study results were same as that of Vala[5] et al. except of item 4. Our students selected the option 'No' while in study of Vala[5] et al. majority of students selected 'Yes' option. Our study results in this section reflect that majority of students approved traditional teaching that helps in better learning. Our study finding is same as reported by Qamar[13] et al.

In figure II, students selected traditional teaching as the preferred method in item 9, 10, 12, 13, 17 and 18. Item 9 and 10 of questionnaire was related to concentration and motivation in learning. Item 12 was regarding asking the queries to the teacher and item 13 was related to giving immediate feedback to the teacher. The item 17 was regarding the interest in learning and item 18 was related to retention of knowledge for assessment. The study done by Abbasi[14] et al. and Hameed[15] et al. mentioned that students did not prefer e-learning over face to face teaching. Hameed[15] et al. recommended blended learning for future medical education. The study done by Ansar[16] et al. reported that students were not satisfied with e-learning and they pointed out some critical defects in the system. The students selected online teaching as their preference in item 11, 14, 15 and 16. The item 11 was regarding getting enough time for understanding the lecture and 14 was linked with studying at own pace. Anwar[17] et al. mentioned the students' agreement towards online lectures as they were found to be more organized. The item 16 was related to collecting the multiple resources/study material. Anwar[17] et al. reported the students' satisfaction towards online study material that provided flexibility in learning and saved time. The item 15 was related to distraction in online classes. Baczek[4] et al. suggested that to implement the online learning into the curriculum, a well thought-out strategy and active approach is required. In all items of this section, our study results were the same as study done by Vala et al[5]

In the preference of method for theory, practical, tutorial and assessment as shown in items 19, 20, 21 and 22, the students preferred traditional teaching. Our study results were similar to study of Vala et al[5]. In the overall preference of teaching method, traditional (56.5%) got a higher percentage as compared to online (27.4%) and both (16.1%). These findings are quite similar to study done by Vala et al[5] where traditional was 59%, online 26% and both was15%.

CONCLUSION

The majority of 2nd year medical students had a preference for traditional teaching methods in Physiology.

Author's Contribution:

Concept & Design of Study:	Sadaf Fatima
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Revisiting Critically:	Sadaf Fatima, Fadieleh Sohail
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Efficacy of Fractional CO_2 Laser in Treatment of Mild to Moderate Facial Atrophic Acne Scars

Aisha Malik[1] and Shanza Akram[2]

ABSTRACT

Objective: To evaluate the efficacy of fractional Co_2 laser in the treatment of mild to moderate atrophic facial acne scarring.

Study Design: Descriptive case series study

Place and Duration of Study: This study was conducted at the Dermatology Department Unit-I, King Edward Medical University, Mayo Hospital, Lahore between Oct, 2014 to April, 2015.

Materials and Methods: One hundred and fifty patients were included in this study. fractional Co_2 laser (10,600nm) flounce was delivered with settings of 15-20mj/cm^2, pulse duration upto 3ms, interval of 1ms, distance of 0.8mm, spot size 300 microm, single pass using the fractional mode. Total six treatments at 4 weeks interval were given and final assessment after 4 weeks of 6th session was done.

Results: Mean age was observed 23.56±5.12 years. Out of 150 cases, 58 patients (38.7%) were males while remaining 92 patients (61.3%) were females. Mean acne scar count at baseline 4.94±1.36 and after 24 weeks mean acne scare count were 3.98±1.70. There were only 4 patients (2.7%) were married and 146 patients (97.3%) were unmarried. Distribution of cases by acne scar severity at baseline was as follows: 15 patients (10.0%) were having mild acne scars and 135 patients (90%) were having moderate acne scars. Acne scar severity after 24 week. 121 patients (80.7%) mild acne scars were seen and in 29 patients (19.3%) moderate acne scars were observed. Efficacy of fractional Co_2 laser in the treatment of mild to moderate atrophic facial acne scarring were observed in 123 patients (82.0%).

Conclusion: fractional Co_2 laser appears to be effective and well tolerated for the treatment of mild to moderate atrophic facial acne scarring.

Key Words: Facial Atrophic Acne Scars, Fractional Co_2 Laser, Efficacy

Citation of article: Malik A, Akram S. Efficacy of Fractional CO_2 Laser in Treatment of Mild to Moderate Facial Atrophic Acne Scars. Med Forum 2021;32(5):53-56.

INTRODUCTION

In teenagers in particular, acne is a common skin disease.[1] The course depends on the cause and the severity of the cause.[2] The acne vulgaris disease is multifactory because of its hyperkeratinisation, excessive production of sebum and the colonization of propionibacterium acnes.[1] It is characterized mostly on face, chest, back and arms by comedons, papules, pustuli, nodules and cysts. Atrophic acne scar is one of the most dramatic inflammatory acne consequences.[2] The plan was new, comprehensive and useful, which classified scars as ice pickers, shallow boxers and deep boxcars.[3]

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Acne scars are common and lead to psychosocial disfigurement and problems. Atrophical scarring occurs in pilosebaceous follicles during dynamic aggravation because of impaired resolution or damage healing.[4] A four class subjective structure depending on cavity morphology and instance covered by cosmetics or ordinary hair designs. The Global Classification of Acne Scarring Seriosity levels increase from the macular scar tissue (grade 1), mild atrophy or hypertrophic scar which may not be evident at 50cm or more and which may well be covered satisfactorily by cosmetics and hair patients (grade 2). (grade 4).[3] So many ways to heal acne cure such as chemical peeling, dermabrasion, booster boom, punching extraction, autologous exchange of fat, dermal fillers and non-ablative laser treatment have been taken for granular purposes. There are currently no gold standards and the adequacy of these strategies is restricted.[5,6]

The CO2 laser is an ablative device which has been viably demonstrated for treatment of a wide scope of dermatologic conditions, including treatment of inflammation scars.[7] There is another CO2 laser framework with a partial methodology, it uses high energy pulses delivered over very small beam distance to induce small circles of vaporized tissue.[6] Each treated

territory is encircled by typical unaffected tissue, which brings about very quick healing with few complexities.[7]Manuskiatti et al carried out a similar study in which acne scars were treated in subjects with 3 sessions of CO_2laser on an average of 7 weeks interval and 62% rated themselves as having 50% improvement in their scars volume and surface smoothness.[8]

MATERIALS AND METHODS

This was a descriptive case series study. After approval of synopsis, 150 patients fulfilling the inclusion criteria were included in the study from the Outpatient Department of Dermatology Unit-I, Mayo Hospital, Lahore. Informed written consent was taken and protocol of research was explained to every patient. Detailed demographic profile i.e. name, age, sex was recorded. Patients with mild to moderate atrophic facial acne scars according to qualitative scarring grading system and baseline scar were recorded. Photographs were taken before and after each sitting of laser. The treatment area cleaned and lidocaine 1% applied on entire face. Fractional CO_2 laser (10,600nm) flounce was delivered with settings of 15-20mj/cm^2, pulse duration upto 3ms, interval of 1ms, distance of .8mm, spot size 300 microm, single pass using the fractional mode. A total of 6 treatments at 4 weeks interval was given and final assessment after 4 weeks of 6th session was done.

Treatment was considered effective if there is $\geq$50% improvement in quantitative acne scarring score based on lesion counting and acne severity score from baseline. Data entry and analysis was done by using SPSS 18.0. Quantitative data (age, acne scars count) was presented by using mean and SD. Qualitative data (sex: male or female) was presented by using frequency, tables and percentages. Efficacy of the treatment presented as frequency and percentages.

RESULTS

One hundred fifty patients were including in this study during the study period of six months from 10-10-2014 to 09-04-2015.Age of the patients ranged between 18-45 years. Mean age was observed 23.56±5.12 years (Table1).Out of 150 cases, 58 patients (38.7%) were males while remaining 92 patients (61.3%) were females (Table2).Mean acne scar count at baseline were 4.94±1.36 and after 24 weeks mean acne scare count were 3.98±1.70 (Table 3 & 4).There were only 4 patients (2.7%) were married and 146 patients (97.3%) were unmarried (Table5).Distribution of cases by acne scar severity at baseline was as follows: 15 patients (10.0%) were having mild acne scars and 135 patients (90%) were having moderate acne scars (Table6). Acne scar severity after 24 week was as follows: In 121 patients (80.7%) mild acne scars were seen and in 29 patients (19.3%)moderate acne scars were observed (Table7). Efficacy of fractional CO_2 laser in the treatment of mild to moderate atrophic facial acne scarring was observed in 123 patients (82.0%) (Table8). Stratification with regard to age and gender presented in Table 9 and 10.

Table No.1: Age distribution of cases (n=150)

Age (Year)	No.	%
18-25	122	81.3
26-35	21	14.0
36-45	07	04.7
Mean±SD	23.56±5.12	

Table No.2: Gender distribution of cases

Gender	No.	%
Male	58	38.7
Female	92	61.3

Table No.3: Distribution of cases by acne scar count (baseline)

Acne scar count	No.	%
< 4	62	41.3
5-6	88	58.7
Mean±SD	4.94±1.36	

Table No.4: Distribution of cases by acne scar count (24 week)

Acne scar count	No.	%
< 4	102	68.0
5-6	48	32.0
Mean±SD	3.98±1.70	

Table No.5: Distribution of cases by marital status

Marital status	No.	%
Married	04	02.7
Unmarried	146	97.3

Table No.6: Distribution of cases by acne scar severity (baseline)

Acne scar severity	No.	%
Mild	15	10.0
Moderate	135	90.0

Table No.7: Distribution of cases by acne scar severity (24 week)

Acne scar severity	No.	%
Mild	121	80.7
Moderate	29	19.3

Table No.8: Distribution of cases by efficacy

Efficacy	No.	%
Yes	123	82.0
No	27	18.0

Table No.9: Age stratification with regard to age

Age (Year)	Efficacy		Total
	Yes	No	
15-25	98	24	122
26-35	18	03	21
36-45	07	-	07

P 0.374

Table No.10: Gender stratification

Gender	Efficacy		Total
	Yes	No	
Male	47	11	58
Female	76	16	92

P 0.806

DISCUSSION

Atrophic facial scars happen often, mostly as results of severe acne form episodes during adolescence. Many patients seek disfigurement due to apparent differences in texture of their skin. Different methods of treatment had been used alone or in combination to treat atrophic scars, including dermabrasion, excisional closed surgery, punch grafting and lift, collagen implants, silicone implants, chemical peeling and laser abrasion.[9,10] Each of these therapies was limited by side effects, in particular scarring and pigmentation. The risk of complications after laser treatment can significantly reduce by the recent development of energy-efficient, pulsed carbon dioxide laser (CO2) that reduces thermal lesions to the uninvolved adjacent tissue structures.[11,12] Due to the latest high-energy pulsed laser technology, the use of CO2 laser has been limited in previous reports on atrophic scarring. A small number of cases with energy ranging from 250 to 500mJ and 2-5W reported to show Fitzpatrick impressive clinical results. At 500mJ and 5-10W, Weinstein and Alster[12] reported good scar reactions. Compared to its predecessors (e.g. super pulsed CO_2 laser or continuous CO2 scanners), the high-energy, pulsed CO_2 laser system offers a visible advantage because it limits the heat conductiveness to its surrounding skin.[13,14]

Therefore, after laser irradiation, scarring and other pigment/textural changes are minimized. The high-energy ultra-pulsed CO_2 laser produced slightly better reactions in a clinical comparison with fewer laser lasers than the high-energy surgipulse CO_2 laser in periorbital rhythm therapy.[15] It raises concerns about the absolute number of the laser passes required to achieve this desired effect, as the fibrotic tissue in scars does not absorb laser Energy and the surrounding normal skin. Due to the accumulated thermal tissue injury, several steps over a scarred surface can increase the risk of cavities. A laser is therefore desirable that is able to maximize tissue vaporization with the pulse. This is best achieved through the ultra-pulsed CO_2 laser system, as the majority of the supplied energy goes above the critical irradiance required to vaporize the tissue. The choice of post-acne scar treatment depends on the morphological type and severity of each scar on the face.[16] Post-acne scares have also been classified according to four different degrees, irrespective of the individual morphology of the scars.[17]

The latest technique in light-based skin rejuvenation is fractional lasers and many different equipment are on the market. Ablative CO2 lasers combine traditional laser ablation principles with a fractional laser intervention technology which ensures that MTZ consists of a central Microscopic Ablation Zone (MAZ), which consists of a small zone of coagulation. The applications of laser parameters are well known for their intensity level (W) and pulse duration (ms), spotsize, spot energy (mJ/pulse) and spot density and the possible effects on the dimensions of the MTZ and the result of the healing reactions.[18] Thus the depth of ablation in AFT depends on the energy used with higher energies and therefore increases the penetration depth was shown in an ex vivo histological study.[19] Previous study has assessed the effectiveness of fractional CO2 laser surface resorption in acne scars which showed mild to excellent improvements in acne scars in 1-3 fractional CO_2 laser treatments.[20]

Thus, 13 patients with moderate to severe acne scars were treated with a fractional laser CO2 for 2-3 sessions in an uncontrolled trial by Chapaset al.[20] 20–100 mJ pulse energy with accumulated 200–1,200 MTZ/cm^2 densities used. There have been significant quartile scale improvements of at least 25-5% and no serious adverse reactions have been identified. Walgrave et al[21] also used the same pulse power range but with a slightly higher density accumulated of 600–1200 MTZ/cm^2 to treat 30 patients with moderate to severe acne scars. After 1–3 treatments, clinical improvements were 26–50 percent and there were no long-term adverse effects. The results of this study show that fractional CO_2 laser is 82% efficient for the treatment of slight to moderate acne scar. Our results are similar to Manuskiattiet al[8] findings.

CONCLUSION

The treatment of mild to moderate acne in the face appears to be efficient and well tolerated with fractional CO2. Due to its accuracy and limited thermal damage difficult skin types and cosmetic areas can be treated with the least risk of harmful complications such as scarring or permanent pigmentation.

Author's Contribution:

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Data Analysis:	Shanza Akram
Revisiting Critically:	Aisha Malik, Shanza Akram
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Outcome and Complications of Mini Percutaneous Nephrolithotomy (PCNL) in the Treatment of Renal Calculi

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ABSTRACT

Objective: To determine the outcome and complications of mini PCNL in the treatment of renal calculi.
Study Design: This is a cross sectional study.
Place and Duration of Study: This study was conducted at the Department of Urology in Shaikh Zayed Hospital, Lahore from September, 2019 to March, 2020.
Materials and Methods: A total 60 cases were included in this study after the approval of the study protocol from hospital ethical committee. All the patients presenting in the Department of Urology, Shaikh Zayed Hospital, fulfilling the inclusion criteria, will be included in the study after explaining and taking fully informed written consent. The mini-PCNL procedure was performed under general anesthesia. Post-operative complications and. Outcomes (Stone Clearance, fall in Hemoglobin and Hospital stay) were noted which has been mentioned in the operational definition.
Results: Age distribution of the patients was done, it showed that 68.3% (n=41) patients were in age group of 18-40 years and 31.7%(n=19) in age of 41-60 years and mean age was 36.28±9.73 years. There were 46.7% (n=28) were male and 53.3%(n=32) were female. Stone clearance was in 85% (n=51) patients. Complications were present in 15% (n=9) patients.
Conclusion: We concluded that mini PCNL technique is good in stone clearance; drop in Hb level and hospital stay. There were little complications found in patients. But this study showed that mini PCNL is good procedure in treatment of renal calculi.
Key Words: Urinary Tract Stone, PCNL, Renal Calculi

Citation of article: Akbar J, Abdul Rauf, Khan F, Ata-ur-Rehman R, Shokat Z, Tahir MM. Outcome and Complications of Mini Percutaneous Nephrolithotomy (PCNL) in the Treatment of Renal Calculi. Med Forum 2021;32(5):57-60.

INTRODUCTION

Deposition of mineral and salts leads towards the formation of kidney stones. They can have impact on any part of the urinary system. Kidney stones can get formulated when there is high concentration and mineral deposits in the blood.[1] Infact, recent estimates place the prevalence in the United States population at 10.6% for men and 7.1% for women. The risk of developing kidney stone increases with age.[2] Stones in the kidney can be painful but less damaging to the urinary system if they are diagnosed early.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

In case the diagnosis of the kidney stones becomes late then they may cause complications leading towards the renal surgery.[3] Anyhow, there are high chances of recurrence of kidney stones among male as compared to female cases. So it is proposed that prophylactic management is necessary for the management of urolithiasis.[4]

In order to detect the kidney stones, most commonly ultrasonography is carried out in the suspected cases, but it is also true that non-contract CT of pelvic is also considered on a larger scale to rule diagnosis the kidney stone.[5] For further confirmation, a radiographic image of kidney, uerter and bladder followed CT scan helps for follow up of the cases. Alternatively, Ct can be repeated as it has the same diagnostic accuracy as of KUB and hence could be an alternative if in initial scan there is suspicion of the kidney stone. The non-contrast CT is the cornerstone of initial radiographic assessment.[6] Stones diseases are common in population still there are only few studies that discussed about its expense to benefit ration of surgical procedure. So studies are needed as there are various treatment methods opted for treating the various stone sizes including ureteroscopy, lithotripsy. It is good practice to use PCNL for stones size of large sizes. While the

single/multiple stage URS can be used for treatment of smaller or stores located in the ureter.

There are limited studies regarding the cost-effectiveness of surgical treatment options for stone disease. Such data would be welcome given the manifold treatment options for stones of various sizes in various positions in the urinary tract [i.e., ureteroscopy, shock wave lithotripsy and Percutaneous Nephrolithotomy]. For instance, while PCNL is preferred for large renal stones, intermediate size renal stones can be treated with single or multi-stage URS; also clinical guidelines support use of either SWL or URS for most ureteral or smaller renal stones.[7] The 2016 guidelines made by European Association of Urology indicates that PCNL should be used as first-line treatment of kidney stones that larger than 2.0cm, in case PCNL is not an option and for stones smaller than 2.0cm, PCNL is recommended.[8] The stone clearance rate of mini PCNL was 79.3% and complication rate was 51%.[9] The primary stone-free rate was (90.8%). It was observed that calve in grade III type complication was present in 5.2% but none of the cases was reported with grade IV or V.[10] In another study it was noted that stone clearance was 94%, mean duration of hospital stay was 2±1.5 days and complication grades were I,II,III in 1(33.3%) of the cases.[11] Mean drop in Hb was 1.15 ± 1.08mg/dl[12] and mean hemoglobin drop (g/dL)0.6±0.68 in another study.[13]

MATERIALS AND METHODS

A total 60 cases will be included in this study after the approval of the study protocol from hospital ethical committee. All the patients presenting in the Department of Urology, Shaikh Zayed Hospital, fulfilling the inclusion criteria, will be included in the study after explaining and taking fully informed written consent. The mini-PCNL procedure will be performed under general anesthesia. Post-operative complications and outcomes (stone clearance, fall in hemoglobin and hospital stay) will be noted which has been mentioned in the operational definition.

RESULTS

Age distribution of the patients was done, it showed that 68.3%(n=41) patients were in age group of 18-40 years and 31.7%(n=19) were in age group of 41-60 years. Mean and standard deviation of age was calculated as 36.28±9.73 years (Table 1).

Table No.1: Age distribution of patients (n=60)

Age (years)	No.	%
18-40	41	68.3
41-60	19	31.7
Mean±SD	36.28 ± 9.73	

Table No. 2: Sex distribution of patients

Sex	No.	%
Male	28	46.7
Female	32	53.3

Table No.3: Descriptive statistics of stone clearance

Stone clearance	No.	%
Yes	51	85.0
No	9	15.0

Table No.4: Descriptive statistics of complications

Complications	No.	%
Yes	9	15.0
No	51	85.0

Table No.5: **Descriptive statistics of hospital stay and drop in Hb level**

Variables	Mean±SD
Drop of HB level (mg/dl)	1.13±0.36
Hospital stay (days)	3.95±1.56

Table No.6: Stratification for stone clearance with respect to age, gender and duration of renal stone using Chi-square test

		Stone clearance		P value
		Yes	No	
Age group	18-40	36 (60%)	5 (8.3%)	0.371
	41-60	15 (25%)	4 (6.7%)	
Gender	Male	23 (38.3%)	5(8.3%)	0.562
	Female	28 (46.7	4(6.7%)	
Duration of renal stone	1-5 yrs	40 (66.7%)	8(13.3%)	0.470
	>5 yrs	11 (18.3%)	1(1.7%)	

Table No.7: Stratification for hospital stay with respect to age, gender and duration of renal stone using t-test

		Hospital Stay	P value
		Mean±SD	
Age group	18-40 yrs	3.93±1.58	0.868
	41-60 yrs	4±1.563	
Gender	Male	3.64±1.61	0.157
	Female	4.22±1.49	
Duration of renal stone	1-5 yrs	4.08±1.57	0.190
	>5 yrs	3.42±1.50	

Table 8: **Stratification for drop in Hb level with respect to age, gender and duration of renal stone using t-test**

Variable		Hospital Stay	P value
Age group	18-40 yrs	1.10±0.37	0.35
	41-60 yrs	0.19±0.34	
Gender	Male	1.12±0.32	0.86
	Female	1.14±0.	
Duration of renal stone	1-5 yrs	.12±0.36	0.24
	>5 yrs	1.15±0.35	

There were 46.7% (n=28) were male and 53.3% (n=32) were female (Table 2). Stone clearance was in 85% (n=51) patients (Table 3). Complications were present in 15% (n=9) patients (Table 4). The data was stratified for age, gender and duration of renal stone of the patients (Table 6-8) respectively.

DISCUSSION

Kidney stones are usually detected in renal papillae weather attached of free consisting of mineral deposition. Parenchymal calcification in the diffuse renal is called nephrocalcinosis.[14] In current study we found that, age distribution of the patients was done, it showed that 68.3% (n=41) patients were in age group of 18-40 years and 31.7%(n=19) were in age group of 41-60 years with mean and standard deviation of age was calculated as 36.28±9.73 years. There were 46.7% (n=28) were male and 53.3%(n=32) were female. In current study out of 60 patients, stone clearance was in 85% (n=51) patient. Complications were present in 15% (n=9) of the patients. In this study mean drop of Hb level was 1.13±0.36mg/dl and mean hospital stays was 395±1.56 days.

The 2016 guidelines made by European Association of Urology indicates that PCNL should be used as first-line treatment of kidney stones that larger than 2.0cm, in case PCNL is not an option. And for stones smaller than 2.0cm, mPCNL is recommended.[8]Another study found that the stone clearance rate of mini PCNL was 79.3% and complication rate was 51%.[9]The primary stone-free rate was (90.8%), the total complication rate was (26.9%) and calve in grade III complications occurred in 5.2% of all patients, and no grade IV or V complications were observed.[10] In another study it was noted that stone clearance was 94%, mean duration of hospital stay was 2±1.5 days and complication grades were I,II,III in 1(33.3%) of the cases.[11] Mean drop in Hb was 1.15 ± 1.08mg/dl[12] and mean hemoglobin drop (g/dL)0.6±0.68 in another study.[13]

On evaluation, it was found that about 70-80% of the entire composition of the kidney stone is consisted of calcium oxalate and calcium phosphate. Remaining 20% part of the renal stone found to be consisted on struvite and ureic acid with few minerals exception of drug related stones. Struvite stones has high concentration in female while among male common extraction is calcium and uric acid as per composition of the renal stone is concerned. It is the calcium urate or phosphate that combines with the calcium oxalate for the emergence of the renal stone.[15-19] On evaluation of the epidemiological data extracted from various nations, a collective 114-720 per 100,000 individuals and prevalent of 1.7%-14.8% are noted that are further observed on a rise.[20]

In National Health and Nutrition Examination Survey, results showed that in United States there was prevalence of the kidney stones increased three times from 1876-1980 to 2007-2010 which was 3.2% to 8.8%.[14]The lifetime prevalence of kidney stones in the United Kingdom increased by 63% (7.14–11.62%) between 2000 and 2010.[14] According to the updated European Association of Urology guidelines, ESWL can be harmful in some cases when stone sizes are larger, so it is recommended that PCNL could be opted as method of choice for removal of such stones even when they are present in the lower renal pole. Till date it was observed that PCNL has the efficacy in terms of removal of stone in 76% to 98%.

Percutaneous nephrolithotomyis still a challenging surgical technique and can be associated with significant complications that may compromise its efficacy. A randomized prospective trial evaluated the efficacy and safety of tubeless (JJ stent but no nephrostomy drainage tubes) versus conventional mini-PCNL (JJ stent and drainage tubes). There were no significant differences in operation time, stone clearance and complications. Less postoperative pain and consequently less need for analgesia were also confirmed in the group of patients who underwent tubeless (JJ stent but no nephrostomy tubes) mini-PCNL in a prospective comparative study. The morbidity of JJ-stents, however can be significant. Stent related discomfort is reported in 39% of patients. However, another modified procedure of PCNL which is called mini-PCNL is also effective in terms of less intraoperative blood loss, lesser pain and less hospital stay as small sheaths are used in this procedure. A research has evaluated that mini-PCNL is more effective as compared to conventional procedure as it results in the lower drop in Hb (0.53gdl & 0.8g/dl vs. 0.97g/dl & 1.3g/dl) so lower rate in of blood transfusion (1.4% vs 10.4%). Similarly, consumption of analgesia is also lower in the mini PCNL group as compared to other (55.4 vs 70.2g). Furthermore, mini-PCNL is also have impact on the early discharge of the cases (3.8 days and 3.2 days vs. 6.9 days and 4.8 days respectively). Although, mini-PCNL has not a proven clear advantage over the conventional procedure in terms of lower invasiveness, it remains a safe method.[21]

CONCLUSION

We concluded that mini PCNL technique is good in stone clearance; drop in Hb level and hospital stay. There were little complications were found in patients. But this study showed that mini PCNL is good procedure in treatment of renal calculi.

Author's Contribution:

Concept & Design of Study:	Jawad Akbar
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Final Approval of version:	Jawad Akbar

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

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Original Article

Effect of Metformin on Lipid Level in Patients Presenting with Metabolic Syndrome

Qaisar Farooq[1], Muhammad Uthman[2], Amna Malik[3] and Farhan Fateh Jang[4]

ABSTRACT

Objective: To compare the mean lipid level with metformin versus control in patients presenting with metabolic syndrome.

Study Design: Randomized Control Trial Study

Place and Duration of Study: This study was conducted at the Department of Medicine, Shaikh Zayed Hospital, Lahore, from July, 2019 to January, 2020.

Methodology: After meeting the inclusion criteria 110 patients were enrolled. Informed consent and demographic information was taken. Then blood sample were sent to the laboratory of the hospital for assessment of lipid level including total cholesterol and triglycerides. Patients were randomly divided in 02 groups by using lottery method. In group A, patients were advised to take 1000 mg metformin twice daily for 3 months. In group B, patients were advised diet plan and patients were followed-up in out-patient department for 3 months. After 3 months, blood sample reports were assessed and levels were noted.

Results: The average age of the patients was 49.35±11.44 years, 69(62.73%). On post evaluation, in metformin group the average HDL of the patients was 43.26±6.64mg/dl while in control group the average HDL of the patients was 36.70±3.78mg/dl (p=<0.001) and decrease triglyceride level in metformin groups was noted on follow up.

Conclusion: Metformin is very useful and tolerable drug for the management of patients presenting with metabolic syndrome.

Keywords: Metformin, Metabolic Syndrome, Lipid Profile, HDL, Triglyceride

Citation of article: Farooq Q, Uthman M, Malik A, Jang FF. Effect of Metformin On Lipid Level in Patients Presenting with Metabolic Syndrome. Med Forum 2021;32(5):61-65.

INTRODUCTION

Metabolic syndrome is a medical condition that is a group of the following five conditions, at least presence of three: central obesity, hypertension or high blood pressure, diabetes or hyperglycemic level, dyslipidemia or high tri-glycerides but low high-density lipoprotein concentration in blood. It is a severe risk factor for macrovascular events and for the onset of diabetes too.[1,2] In Pakistan, Metabolic Syndrome was present in 83% of the study population, 43% were male and 57% were female.[3] Metformin is preferred as first-line treatment protocol and is usually prescribed by practitioners for oral treatment for type 2 diabetes mellitus.

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Received: December, 2020
Accepted: February, 2021
Printed: May, 2021

But, the primary action and mechanism of metformin is not completely understood.[4] Regardless of use of metformin, as an anti-hyperglycemic agent for >50 years, the main key role of mechanism of metformin action is incompletely studied.[5] Clinical trials have pointed out that metformin might lower total lipids. Also it augments the lipid lowering effects of HMG-Co A inhibitors if prescribed to new onset type 2 diabetic patients.[6] Another lipid lowering effect of metformin is via activation of protein kinase pathway.[4,7]

One randomized trial found that the mean HDL and triglycerides were significantly lowered in the metformin than control group i.e. triglycerides 210.74±19.77mg/dl in metformin and 219.27±9.52 mg/dl with control (p=0.036) and HDL 45.65±6.14 mg/dl with metformin and 38.56±10.42mg/ dl with control (p=0.007).[8]

MATERIALS AND METHODS

This randomized controlled trial study was done in the Department of Medicine, Shaikh Zayed Hospital Lahore from 30-7-2019 to 30-1-2020. 110 cases; 55 cases in each group is calculated with 95% confidence interval, 80% power of study and taking magnitude of mean triglycerides level i.e. 210.74±19.77mg/dl with metformin and 219.27±9.52mg/dl without metformin. Patients of age 30-70years of either gender presenting

with metabolic syndrome for >1 year were included. Diabetic patients taking anti-glycemic other than metformin (on medical record), hyperprolactinemia (prolactin >30ng/ml) and thyroid dysfunction (TSH>5IU/mL), chronic or uncontrolled diabetes (HbA1c>8%), crushing syndrome, congenital adrenal hyperplasia and already taking statins for dyslipidemia were excluded.

110 patients (55 in each group), fulfilled selection criteria were included from the OPD, Department of Medicine. After taking informed consent, demographic data (name, age, sex, BMI and duration of symptoms) was recorded. Then blood sample was obtained in a 5cc BD syringe and stored in sterile vials. All samples were sent to laboratory for lipid level including HDL cholesterol and triglycerides and test done on machine, Beckman coulter it has chemiluminescence in it and for calibration spectrophotometry is used. Reports were assessed and levels were noted. Then patients were randomized in two groups. In group A, patients were advised to take 1000 mg metformin twice daily for 3 months. In group B, patients were advised diet plan and patients were followed-up in OPD for 3 months. After 3 months, blood sample was again obtained in a 5cc BD syringe and stored in sterile vials. All samples were sent to the laboratory for assessment of lipid level including HDL cholesterol and triglycerides. Reports were assessed and levels were noted.

RESULTS

The average age of the patients was 49.35±11.44 years with minimum and maximum ages of 30 & 70 years respectively. In metformin group the average age of the patients was 49.87±11.36 years whereas in control group the average age of the patients was 48.84±11.59 years (Table 1). Among 110 patients 69(62.73%) patients were male while 41(37.27%) patients were females**.** Among metformin group the 40(58%) patients were male and 15(36.6%) patients were females, similarly in control group 29(42%) patients were male and 26(63.4%) patients were females (Table 2). The mean duration of symptoms was 3.09±1.55 years with minimum and maximum duration of 1 & 5 years respectively.

Among metformin group the average duration of symptoms of the patients was 3.07±1.61 years while in control group the average duration of symptoms of the patients was 3.11±1.51 years**.** The mean BSR level of the patients was 158.94±10.85mg/dl with minimum and maximum values of 134.86 & 185.33mg/dl respectively. In metformin group the average BSR level of the patients was 159.01±10.06mg/dl and in control group the average BSR level of the patients was 158.86±11.67mg/dl. Statistically insignificant difference found between the BSR level and the study groups. i.e. p=0.941 (Table 3). On pre evaluation the average HDL level of the patients was 35.75±4.94mg/dl while on post follow up the average HDL level of the patients was 39.98±6.31mg/dl. Statistically significant difference was found between the pre and post evaluation of the HDL. i.e. p=<0.001 (Table 4).

Similarly, on post evaluation, in metformin group the average HDL of the patients was 43.26±6.64mg/dl while in control group the average HDL of the patients was 36.70±3.78mg/dl (p=<0.001) (Table 5). On pre evaluation the average triglyceride of the patients was 221.00±10.51mg/dl while on follow up the average triglyceride level of the patients was 216.32±12.67 mg/dl. On pre evaluation, in metformin group the average triglyceride of the patients was 219.52±10.44mg/dl while in control group the average triglyceride of the patients was 222.48±10.45mg/dl (p=0.141).

There is statistically significant difference was found in post evaluation of HDL & triglyceride of the patients between study groups stratified by age i.e. p=<0.05 (Table 6).There is statistically significant difference was found in post evaluation of HDL & triglyceride of the patients between study groups stratified by gender i.e. p=<0.05 (Table 7).There is statistically significant difference was found in post evaluation of HDL & triglyceride of the patients between study groups stratified by duration of symptoms i.e. p=<0.05 (Table8)**.**There is statistically significant difference was found in post evaluation of HDL & triglyceride of the patients between study groups stratified by BSR level i.e. p=<0.05 (Table 9).

Table No.1: Summary statistics of age (years) between study groups

		Study Groups	
		Metformin	Control
Age (years)	N	55	55
	Mean	49.87	48.84
	SD	11.36	11.59

Table No.2: Frequency distribution of gender between study groups

Gender	Study Groups		Total
	Metformin	Control	
Male	40	29	69
	58.0%	42.0%	100.0%
Female	15	26	41
	36.6%	63.4%	100.0%

Table No.3: Comparison of BSR (mg/dl) between study groups

		Study Groups		P value
		Metformin	Control	
BSR (mg/dl)	N	55	55	0.941
	Mean	159.01	158.86	
	SD	10.06	11.67	

Table 4: Pre and post follow up comparison of HDL (mg/dl)

		n	Mean	SD	P value
HDL (mg/dl)	Pre	110	35.75	4.94	<0.001
	Post	110	39.98	6.31	

Table No.5: Pre and post follow up comparison of HDL (mg/dl) between study groups

HDL	Study Groups	n	Mean	SD	P value
Pre	Metformin	55	35.80	5.95	0.921
	Control	55	35.71	3.73	
Post	Metformin	55	43.26	6.64	<0.001
	Control	55	36.70	3.78	

Table No.6: Pre and post follow up comparison of HDL (mg/dl) & triglyceride (mg/dl) between study groups stratified by age

Age (years)		Study Groups	Mean	SD	P value
≤ 50	Pre HDL	Metformin	36.33	5.77	0.599
		Control	35.73	3.02	
	Post HDL	Metformin	44.26	6.29	<0.001
		Control	35.92	3.64	
>50	Pre HDL	Metformin	35.28	6.19	0.813
		Control	35.67	4.73	
	Post HDL	Metformin	42.27	6.93	0.008
		Control	37.97	3.74	
≤ 50	Pre TG	Metformin	218.39	10.75	0.093
		Control	222.77	9.29	
	Post TG	Metformin	210.78	7.53	<0.001
		Control	222.79	11.42	
>50	Pre TG	Metformin	220.61	10.21	0.67
		Control	222.01	12.33	
	Post TG	Metformin	207.82	10.93	<0.001
		Control	224.29	11.97	

Table No.7: Pre and post follow up comparison of HDL (mg/dl) & triglyceride (mg/dl) between study groups stratified by gender

Gender		Study Groups	Mean	SD	P value
Male	Pre HDL	Metformin	35.98	6.36	0.615
		Control	35.35	2.79	
	Post HDL	Metformin	43.21	6.40	<0.001
		Control	36.03	3.70	
Female	Pre HDL	Metformin	35.32	4.86	0.604
		Control	36.11	4.57	
	Post HDL	Metformin	43.38	7.47	0.010
		Control	37.46	3.79	
Male	Pre TG	Metformin	219.42	11.15	0.685
		Control	220.54	11.32	
	Post TG	Metformin	209.28	9.62	<0.001
		Control	222.21	10.79	
Female	Pre TG	Metformin	219.77	8.60	0.101
		Control	224.64	9.12	
	Post TG	Metformin	209.25	9.29	<0.001
		Control	224.66	12.42	

Table No.8: Pre and post follow up comparison of HDL (mg/dl) & triglyceride (mg/dl) between study groups stratified by duration of symptoms

Duration of symptoms		Study Groups	Mean	SD	P value
≤ 3	Pre HDL	Metformin	36.02	5.75	0.771
		Control	35.68	2.66	
	Post HDL	Metformin	43.81	5.43	<0.001
		Control	35.95	3.70	
>3	Pre HDL	Metformin	35.55	6.28	0.908
		Control	35.73	4.76	
	Post HDL	Metformin	42.64	7.84	0.006
		Control	37.60	3.75	
≤ 3	Pre TG	Metformin	221.18	9.57	0.749
		Control	220.29	11.58	
	Post TG	Metformin	209.77	9.08	<0.001
		Control	221.62	11.43	
>3	Pre TG	Metformin	217.67	11.23	0.010
		Control	225.11	8.40	
	Post TG	Metformin	208.72	9.99	<0.001
		Control	225.47	11.57	

Table No.9: Pre and post follow up comparison of HDL (mg/dl) & triglyceride (mg/dl) between study groups stratified by BSR level

BSR (mg/dl)		Study Groups	Mean	SD	P value
≤ 150	Pre HDL	Metformin	39.08	4.39	0.058
		Control	35.98	3.20	
	Post HDL	Metformin	47.07	4.68	<0.001
		Control	36.48	3.33	
>150	Pre HDL	Metformin	34.98	6.05	0.563
		Control	35.62	3.90	
	Post HDL	Metformin	42.30	6.75	<0.001
		Control	36.77	3.95	
≤ 150	Pre TG	Metformin	222.81	8.80	0.768
		Control	224.05	11.06	
	Post TG	Metformin	208.54	7.00	0.001
		Control	227.19	14.55	
>150	Pre TG	Metformin	218.69	10.74	0.151
		Control	221.99	10.35	
	Post TG	Metformin	209.46	10.03	<0.001
		Control	222.18	10.37	

DISCUSSION

Metabolic syndrome is a worldwide health problem affecting both developed and under developed societies. It's a syndrome with increased risk of diabetes and cardiovascular disease. Studies report varied gender based effects on metabolic syndrome. In USA, metabolic syndrome is more prevalent in white males. In Korea, Iran, India, Oman, the syndrome is more prevalent in women than their sexual counterparts. The reason may be sedentary lifestyle of women residing theres.[9] The pharmacological key to the treatment of this entity along with non-pharmacological measures, is Metformin that owing toits insulin-sensitizer effect decreases serum leptin levels and thus reduces body weight and waist circumference.[9]

In this study serum triglyceride level was significantly decreased after the treatment with metformin while HDL of the patients significantly increased as compared to control. MourAo et al[10] studied metformin in metabolic syndrome .They documented a significant reduction (P <0.05)in cholesterol (229.0±29.5 to 214.2±25.0mg/dL),BMI (30.7±5.4 to 29.0±4.0kg/m2), waist circumference (124.6±11.7 to 117.3 ± 9.3cm), and decreased daily dose of insulin. Some authors proved reduction of total cholesterol and TG with an increase of HD with the use of metformin[11] even in non-diabetic patients[13] while others differ.[12]

One randomized trial found that the mean HDL and triglycerides were significantly lowered in the metformin than control group i.e. triglycerides 210.74±19.77mg/dl in metformin and 219.27±9.52mg/dl with control (p=0.036) and HDL 45.65±6.14mg/dl with metformin and 38.56±10.42mg/dl with control (p=0.007).[8]One study documented that the Metformin therapy significantly lowered; blood glucose levels ±SD) 227.2±37.5 to 168.6±20.5mg/dl (p<0.001) and triglycerides ±SI) 195.9±31.9 to 174.2±26.6mg/dl, P<0.01),while HDL increased ±SD) 37.7±5.1 to 39.5±4.9mg/dl, (P < 0.01) but conflictingly there was no change in BMI.[14]

Studies demonstrated that metformin was found to have pronounced beneficial effects in type 2 obese diabetic patients. Serum lipoproteins, body mass index,fasting blood sugar,triglycerides and HDL as compared to SU therapy.[15,16]

Shirin et al[9] also wrote that anthropometric measurements, fasting blood sugar, HbA1C, serum lipid profiles and lipoprotein ratio (LDL/HDL) showed a significant decrease after treatment with metformin (P <0.05).Contrary with ours, some authors reported reduction only in total cholesterol levels.[17,18]

CONCLUSION

Metformin is very useful and tolerable drug for the management of patients presenting with metabolic syndrome, it significantly decrease the serum triglyceride level of the patients and increase the HDL level of the patients on follow up.

Author's Contribution:

Concept & Design of Study:	Qaisar Farooq
Drafting:	Muhammad Uthman
Data Analysis:	Amna Malik and Farhan Fateh Jang
Revisiting Critically:	Qaisar Farooq, Muhammad Uthman
Final Approval of version:	Qaisar Farooq

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

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Original Article

Pattern of Skin Diseases in University Students Presenting in Out Patient Department of University of Lahore Teaching Hospital

Syed Atif Hasnain Kazmi and Aisha Malik

ABSTRACT

Objective: To assess the pattern of skin diseases in patients and to determine their relation with demographic characteristics.

Study Design: Cross sectional study.

Place and Duration of Study: This Study was conducted at the Dermatology Department at University of Lahore from January 2019 to December 2019.

Materials and Methods: One thousand, nine hundred and ninety-two students were enrolled.

Results: In our study 1308 (65.7%) were females and 684 (34.3%) were males with M:F ratio 1.0:1.9. According to age the participants were divided into 3 groups. Late-teens: total 610 (30.6%) of total participants) 473 (23.7%) were females and 137(7%) were males. Early -twenties: The largest group comprising of 51% of total participants total 1018, (51%); 629 (31.5%) were females and 389 (19.5%) males. Mid-twenties: the smallest group total364 (18.2%): 206 (10.3%) were females and 158 (8%) were males

Conclusion: Acne vulgaris is the most common lesion seen in the OPD with females being most likely affected gender. Stress, hormonal, dietary factors, sedentary life style play a vital in the causation and progression of dermatoses.

Key Words: Acne vulgaris, Hirsutism, Androgenetic alopecia, Warts, Scabies

Citation of article: Kazmi SAH, Malik A. Pattern of Skin Diseases in University Students Presenting in Out Patient Department of University of Lahore Teaching Hospital. Med Forum 2021;32(5):66-68.

INTRODUCTION

Although skin disorders are very common worldwide they are more prevalent in the underdeveloped world.[1] The disorders are protean ranging from simple scabies to life threatening erythema multiform major staphylococcal toxic skin syndrome. epidermal necrolysis and purpura fulminans.[2,3] Skin diseases can cause high morbidity but apparently less mortality.[4-5]The pattern of skin diseases varies even from urban to rural population and from one province to other. This signifies the origin of the skin manifestation is dependent on many factors some but not of them include soil, genetics, poor hygienic and social norms.[1-3] Not necessarily every skin disorder is a skin disease, most of the systemic diseases have pathognomonic skin leison. Proper early diagnosis of skin disease is important as it be a public notifiable communicable disease.[1]

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Proper sanitation, public awareness and healthy eating habits can significantly reduce the spread of skin disorders in a population.[1-6]

Teen-age is associated with major endocrinal, psychosomatic alteration in the body due to transition from childhood to adulthood. The pituitary is master gland to govern these changes. ACTH stimulates adrenal cortex to secret cortisol, fludrocortisone, and is held responsible for skin pigmentation.[7,8,9] Ovarian developments in females occurs under the action of FSH and LH. The ovary in turn secret estrogens that is responsible for menarche. There are multiple phenotypic changes in the body at the time of puberty: growth and development of sebaceous and apocrine glands, pubic and axillary hair, moustache and beard, seborrhea, dandruff thinning of scalp hair increased terminal hair in androgen sensitive area and acne.[8] Other dermatosis in the adolescents resulting from constitutional and exogenous factors having psychosomatic influence include eczema, folliculitis, bacterial and viral infection increase consciousness of looking young and beautiful all factors contributes to anxiety in this age group.[7,8]

As there is very little data available in the local population about prevalence of skin diseases.[10,11] The present study was planned to have insight into the frequency and types of skin disorders especially among university students in the OPD of a tertiary care

hospital to determine the burden of these diseases in the students.

MATERIALS AND METHODS

A total 1992 students of both genders who presented in Out-patient Department were included. Demographics: age, sex and pattern of skin lesions were recorded and summarized as tables. Patients were prescribed treatment and advised follow up.

RESULTS

Table No.1: Gender distribution of students (n=1992)

Gender	No.	Percentage
Male	684	34.0
Female	1308	66.0
M:F ratio	1.0:1.91	

Table No.2: Stratification of age according to gender (n=1992)

	Age (years)	Male	Female	Total
Group A: Late teens group	17-19	137 (6.87%)	473 (23.74%)	610 (30.6%)
Group B: Early twenties group	22-22	389 (19.52%)	629 (31.57%)	1018 (51%)
Group C: Mid-twenties group	23-25	158 (7.93%)	206 (10.34%)	364 (18.2%)
Mean±SD	20.69±2.07			

Table No.3: Stratification of skin diseases according to gender (n=1992)

Skin diseases	Male	Female
Acne vulgaris	215 (10.79%)	640 (32.0%)
Melasma/Freckles	36 (1.80%)	133 (7.0%)
Hirsutism	-	98 (5.0%)
Androgenetic alopecia	65 (3.26%)	15 (0.75%)
Diffuse Hairloss	15 (0.75%)	50 (3.0%)
Warts	55 (2.76%)	34 (1.70%)
Dermatophyte infection	50 (2.51%)	40 (2.0%)
Pityriasis versicolor	14 (0.70%)	10 (0.50%)
Scabies	28(1.40%)	15 (0.75%)
Eczemas	81 (4.06%)	150 (7.53%)
Onychomycosis	10 (0.50%)	12 (0.60%)
Urticaria	30 (1.50%)	45 (2.25%)
Chicken pox	4 (0.20%)	3 (0.15%)
Herpes zoster	5 (0.25%)	4 (0.20%)
Herpes simplex	10 (0.50%)	8 (0.40%)
Bacterial infections	15 (0.75%)	13 (0.65%)
Keloids	20 (1.0%)	12 (0.60%)
Alopecia Areata	16 (0.80%)	10 (0.50%)
Other dermatoses	10 (0.50%)	15 (0.75%)

In our study 1308 (65.7%) were females and 684 (34.3%) were males with M:F ratio 1:1.9. According to age the participants were divided into 3 groups.

Group A: Late-teens: total 610(30.6%) of total participants) 473 (23.7%) were females and 137(7%) were males.

Group B: Early -twenties: The largest group comprising of 51% of total participants total 1018, (51%);629 (31.5%)were females and 389 (19.5%) males.

Group C: Mid-twenties: the smallest group total 364 (18.2%): 206 (10.3%) were females and 158 (8%) were males.

DISCUSSION

Skin disease is one of the presentation of the systemic illness. Our study highlights the skin lesions attributed to adolescents and early twenties. In university students, female students are more likely to present with dermatoses than their sex counterparts with a ratio of 1:1.9.

This male to female ratio in our study is in contrast to the similar study published in 2017 done on 95,983 patients. This group comprised 42% males and 58% females, with a male to female ratio of 1:1.4 the difference was statistically insignificant ($p > 0.05$). The mean age was 30.4 ± 9.2 years.[12] The gender difference in our study may be because of either or all: our participants were university students the mean age was 20.69±2.070 years In this age group dermatoses are more prevalent in females. The students in university may have more stressful environment than the general public.

The most common age of presentation is early twenties as this group comprises of almost half of the total studied group. The reason may be multifactorial, this age group may be comprising maximum no of university students or may be more prone to stress due to environmental, exam period.[12]

The most common lesion is acne vulgaris. Almost one third of the female students (32%) had this lesion at presentation while only 10% of the total studied males had this lesion at presentation. The reason may be multifactorial and include some if not all, stress, hormonal changes, dietary habits, sedentary life style and family history.[12]

Although, significant impact these social factors have on the life of an individual, his family and social norms and economic burden related to its sequela, the public health importance of these diseases is neglected and under reported.[8]

In contrast to our study in which Acne is most common in female students in a study done elsewhere .though there was no significant difference between the proportion of males and females with acne, they found the difference of pattern between 2 genders. White/black heads were seen significantly more among

females while papule and pustule were seen significantly more males. This was similar to the observation made in another study carried out in New Zealand where severe type of acne was seen more among males.[13] Severity of this condition among males could be because of hormonal factors.[14]

The controversy from our study can be explained by dietary habits, life style and genetics.

In our study Freckles and eczema is the second most diagnosis of the skin lesions. It involved 7-7.5% of females in the group but only 1-4% of male students had presented with these. These gender based differences may be because of variant sex hormonal profile and gonado-pituitary -hypothalamic axis.

Hirsuitism was the 3rd most common lesion in females (5%), that may be a phenotypic presentation of polycystic ovaries.

Maria et al conducted a study and found that infectious skin diseases (rather than acne or eczema) comprise of 42.68% of the total skin diseases.[6] The reason of this difference can be that our study covers only students between a specific age in contrast to this study that studied age group 10–29 years.[6,7]

There are a few limitations to this study. The present study may not be generalized to other social groups because of different factors associated with dermatoses. Also it doesn't reveal the true burden of skin disorders among young adults as here only a special population is studied. If this study had been multi centered the results would have been more inferential.

CONCLUSION

Skin diseases especially acne vulgaris is the most common lesion seen in the OPD with females being most likely affected gender. Stress, hormonal, dietary factors, sedentary life style play a vital in the causation and progression of dermatoses.

Author's Contribution:

Concept & Design of Study:	Syed Atif Hasnain Kazmi
Drafting:	Aisha Malik
Data Analysis:	Aisha Malik
Revisiting Critically:	Syed Atif Hasnain Kazmi, Aisha Malik
Final Approval of version:	Syed Atif Hasnain Kazmi

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

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Original Article

Comparison of Treatment Efficacy of Extracorporeal Shock Wave Lithotripsy and Pneumatic Ureteroscopic Lithotripsy for Lower Ureteric Stones

Muhammad Adnan[1], Fazal-ur-Rehman Khan[2], Rana Ata-ur-Rehman[3], Abdul Rauf[2], M. Muzamil Tahir[2] and Hafiz Muhammad Aeymon[2]

ABSTRACT

Objective: To compare the treatment efficacy of ESWL and pneumatic lithotripsy for lower Ureteric Stones at six weeks after the procedure.

Study Design: A Randomized Controlled Trial Study

Place and Duration of Study: This study was conducted at the Department of Urology at Shaikh Zayed Hospital Lahore from February, 2016 to August, 2016.

Materials and Methods: A total 100 cases were included 50 in each group, after informed consent. By lottery method, patients were divided into group A or B. In group A ureteroscopic pneumatic lithotrips was performed with semi rigid 8 Fr ureterorenoscope. Swiss lithoclast was used for stone fragmentation. Prophylactic antibiotics were given to all patients. In group B, calculi were localized with fluoroscopy or ultrasound guidance in prone position and ESWL done. Analgesics were given to all patients. CT scan at 6 weeks follow-up was done to document complete stone clearance.

Results: Total 100 cases with lower ureteric stone were included in this study. The mean age of the patients was 38±10.41 years (range 19-63 years). Male patients were more 72 (72%). When the treatment groups were compared there were more stone clearance in URSL group 44 (88%) and less in 33 (66%) (p 0.016).

Conclusion: URSL was found to be more effective in terms of removal of lower ureteric stone as compared to ESWL.

Key Words: ESWL, URSL, Ureteric stone

Citation of article: Adnan M, Khan F, Ata-ur-Rehman R, Rauf A, Tahir MM, Aeymon HM. Comparison of Treatment Efficacy of Extracorporeal Shock Wave Lithotripsy and Pneumatic Ureteroscopic Lithotripsy for Lower Ureteric Stones. Med Forum 2021;32(5):69-72.

INTRODUCTION

Various factors such as, size of the calculus, degree of impaction and ureteral edema has contribution in obstructive uropathy due to lower ureteric stone. Colicky pain is the main symptom of ureteric colic, although it may remain asymptomatic in some cases.[1] 70% of ureteric calculi are situated in the lower third part of the ureter and Ureteric stone disease is the third most common phenomenon of the urinary tract.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Currently, options for the treatment of lower ureteral stones are extracorporeal shock wave lithotripsy (ESWL) and ureteroscopy (URS). ESWL was first introduced in early 1980s and has been widely used of urinary stone disease.[2] It is a clinically proven cost effective method, noninvasive and no or short hospital stay. Ureteroscopy (URS) is more invasive as a compared to ESWL and require general or spinal] anesthesia. The advantage of URS is better in breaking of hard stones and the ureter opening is dilated simultaneously by the scope to facilitate passage of broken fragments subsequently.[3] Complete stone clearance depends upon several factors, such as stone size and location, level of obstruction, composition and proficiency of the operator. Several studies reported that for lower ureteral stones extracorporeal shock wave lithotripsy appeared to be better treatment option. Nevertheless, some patients may needs repetitive ESWL whose stones not fragmented completely.[4] Some studies documented that ESWL was a safe, effective and noninvasive method to treat majority of stones with a minimal or no complications.[5]

In a study, ESWL was reported an effective and minimally invasive method for treating ureteral stones. In this study patient satisfaction was 94% for ESWl and 75% for ureteroscopy.[6] In another study conducted by Mostafa Kamal and colleagues the URSL has a significantly higher (p <0.005) stone free rate (80%) than ESWL (67.6%).[7] In a study success rates of SWL and URS were 82.9% and 97.7% respectively (p.001).[8] In another study the stone free status for ESWL and URS was 76.3% and 97.5% respectively (p <0.0001).[9]

MATERIALS AND METHODS

This randomized controlled study trial was conducted at Urology Department and comprised 100 patients (50 in each group) Patients included in this study were above 18 years age and less than 65 years of both sex and with distal ureteric stone size less than 15mm. While patients excluded were, refused to participate in the study, patients with solitary functioning kidney (absent second kidney on USG or nonfunctioning as determined by DTPA Renal Scan) and patients with creatinine more than 3mg/dl, ipsilateral ureteric stricture on CT scan, history of kidney transplant and ureter re-implantation. (URS not done due to difficult approach and increased risk of complications), urinary tract infection (p >10000 organism per HPF under microscope) diagnosed on urine culture and sensitivity. (risk of sepsis) and distal obstruction in ureter diagnosed on CT scan. (ESWL not recommended).

By lottery method, group A patients were treated with ureteroscopic intracorporeal pneumatic lithotripsy and group B were treated with ESWL. In group A patients were admitted after anesthesia, while the patients in group B no admission was required. For ESWL MODULITH SLX-F2 lithotripter was used. Patients were put in prone position for ESWL and ureteric stones were localized with ultrasound guidance for radiolucent stones and fluoroscope for the radiopaque stones and for focusing. All patients in group B were given intravenous fluid and analgesics according to the level of shock wave energy that was progressively stepped up till fragmentation of stones. In group A, URS was performed with semi rigid 8 Fr. Korl Storz (R) ureteroscope and stones were fragmented with pneumatic lithotripsy by using Swiss Lithoclast. All patients were given prophylactic antibiotics. CT scan at 6 weeks follow-up was done to document complete stone clearance.

RESULTS

Total 100 cases with lower ureteric stone were reported in this study. The mean age was 38±10.41 years (range 19-63 years) (Table 1). Male patients were more 72 (72%) while the female patients were 28 (28%) (Table 2). Efficacy in terms of stone clearance was observed in 82 (82%) while it was failure in 18 (18%) (Table 3). When the treatment groups were compared there were more stone clearance in URSL group 44 (88%) and less in 33 (66%) and this difference was significant (p 0.016) (Table 4). Mean stone size was 9.80±2.06mm. On stratification it was found that efficacy was noted same in all age groups and no significant difference with respect to efficacy of both treatment as URSL had shown efficacy in 14 (31.8%) and ESWL in 9 (27.3%) in 19-30-year age group patients while 30 (68.2%) in URSL and 24 (72.7%) in ESWL group of age 31-65 years was noted (Table 5). Gender had also did not shown significant difference for both treatment modalities as p 0.663 for male and 0.746 for female calculated for comparison of treatment groups (Table 6). Similarly, stone size did not had effect on the both treatment modalities (Table7).

Table No.1: Distribution according to age of the patients (n=100)

Groups	Mean±SD
URLS	38.10±11.203
ESWL	38.14±9.676
Minimum age	19.00
Maximum age	63.00

P value=0.30

Table No.2: Distribution according the gender of patients

Gender	No.	Percentage
Male	72	72.0
Female	28	28.0
Groups		
	URLS	**ESWL**
Male	36 (72.0%)	36 (72.0%)
Female	14 (28.0%)	14 (28.0%)

Table No.3: Distribution for efficacy of treatment

Efficacy treatment	No.	Percentage
Yes	82	82.0
No	18	18.0

Table No.4: Comparison ofefficacy in the different treatment groups

Groups	Efficacy	
	Yes	No
URSL	44 (88.0%)	6 (12.0%)
ESWL	33 (66.0%)	17 (34.0%)

P 0.016

Table No.5: Stratification of efficacy with respect to age

Age (years)	Efficacy		P value
	Yes	No	
19-30			
URSL	14 (31.8%)	3 (50.0%)	0.396
ESWL	9 (27.3%)	6 (35.3%)	
31-65			
URSL	30 (68.2%)	3 (50.0%)	0.746
ESWL	24 (72.7%)	11 (64.7%)	

Table No.6: Stratification of efficacy with respect to gender

Gender	Efficacy		P value
	Yes	No	
Male			
URSL	31 (70.5%)	5 (83.3%)	0.663
ESWL	23 (69.7%)	13 (76.5%)	
Female			
URSL	13 (29.5%)	1 (7.5%)	0.746
ESWL	10 (30.3%)	4 (23.5%)	

Table No.7: Stratification of efficacy with respect to size of stone

Stone size	Efficacy		P value
	Yes	No	
5-8 mm			
URSL	23 (52.3%)	1 (16.7%)	0.192
ESWL	14 (42.4%)	6 (35.3%)	
>8 mm			
URSL	21 (47.7%)	5 (83.3%)	0.763
ESWL	19 (57.6%)	11 (64.7%)	

DISCUSSION

Crystallization of concentrated urinary substances results in urinary lithiasis is most common theory of stone formation. Not drinking enough water is the most common cause of kidney stones, besides dietary factors. Dietary factors such as increase intake of red meat results in over acidification of urine causing the increased excretion of calcium, uric acid and oxalate, whereas the urinary excretion of citrate which has protective role against stone formation is decreased that ultimately results in calcium and uric acid stone formation. Hence main risk factor for the formation of uric acid stones is production of acidic urine.

Kidney stones are more common in men than in women which is in accordance with this study and similar results were documented by Stapleton.[10] Thus, predisposition of stone formation is due to increased metabolic waste because of tissue breakdown. Asplin et al documented in his study that higher prevalence of stone formers ranging from 21-40 years of their age which is similar to our study results. Increased prevalence of urinary stones when men enter into their 40s and continues to rise into their 70s is documented in some studies. For female gender, the prevalence of stone formation peaks in their 50s.[10,11] In the treatment of ureteric stones extra corporeal shockwaves lithotripsy and ureterorenoscopy are the most common therapeutic methods. Our study assessed the effectiveness of each modality. Odds ratio were lower than 1 regarding the stone clearance in each study for patients with upper and lower ureteral stones, which shows that ureterorenoscopy with lithoclast is favored over extra corporeal shockwaves lithotripsy. Odds ratio were higher than 1 for the retreatment during extra corporeal shockwaves lithotripsy which also suggest that ureterorenoscopy with lithoclast as a better modality.[12]

Stone clearance of ureteric stones ranges from 70.7% to 96.8% in different studies, showing a trend of better success rate as the number of patients increases in each study.[13,14] About ureterorenoscopy with pneumatic lithotripsy, our results are comparable with those of other available data. Proximal stone migration during ureterorenoscopy with pneumatic lithotripsy is known disadvantage. The overall migration of stone rate in this study was 11.36 and 27.27%. Proximal stone migration during ureterorenoscopy with pneumatic lithotripsy can be decreased by the use of occlusion devices (balloon catheter, stone cone, basket), suction device (Lithovac) or occlusion material (lidocaine jelly).[14]

Lithotripter has several advantages such as greater comfort for patient during procedure, a great comminution of the stone, better imaging because of the very high quality of the fluoroscopy. Our results of ESWL are comparable with published literature success rates of 40-91%.[15] Computerized tomography (CT) scan is used to estimate the stone type by measuring density. It was documented in some studies that success rate of extra corporeal shockwaves lithotripsy for urinary stones cannot be predicted on densities measured by CT scan. These densities also cannot predict the number of sessions required during extra corporeal shockwaves lithotripsy[16]. Stones with densities <500 Hounsfield units (HU) are highly likely to result in successful extra corporeal shockwaves lithotripsy. Conversely, stone densities ≥800 HU are less likely to be fragmented.[17] In a study extra corporeal shockwaves lithotripsy for lower ureteric calculi resulted in a success rate of 81% compared with 99% for URSL. However, patients treated with URS were stone-free within 2 days, whereas patients in the extra corporeal shockwaves lithotripsy group required up to 4 months which showed that URSL was having higher efficacy as compared to extra corporeal shockwaves lithotripsy.[15] Similarly in a review of seven RCTs (1205 patients), it was found that stone-free rates were lower in patients who underwent extracorporeal shockwaves lithotripsy (7 studies, 1205 participants: RR 0.84, 95% CI 0.73 to 0.96) but re-treatment rates were lower in ureteroscopy patients (6 studies, 1049 participants: RR 6.18, 95% CI 3.68 to 10.38.18. So the fact is that, the URSL is more convenient and efficacious procedure for the treatment of lower ureteric calculi. There is a need to replace the ESWL procedure with this new modality so that patients could be treated more effectively in a lesser time irrespective of the gender or age discrimination.

CONCLUSION

Both URSL and SWL enable an effective and safe primary treatment option for the stone in the lower ureter. The URSL has a significant higher initial stone-free rate; however, after six weeks of follow-up, the

stone-free rate of SWL has been further increased and the difference between the two procedures becomes less significant.

Author's Contribution:

Concept & Design of Study:	Muhammad Adnan
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Frequency of Metabolic Syndrome (METS) in Patients with Systemic Lupus Erythematosis (SLE)

Metabolic Syndrome in Systemic Lupus Erythematosis

Amjad Ali[1], Sadaf Andleeb[2] and Muhammad Uthman[3]

ABSTRACT

Objective: To study the frequency of metabolic syndrome in patients with systemic lupus erythematosus.
Study Design: Quasi-Experimental Study.
Place and Duration of Study: This study was conducted at the Rheumatology Department, Shaikh Zayed Hospital Lahore from October 2017 to October 2018.
Materials and Methods: Two hundred and forty patients who fulfilled the study protocol and consented were enrolled for this study. Enrolled patients were grouped into 2 categories. Group-A SLE movement record and Group-B: Controls. Serum samples for sugar, lipid profile including to talcholesterol, high-thickness lipoprotein (HDL), low-thickness lipoprotein (LDL), triglycerides, andInsulin (pg/ml). Categorical data was analyzed using Chi-square Test using (SPSS) v 23. A p-value ≤0.05 was taken as significant.
Results: In Group A, 25 (20.8%) were males and 95 (79.2%) females, while in Group-B 15 (12.5%) were males and 105 (87.5%) females. Mean age of the patients in group-A was 40.2±11.7 years, while 36.6±11.6 years in group-B. While comparing the Metabolic syndrome (MetS) in both groups, MetS was noted in 35 (29.2%) patients in Group-A and 18 (15.0%) in Group-B
Conclusion: Systemic lupus erythematosus with patients have higher prevalence of metabolic syndrome than controls. Syndrome was associated with higher level of inflammation and provide inflammation and increased cardiovascular risk.
Key Words: Metabolic Syndrome, Systemic Lupus Erythematosus

Citation of article: Ali A, Andleeb S, Uthman M. Frequency of Metabolic Syndrome (METS) in Patients with Systemic Lupus Erythematosis (SLE). Med Forum 2021;32(5):73-76.

INTRODUCTION

Systemic lupus erythematosus (SLE) is a multisystem autoimmune syndrome with protean manifestations. Female gender is more likely to be affected than their sex counterparts. Females with SLE have 5 times more risk of coronary artery disease (CAD)[1]as well assub-clinical artererosclerosis too.[2,3]
The etiology of increased prevalence of arteriosclerosis[4] in the said syndromeis yet unknown. Disting uishing proof of systems that are basic to both irritation and cardiovascular sickness are of intrigue and SLE gives an extraordinary model to think about such inquiries.
The syndrome X in considered a complex disorder, the complete etiology of which is a secret.

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Received: November, 2020
Accepted: March, 2021
Printed: May, 2021

It is an independent risk of CAD owing to its essential components i.e. apple obesity, dyslipidemia, insulin resistance and disrupted glucose metabolism. Each of the above mentioned are independent risk factors associated with cardiovascular morbidity and mortality.[5,6,7] In all inclusive community, male with the Syndrome X are 1.9–3 times more inclined to expire due to any reason and 2.9–4.2 times more prone to expire from CHD.[8] Female with the Syndrome X have double expanded hazard of major antagonistic cardiovascular occasions and death.[9]
There is a concrete evidence between cardiovascular hazard factors, syndrome and inflammation.[10] The people at risk of metabolic syndrome do start to have anyone or more of the individual components of the syndrome long time before they are diagnosed with diabetes or CAD, favouring the relation of inflammatory cytokines and CRP with the disorder.[11] Since a lot of international literature highlights the association of SLE with metabolic syndrome, the study was conducted to study the prevalence of metabolic syndrome in our set up.

MATERIALS AND METHODS

This quasi experimental study was conducted at Department of Rheumatology & Immunology, Shaikh Zayed Hospital, Federal Postgraduate Medical Institute,

Lahore. After approval from the Departmental Ethics Committee. Prior to inclusion, informed written consent was taken from each patient. The sample of 240 (120 in each group) was estimated by using 95% confidence level and 80% power of test with an expected percentage of Metabolic Syndrome is 45.2% in patients with SLE and 32.7% in controls. Patients of both gender, age between 20-60 years and diagnosed was SLE. These patients were excluded from the study i.e. history of Myocardial Infarction, History of Angina and Stroke, patients already diagnosed with diabetes mellitus, thyroid disease and pituitary disease. Patients were randomly divided into two groups, i.e. Group-A (SLE activity index) and Group-B (Control activity index). Stature and weight were estimated and the BMI was figured. Midsection estimations were likewise gotten. Circulatory strain was recorded as the mean of two estimations got 5 min separated after members had rested in a prostrate position for 10 min. Blood was gathered for the estimation of glucose, add up to cholesterol, high (HDL), low-thickness lipoprotein (LDL), triglycerides, lipoprotein. Insulin fixations were estimated utilizing ELISA (Lincoplex) and announced as pg/ml. Data were entered in statistical package for social sciences (SPSS) v 23.0. Qualitative data like gender and MetS were determined by using frequency and percentages and quantitative data like age, waist, TG level, HDL cholesterol, blood pressure and fasting blood sugar were determined by using mean and standard deviation. Comparison was performed using Chi-square test. Stratified for age and gender. Post stratification, Chi-square test was used. A p-value ≤0.05 was taken as significant.

RESULTS

In Group-A, 25 (20.8%) were males and 95 (79.2%) females, while in Group-B 15 (12.5%) were males and 105 (87.5%) females (Table 1). In Group-A, 20-35 years age group, there were 45 (37.5%) patients, while in 36-50 years and >50 years age groups, there were 45 (37.5%) and 30 (25.0%) patients respectively (Table 2). In Group-B, in 20-35 years age group, there were 45(37.5%) patients, while in 36-50 years and >50 years age groups, there were 45 (37.5%) and 30 (25.0%) patients respectively. Mean age of the patients in Group-A was 40.2±11.7 years, while 36.6±11.6 years in Group-B. Mean waist circumference of the patients in Group-A was 94.4±13.4cm and 92.4±13.9cm in Group-B with a p-value of p=0.255, which is statistically insignificant. Mean glyceride levels of the patients in Group-A was 108.4±24.6mg/dl and 90.0±15.6mg/dl in Group-B with a p-value of p=0.0001, which is statistically significant. Mean high-density lipoprotein (HDL) of the patients in Group-A was 44.7±5.7mg/dl and 46.8±4.4mg/dl in Group-B with a p-value of p=0.002, which is statistically significant (Table 3). Mean blood pressure of the patients in Group-A was 131.5±7.6mmHg and 125.6±11.2mmHg in Group-B with a pvalue of p=0.0003, which is statistically significant (Table 4). Mean fasting blood sugar (FBS) of the patients in Group-A was 85.1±6.0mg/dl and 85.7±3.4mg/dl in Group-B with a p-value of p=0.296, which is statistically insignificant (Table 5).

While comparing Syndrome X in both groups, Syndrome X was noted in 35 (29.2%) patients in group-I and 18 (15.0%) in group-II with a p-value of p=0.008, which is statistically significant (Table 6). Table 7 shows the stratification of metabolic syndrome in groups with respect to gender.

Table No.1: Comparison of gender distribution in groups

Gender	**Groups**		**Total**
	SLE activity index	Controls activity index	
Male	25	15	40
	20.8%	12.5%	16.7%
Female	95	105	200
	79.2%	87.5%	83.3%
Total	120	120	240
	100.0%	100.0%	100.0%

Table No.2: Comparison of age groups in groups

Age groups (Years)	**Groups**		**Total**
	SLE activity index	Controls activity index	
20-35	45	50	95
	37.5%	41.7%	39.6%
36-50	45	47	92
	37.5%	39.2%	38.3%
>50	30	23	53
	25.0%	19.2%	22.1%
Total	120	120	240
	100.0%	100.0%	100.0%

Table No.3: Comparison of High-Density Lipoprotein (HDL) in groups

Group	Mean±SD	P value
SLE activity index	44.7±5.7	0.002
Controls activity index	46.8±4.4	

Table No.4: Comparison of blood pressure in groups

Group	Mean±SD	P value
SLE activity index	131.5±7.6	0.0003
Controls activity index	125.6±6.8	

Table No.5: Comparison of fasting blood sugar (FBS) in groups

Group	Mean±SD	P value
SLE activity index	85.1±6.0	0.296
Controls activity index	85.7±3.4	

Table No.6: Comparison of Syndrome X in groups

Metabolic Syndrome (MetS)	Groups		Total	P value
	SLE activity index	Controls activity index		
Yes	35	18	53	0.008
	29.2%	15.0%	22.1%	
No	85	102	187	
	70.8%	85.0%	77.9%	

Table No.7: Stratification of metabolic syndrome in groups with respect to gender

Syndrome	SLE activity index	Controls activity index	P value
Male			
Yes	6 (24.0%)	2 (13.3%)	0.414
No	19 (75%)	13 (86.7%)	
Female			
Yes	29 (30.5%)	16 (15.2%)	0.010
No	66 (59.5%)	89 (84.8%)	

DISCUSSION

Syndrome X is more prevalent in patients with SLE irrespective of co existent potential cofounders i.e. age, sex, central obesity and BMI. The overall prevalence of syndrome X in general population is high [12] and the Syndrome is a sole predictor of all cause cardiovascular morbidities and mortalities.[13] One of the significant association between Syndrome X and coronary atherosclerosis is the high serum insulin indicating that Syndrome X is an insulin resistant state.[14] If we restrict ourselves to NCEP criteria[15] to define Syndrome X, its prevalence in a population of ladies 40 years is 20% otherwise its 13% while quoting World Health Organization criteria.[16]

In our study the prevalence ofmetabolic disorder was 29.4% in patients with SLE (NCEP criteria) as compared tocontrols 15.0%. Our study is in concordance with study published by Medeiros et al[17,18] They also highlighted many factors relating to metabolic syndrome in SLE patients like duration of primary disease type and compliance of treatment e.g. corticosteroids or choloroquine.[17] Another study revealed that the normal age of diagnosis of SLE was 41.7±12.5 years and 91.8% were female as compared to males. Metabolic syndrome was 45.2% than control 32.7%).

In another study, it was concluded that MetS was prevalent in patients with SLE 20% than controls13%. The Mets with SLE introduced more elevated amounts of provocative inflammatory markers than SLE without the Mets. E.triglycerides, HDL C3 serum levels were related to the occurrence of metabolic syndrome.[19]In another examination, patients of SLE were enlisted of mean age in years i.e. 34.9±13.6 and sickness span of mean 24.2±18.0 weeks. The prevalence of MetS was 38.2% and 34.8% at year 1 and 35.4% at year 2.

There are some pitfalls in the study, it would have been more inferential if done multicentered and the association of drug taken by the patient if had been taken into account,we would have been able to demark the relation of drugs with the occurrence of metabolic syndrome

CONCLUSION

Patients with SLE have a higher prevalence of Syndrome X. Also this syndrome is associated with high levels of inflammatory markers and insulin which may be a connecting bridge between this entity and all cause cardiovascular mortality.

Author's Contribution:

Concept & Design of Study:	Amjad Ali
Drafting:	Sadaf Andleeb
Data Analysis:	Muhammad Uthman
Revisiting Critically:	Amjad Ali, Sadaf Andleeb
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Clinicopathological Profile of Glomerular Diseases: A Single Center Study

Profile of Glomerular Diseases

Anam Shaikh[1], Fouzia Lateef[1], Talat Mirza[2] and Rehan Ahmed Siddiqui[2]

ABSTRACT

Objective: The aim to design this study was to identify and highlight the frequency and histomorphological patterns of different glomerulopathies with their clinical and laboratory profiles in tertiary care hospital.

Study Design: A cross-sectional prospective study

Place and Duration of Study: This study was conducted at Histopathology Department, Dr. Ziauddin Hospital, Karachi during the period between March 2019 to September 2019.

Materials and Methods: A total of 100 renal biopsy samples with their complete relevant clinical information and other laboratory findings were included in this study. The biopsies were studied by using light and immunofluorescence microscopic techniques. The glomerular diseases were categorized as primary and secondary glomerulopathies.

Results: Among total of 100 cases, there were 57% female and 43% male, mean ± SD 1.43 ± 0.498. Minimum age was 3 years and maximum was 80 years with the mean ± SD of 31.11 ± 17.506.. The most common clinical presentation was nephrotic syndrome followed by protienuria, nephritc syndrome, SLE, hematuria, oliguria and unexplained renal failure. Primary glomerulopathy was present in 82% of cases. The most common morphological picture found was FSGS (27%), followed by membranous glomerulonephritis (19%), mesangiocapillary glomerulonephritis (18%), minor changes (11%), chronic sclerosing glomerulonephritis (5%), diabetic nephropathy (5%) and amyloidosis (5%), lupus nephritis (class-I lupus nephritis, class-III lupus nephritis, class-IV & V lupus nephritis) (4%), 2 (2%) chronic sclerosing glomerulonephritis and other rare patterns.

Conclusion: We conclude that primary glomerulopathy is predominant type and most common morphological pattern of glomerular disease is FSGS followed by membranous GN and mesangiocapillary glomerulonephritis with high affinity towards female.

Key Words: Primary and secondary glomerulopathies, histomorphology, immunofluorescence

Citation of article: Shaikh A, Lateef F, Mirza T, Siddiqui RA. Clinicopathological Profile of Glomerular Diseases: A Single Center Study. Med Forum 2021;32(5):77-81.

INTRODUCTION

Glomerular diseases are the worldwide public health issue (Xu et al., 2016; Alwahabi et al, 2018; Liu et al, 2018).[1-3] Damaged glomeruli cannot filter and excrete out waste products and extra fluid from the body. If injury continues, renal function ceases completely, ultimately leading to renal failure (Choudary et al., 2014).[4] The incidence and dispersal of glomerular diseases varies according to demographic elements, population, genetics and territorial factors. (Sim et al, 2016; Garau et al., 2018).[5,6]

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

These are the diseases mediated by humoral and cellular immune mechanisms and presenting with various clinical pictures ranging from hematuria and asymptomatic protenuria, nephrotic syndrome, nephritic syndrome, acute nephritis, acute renal failure, rapidly progressive renal failure, which eventually develops chronic renal failure (Crensiglovsa et al., 2016)[7]. Glomerular diseases can be primary or secondary. FSGS is the most frequently reported primary pattern of glomerulopathy in United States whereas in Europe and Asia, the most commonly reported primary pattern is IgA nephropathy. Most frequently reported secondary pattern is lupus nephritis followed by Henosh Schonlien Purpura and Diabetic Nephropathy (Zhou et al., 2018)[8]. Many non-invasive techniques were used in the past to evaluate the renal diseases but renal biopsy is the gold standard method for the diagnosis and therapeutic approach to the glomerular diseases (Alfaadhel et al., 2019)[9]. However, currently there is poor concert for attestation and clinical utility for this approach. As the performance of renal biopsy totally depends on personal stance or institutional policies· Majority of the studies concluded that the renal core biopsy can ameliorate the management and treatment plan of glomerular diseases (Fiorentino et al., 2016)[10].

MATERIALS AND METHODS

This a cross-sectional prospective study design. A total of 100 biopsy samples of symptomatic patients of glomerular disease (either gender & aged between 1 to 80 years), sent to the histopathology department with complete relevant clinical information and other laboratory findings were included. This study was conducted during the period between March 1st 2019 to September 30th 2019 at Histopathology department, Dr. Ziauddin Hospital, Karachi. Samples of patients suffering from diseases other than glomerular disease like tubulointerstitial disorders, renal transplant biopsy and inadequate information on request card were excluded from the sample. All the samples evaluated using light microscopy and immunofluorescence. For light microscopy, tissue specimens were fixed in 10% neutral buffered formalin, Processed for 12 hours in semi-automated processor by providing the medium (Xylene, Alcohol, Formalin & Paraffin wax) manually, Embedded the fixed renal biopsy core in paraffin wax to make block for further proceedings, 11 serial sections were cut (at a thickness of 2mm) on microtome (Equipment used to make ribbons of embedded tissue in a paraffin block for slide), Stained by hematoxylin–eosin (HE) and special stains, like periodic acid-Schiff (PAS) and silver stains (Gomori's Methenamine Silver, GMS) for optimal evaluation of the morphological details. For Immunofluorescence studies, tissue cores stained by the direct method using fluorescein isothiocyanate (FITC)-conjugated antisera mono-specific for immunoglobulin (Ig)G, IgA, IgM, C3 and C1q (Dako, Glostrup, Denmark). The slides were visualized under an Olympus BX41-fluorescence microscope and graded semi-quantitatively as 0 to 3+ (on a scale of 0 to 3+, where 0 = absent and 3+ = brightest) and distribution will be described as membranous or mesangial in a granular or linear pattern. Sociodemographic and clinical data (such as patient's signs, symptoms, laboratory findings like degree of protienuria, hematuria, and urnianalysis results were retrieved from pathology request form of renal biopsy specimen received in histopathology laboratory or in the event of inadequacy about the history (more uncertain), contact were made to patient/alluded specialist. All the data (clinical, morphological and sociodemographic) was analyzed using the IBM SPSS v. 21.0 and M.S Excel 2013. Continuous variables such as age and laboratory data expressed as mean ± standard deviation (SD). Categorical variables such as gender and age categories expressed as proportion and percentages. Chi-Square test to assess the association between two categorical variables. A p-value of ≤0.05 was considered significant.

RESULTS

Total 100 cases were included in this study, among them 57 (57%) were female and 43 (43%) were male, mean ± SD 1.43 ± 0.498. The minimum age among total number of cases was 3 years and maximum was 80 years with the mean ± SD of 31.11 ± 17.506.

The most common clinical presentation was nephrotic syndrome in 61(61%) cases, followed by protienuria alone in 12 (12%) cases, nephritic syndrome in 7 (7%) cases, SLE in 6 (6%) cases, hematuria alone in 5 (5%) cases, oliguria in 5(%) cases, and unexplained renal failure in 4 (4%) cases.

Pathological profile showed minimum blood urea level 11 mg/dl and maximum 250 mg/dl, mean ± SD of 61.49 ± 51.948. Minimum serum creatinine level was 0.1 mg/dl and maximum was 10.8 mg/dl, mean ± SD of 1.889 ± 2.0948.

Microscopic hematuria was present in 8 (8%) cases and gross hematuria was also present in 8 (8%) cases for the duration of two weeks upto 8 weeks. Protienuria was present in 89 (89%) cases for the time period of 3 months upto 12 months. Hypertension was present in 14 (14%) cases, 8 (8%) were positive for diabetes. Among 57 of female cases none of them was pregnant.

All 100 cases were negative for Anti-HCV and HbsAg. Anti-Ds DNA level was raised in 4 (4%) cases, serum ANA level was raised in 5 (5%) cases, serum CANCA level was raised in 2 (2%) cases and C3 level was raised in 2 (2%) cases.

Out of total 100 cases, Primary glomerulopathies were found in 82 (82%) cases,among them 27 (27%) were diagnosed as FSGS, 19 (19%) Membranous glomerulonephritis (5 were diagnosed with spike formation), 18 (18%) Mesangiocapillary glomerulonephritis, 11 (11%) were found with Minor changes, 5 (5%) Chronic sclerosing glomerulonephritis, and only 2 (2%) Crescentic glomerulonephritis.

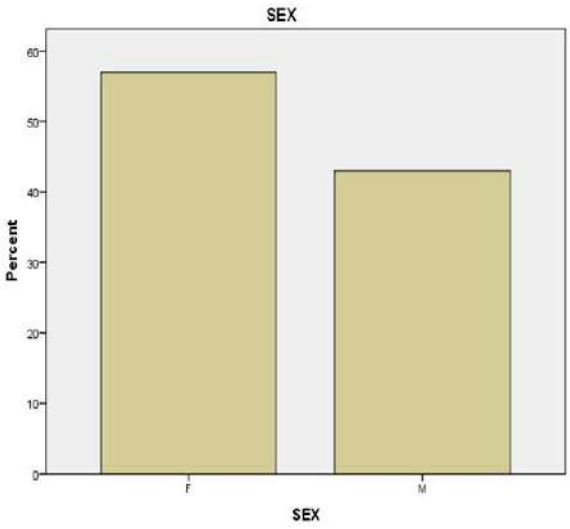

Figure No.1: Representing Gender Distribution

Secondary glomerulopathies were found in 18 (18%) cases among them 5 (5%) were diagnosed as diabetic nephropathy, 5 (5%) Amyloidosis of secondary reactive type, 4 (4%) Lupus nephritis (among them, 1 was Class-I Lupus nephritis, 1 class-III Lupus nephritis, 1 class-IV & V Lupus nephritis, and 1 class-III & V Lupus nephritis), 2 (2%) Patchy cortical infarction, 1 (1%) Hypertensive nephropathy, 2 (2%) and 1(1%) Hemolytic uremic syndrome.

Table No.1: Glomerulopathies Between Gender

Morphological patterns	Female	Male	Total
Focal segmental glomerulosclerosis	17	10	27
Membranous Glomerulonephritis	11	8	19
Mesangiocapillary Glomerulonephritis	8	10	18
Minor changes	7	4	11
Chronic sclerosing Glomerulonephritis	4	1	5
Diabetic Nephropathy	2	3	5
Amyloidosis	1	4	5
Lupus nephritis	4	0	4
Crescentic Glomerulonephritis	1	1	2
Patchy cortical infarction	2	0	2
Hyprtensive nephropathy	0	1	1
Hemolytic uremic syndrome	0	1	1
Total	57	43	100
P - 0.137, Mean ± SD 10.03 ± 4.704, CI : 95% (0.27-0.133)			

DISCUSSION

We hope that, our study fulfil the lacuna and provide the current profile of glomerular diseases in this region, which may aid to make health policies better and to provide the frame-work for future research in this very demanding field. In our study we observed, glomerular diseases were predominant in women and nephrotic syndrome was the most common clinical presentation in (61%) of cases which nearly coincide with the findings observed in the study of Beniwal et al., 2020[11] (49.6%) and Hu et al., 2020[11] (51.8%). Protienuria was the next common clinical presentation in our study in (12%) of cases followed by nephritic syndrome (7%) and other rare presentations as this finding is observed by Mittal in his study (Mittal et al., 2020)[12]. In our study we observed primary glomerulopathies (82%) are more common than secondary glomerulopathies (17%). According to Mittal they found primary glomerular diseases in (73%) of popluation and secondary glomerular diseases in (15.5%) of cases but Cresiglova et al., 2016 reported secondary glomerulopathy (53.3%) and primary glomerulopathy (46.7%) and the findings of Cresiglova were against the majority of studies in Pakistan and other countries. FSGS (Focal segmental glomerulosclerosis) was the most prevalent type of glomerulopathy in our series found (27%) and it is also reported by Beniwal et al., 2020 (13.0%) and by Chun et al., 2020[15] in (21%) of population. Therefore, FSGS becomes a common consequence of renal diseases worldwide this finding was compared with the study of Akhtar et al., 2020[14] reported (19.5%) in KPK. We reported second most common morphological analysis membranous glomerulonephritis and it is reported by Akhtar et al., 2020 in (16.6%) of cases and Tawfik et al., 2019 in Egypt population (2.9%) and in our case we observed (19%). Krishin et al., 2020 revealed in his work minor changes (20%) and Tawfik et al., 2020[16] (3.8%), as we found this (11%) in our study. In our results, chronic sclerosing glomerulonephrtis was (6%), but our analysis was not similar to results reported by Said et al.,2020 in international study (44%) and Sadaf et al., 2018 in Karachi, Pakistan (53.8%). We noted accountable difference among the studies, crescentic glomerulonephritis in our series (2%), Beniwal et al., 2020 (35.4%) and Mahajan et al., 2020 (32.9%). Diabetic nephropathy (5%) and amyloidosis (5%) noted by us in our study. In fact, diabetic nephropathy was more frequent in the series of Sharma et al., 2020 and Mubarak et al., 2011 (42.14%) and (8.1%) respectively. Amyloidosis reported by Beniwal et al., 2020 was (13.9%), Mubarak et al., 2011[22] was (42.1%). Lupus nephritis appeared (4%) in our series and it was reported by Gupta et al., 2020 (12.9%) and Saberafsharian et al., 2020 (8.8%). Hypertensive nephropathy, hemolytic uremic syndrome and patchy cortical infarction were the rare patterns observed in our as well as other studies (Kazi et al., 2012)[26] glomerular diseases are the illness with high morbidity and mortality rate, and its triggered when these are associated with common risk factors, such as low socioeconomic status and co-morbid conditions, this area of study demands the high attention towards the better management. (Zhang et al., 2020)[27].

CONCLUSION

Our examination accentuates the significance of renal biopsy and appropriate methodology towards the analysis of glomerular sicknesses. We finish up, examples of glomerular diseases changes over the world because of seriously puzzling social determinants of race/identity and related impacts of co-morbidities . Essential glomerulopathy mirroring the fondness of renal diseases and makes critical extent towards female. Primary glomerular diseases are predominant type. Nephrotic condition manufacture most noteworthy edge among clinical introductions. FSGS is the regularly

analyzed primary morphological example. Our examination face certain constraints, shortage of electron microscopy at our foundation is one of the huge among them. Our examination proposed a thought of range of glomerular illnesses at just those cases which were gotten in our research facility, hence, our investigation may not be altogether illustrative of the study of disease transmission of glomerulopathies in entire populace. It is making imperative to call attention to additional cases and reconsider the all out records of renal biopsy to set up the library for development in medical care polices.

Author's Contribution:

Concept & Design of Study:	Anam Shaikh
Drafting:	Fouzia Lateef, Talat Mirza
Data Analysis:	Rehan Ahmed Siddiqui
Revisiting Critically:	Anam Shaikh, Fouzia Lateef
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Acknowledgements: We are thanking to our technical staff and the study participants.

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

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Original Article

Online Learning among Rural and Urban Students

Challenges of Online Learning and Attitude of Medical Student at LUMHS: Comparative Study among Rural and Urban Students during Covid -19 Pandemic

Muhammad Ilyas Siddiqui, Rafaina Shah and Kanwal Naz Ariser

ABSTRACT

Objective: To enumerate the challenges of online learning faced by urban and rural medical students in LUMHS and highlight the preference of medical students regarding online learning also seek association of medical students of both populations with the challenges of online learning.

Study Design: A comparative Cross sectional study

Place and Duration of Study: This study was conducted at the Liaquat University of Medical and Health Sciences, Jamshoro from February 2021 to April, 2021.

Materials and Methods: This study was conducted among urban and rural MBBS students of LUMHS, via non probability convenient sampling. A predesigned close ended Google form questionnaire used to gather data. The data was analyzed by using SPSS 23.00 with significant $p< 0.05$. Students who were willing to participate are included in the study while who were not willing to participate were excluded.

Results: Among 487 students of LUMHS 43.7% male and 56.3% female. 55.3% to urban areas and 44.9% to rural areas. 89.52% of students have internet availability. 69.02% of urban and 82.64% of rural population shows problem of internet signals.82.08% of urban and 91.78% rural students faced electricity problem. 78.85% of respondents said their study work increased due to e-learning and 52.15% faced problem of privacy. 62.68% and 76.86% of urban while 76.25% and 81.27% of rural students feels stress on submission of assignment and appearing in online test/ exams. Most of 86.19% of urban and 85.84% of rural didn't prefer online teaching. while76.86% urban and 75.34% rural student said online teaching should not be made part of regular education.

Conclusion: Students of both population were facing problems of internet, electricity, privacy of learning and feel stress during online submission of assignment and test/exams. Students belongs to urban population was facing less problem of internet and electricity than rural students ($p<0.001$).

Key Words: Challenges, MBBS students, Online learning

Citation of article: Siddiqui MI, Shah R, Ariser KN. Challenges of Online Learning and Attitude of Medical Student at LUMHS: Comparative Study among Rural and Urban Students during Covid -19 Pandemic. Med Forum 2021;32(5):82-86.

INTRODUCTION

In December 2019 started, in China's Hubei province and Wuhan city.[1,2] COVID-19 was declared it a Public Health Emergency of International Concern by WHO on 30th January 2020.[3] COVID-19 was declared - a pandemic by WHO, On the 11th of March, as by then about 114 countries had been affected.[4,5]

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Received: April, 2021
Accepted: April, 2021
Printed: May, 2021

The first case of COVID-19, in Pakistan, was reported on February 26, 2020 from Karachi, with Pakistan's estimated population of as 204.65 million.[6,7] The virus successively spread into different regions countrywide and is presently an epidemic.[8]

In the light of the coronavirus disease (COVID)-19 pandemic situation, the government closed all the colleges and universities for classroom teaching. Thus, the option of e-learning was introduced for teaching purpose in medical colleges and universities.[9,10]

E- learning is defined as "learning experiences with internet access using different devices(e.g., mobile phones, laptops, etc.) in synchronous or asynchronous environments. In these environments, students from anywhere (independent), can learn and interact with teachers and fellow students".[11]

Many institutes, due to lockdown, shifted to e- learning behavior to facilitate students and save the lost time. The technological uprising in the present times and extensive accessibility and nonstop connectivity of internet, has opened many avenues for distant learning

and opportunities for learning and exchange of knowledge worldwide. Unlike many developed countries, developing countries including Pakistan does not have colleges and universities with well-established online and distant- learning programmes in place.[12,13]
Numerous school of thoughts are associated with online learning. Accessibility, affordability, flexibility, learning pedagogy, life-long learning, and policy are some of the arguments related to online pedagogy.[14]
There is a lack of standard for quality, quality control, development of online resources, and online content delivery. This issue needs to be handled right away so that everyone can enjoy the benefits of quality education via online learning.[15]

Rationale: Due to COVID-19 Pandemic government closed all teaching institutions and started online teaching to engage students in distance learning to continue education without gap. Due to sudden shift from traditional teaching methods towards online learning techniques and implementing a new learning environment for teaching, students are facing many challenges due to online e-learning. This study would highlight the gaps and hassles in this new age learning method. This study will provide a platform for institutions to overcome the challenges faced by students in future.

MATERIALS AND METHODS

A comparative Cross Sectional study design was carried out among sample of 487urban and rural undergraduate MBBS students of Liaquat University of Medical and Health Sciences, Jamshoro via non probability convenient sampling. An online predesigned close ended Google form questionnaire used to gather data about the challenges and attitudes of medical students regarding online learning. The data was complied with proper coding in Microsoft excel and further analysed by using statistical package for social sciences SPSS 23.00. P value of less than 0.05 was considered statistically significant. The study was completed in 2 months after the approval of ERC. Undergraduate MBBS students of LUMHS who had will to participate in the study were included in the study while students who were not willing to participate questionnaires with incomplete information or missing data were excluded.

RESULTS

About 487 students of Liaquat University of Medical and Health Science were participated in this study. Among them 43.7% were male and 56.3% were females (Fig.1). Most of students belonged to Urban areas 55.3% and 44.9% from rural areas (Fig.2). Challenges of online learning that were faced by MBBS Students are shown in figures.
Table 1. shows that 89.52% of students have internet availability. Among them 69.02% of urban and 82.64% of rural population have problem of internet signals.

Table No.1: Challenges Regarding Online Learning - n=487

Variables		Urban		Rural		Total		P-value
		n=268	%(55.03%)	n=219	%(44.96%)			
Internet Servivce availabe	Yes	216	80.59%	110	50.22%	436	89.52%	0.000
	No	52	19.40%	109	49.77%	161	33.05%	
Problem of Internet signals	Yes	185	69.02%	181	82.64%	365	74.94%	0.001
	No	83	30.97%	38	17.35%	121	24.84%	
Go far for internet facility	Yes	33	12.31%	82	37.44%	115	23.61%	0.000
	No	235	87.68%	137	62.55%	372	76.38%	
Face technical issues	Yes	195	72.76%	186	84.93%	381	78.23%	0.001
	No	73	27.23%	33	15.06%	106	21.76%	
Electricity Problem	Yes	220	82.08%	201	91.78%	421	86.44%	0.002
	No	48	17.91%	18	8.21%	66	13.55%	
Study workload Increase	Yes	202	75.37%	182	83.10%	384	78.85%	0.038
	No	66	24.62%	37	16.89%	103	21.14%	
Problem of Privacy	Yes	129	48.13%	125	57.07%	254	52.15%	0.049
	No	139	51.86%	94	42.92%	233	47.84%	
Mental Health (Feel stress) while submitting online assignment due to electricity /connectivity issues								
	Yes	168	62.68%	167	76.25%	335	68.78%	0.001
	No	100	37.31%	52	23.74%	152	31.21%	
Mental Health (Feel stress while appearing In online test or exam due to electricity /connectivity issues)								
	Yes	200	76.86%	178	81.27%	384	78.85%	0.236
	No	62	23.13%	41	18.72%	103	21.14%	

Table No.2: Preference Regarding Online Learning and Traditional learning n=487

Variables		Urban		Rural		Total		P-value
		n=268	%(55.3%)	n=219	%(44.9%)			
Online learning is better than traditional learning	Yes	37	13.80%	31	14.15%	68	13.96%	0.912
	No	231	86.19%	188	85.84%	419	86.03%	
Online learning gives full satisfaction about course	Yes	35	13.05%	27	12.32%	62	12.73%	0.810
	No	233	86.94%	192	87.67%	425	87.26%	
Face to face contact with instructor is necessary	Yes	236	88.05%	193	88.12%	429	88.09%	0.982
	No	32	11.94%	26	11.87%	58	11.90%	
Is online learning is convenient method of study	Yes	67	25%	51	23.28%	118	24.22%	0.661
	No	201	75%	168	76.71%	369	75.77%	
Online teaching should be made part of regular education	Yes	62	23.13%	54	24.65%	116	23.81%	0.695
	No	206	76.86%	165	75.34%	371	76.18%	

12.31% of urban and 37.44% of rural students go far for avail the facility of internet,78.23% faced technical issues and 82.08% of urban and 91.78% of rural students faced electricity problem. On the other hand 78.85% of respondents said their study work increased due to e-learning and 52.15% students faced problem of privacy in their home. It is also shown in this table that 62.68% of urban and 76.25% of rural students feels stress while submitting online assignment and 76.86 of urban and 81.27% of rural students feels stress while appearing in online test/ exams.

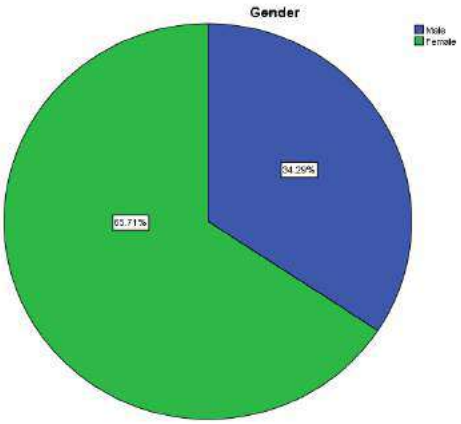

Figure No.1: Gender Distribution n (487)

Table.2 shows Preference of MBBS students towards online learning and traditional learning. Most respondents 86.19% of urban and 85.84% of rural didn't prefer online teaching. 86.94% of urban and 87.67% of rural students said they didn't have full satisfaction about course. 88.09% of Students prefer that face to face contact is necessary.24.22% said online learning is convenient method of learning while 75.77% didn't prefer it. 76.86% of urban and 75.34% of rural student said online teaching should not be made part of regular education.

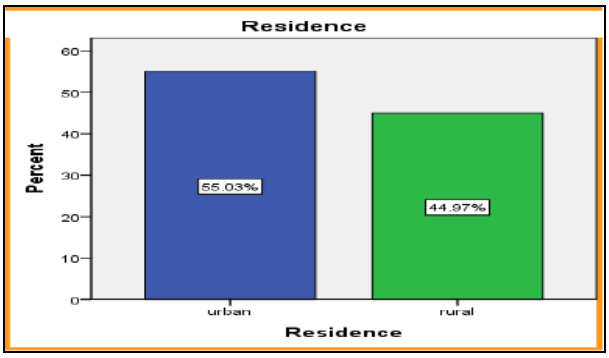

Figure No.2: Residence - n (487)

DISCUSSION

This study was conducted to observe the challenges of MBBS Student of urban and rural population during e-learning. In the currently situation corona virus disease (COVID 19) pandemic has had disturbed all lives and affected heath and economy. The decision to shut down all educational institutions greatly affected the entire education system throughout the world. To fill in that gap many institutes across the globe came up with virtual teaching techniques like live or recorded video lectures. and started training of students and teachers for running online teaching.[16,17]

Pakistan being one of the developing countries and facing basic challenges like internet and electricity issues among other things. With these challenges students were facing many problems in their studies.

This study will highlight the issues of medical students as they faced a new situation and tried to cope with it.

In present study main problems which were highlighted by MBBS student are related to internet and electricity issues. Mostly, 89.52% of respondents have internet facility among them 69.02% of urban and 82.64% of rural population have problem of internet signals. 12.31% of urban and 37.44% of rural students said that they go far from their home to avail internet facility, and 78.23% respondents faced technical issue. While 82.08% of urban and 91.78% of rural students faced electricity problem. However in a study conducted at Libiya suggested that most of their respondent reported that they had access to fourth-generation internet services with an acceptable or good internet connection.[1]

On the other hand 75.37% from urban and 83.10% from rural students reported that their study work was increased due to e-learning. It is found in present study that 57.15% of rural students faced problem of privacy in their home as in rural areas they live in combined family system and online learning requires privacy to fully understand the concept of topic covered in lectures and for participation.

Another challenge that was observed was related to mental health. It is very difficult to submit online assignment and appear in online test/or exam in conditions like fluctuation or complete absence of electricity and slow speed of internet or other connectivity issues that build up stress among students. In this study 62.68% of urban and 76.25% of rural students suggested that they were stressed while submitting online assignment and 76.86 of urban and 81.27% of rural students feel stressed while appearing in online test/ exams.

Around 68.99% students also said they have lost their interest in studies due to facing such difficulties while attending online classes. Study of Sindiani and et al also shows that mostly their respondents did not attend their online lectures due to bad internet connection.[19]

In present study most respondents 86.19% of urban and 85.84% of rural didn't prefer online teaching. 86.94% of urban and 87.67% of rural students said they didn't have full satisfaction about course and they cannot easily understand course. 88.09% of Students prefer that face to face contact is necessary. 24.22% said online learning is convenient method of learning while 75.77% didn't prefer it. Study of Jamnagar shows that medical students prefer traditional teaching methods (57%) over e-learning classes. Hannay and Newvine also observed in their study that students prefer distance learning (e-learning) more than traditional teaching methods While in a Study of Riyad conducted by Rajab et al shows the preference of combining online with face-to-face instruction.[9,20,21]

Although the online teaching is convenient method for the students and main advantages of online teaching are the time and money saved from the expenses of travel and it is feasible for students as they can learn without going anywhere at the comfort of their own place also include opportunities for students to anonymously ask and answer questions.[22]

Regarding a question related to making online teaching a permanent part of regular teaching in future most of the respondent of present study, i-e 76.86% of urban and 75.34% of rural student said online teaching should not be made part of regular education. In this regards Rajab et al also shows that their respondents were unhappy with the online learning experience. They wanted to return to conventional face to-face education right after the pandemic.[21]

CONCLUSION

It was concluded from the study that students belonging to urban and rural population both were facing problems of internet availability, electricity, privacy of learning and. It is shown that they have increase study workload and they feel stress during submission of assignment and test/exams because of internet and electricity problems. Most of students prefer traditional teaching rather than online teaching. As compare to urban and rural population, students belongs to urban population was facing less problem of internet and electricity (<0.001) than rural students.

Author's Contribution:

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Drafting:	Kanwal Naz Ariser, Rafaina Shah
Data Analysis:	Kanwal Naz Ariser
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Comparative Analysis of Oral Nifedipine Versus Oral Progesterone Alone in the Treatment of Threatened Preterm Labor

Shagufta Parveen[1], Hina Taufeeque[3], Bushra Zulfiqar[1], Kausar Parveen[1], Eraj Abbas[2] and Atiya Kazim[3]

ABSTRACT

Objective: To compare the effectiveness of oral nifedipine versus oral progesterone alone in the treatment of threatened preterm labor from 24 to 37 weeks of gestation.

Study Design: Experimental Study

Place and Duration of Study: This study was conducted at the Department of obstetrics and gynecology of Al-Tibri Medical College and Hospital and Kulsoom Bai Valika Social Security Hospital, Karachi in the duration of four months from November 2020 to February 2021.

Materials and Methods: A total of 188 patients with threatened preterm labor having age 18-40 years with singleton pregnancy, gestational age between 24-37 weeks confirmed by LMP or ultrasound were included and divided into two groups. Groups A (n=94) was treated with the 20mg of oral nifedipine three times for 48 to 72 hours and Group B (n=94) was treated with the 100mg oral progesterone twice daily for 72 hours. Success in stopping uterine contractions was defined as absence of any contraction after 12 hours of treatment. Data was collected into predesigned Performa.

Results: The average age of women in group A was 27.59±5.41 and in group B was 28.11±5.37 years. Mean gestational age was 33.05±3.59 weeks. Effectiveness of a drug (Success in stopping uterine contractions is defined as no contractions after 12 hours) was significantly high in group A than group B (76.8% vs. 66%; p=0.0005).

Conclusion: Nifedipine seems to be effective and safe tocolytic agent; it can be used successfully to inhibit contractions in threatened preterm labor.

Key Words: Threatened Preterm labor, Nifedipine, Progesterone

Citation of article: Parveen S, Taufeeque H, Zulfiqar B, Parveen K, Abbas E, Kazim A. Comparative Analysis of Oral Nifedipine Versus Oral Progesterone Alone in the Treatment of Threatened Preterm Labor. Med Forum 2021;32(5):87-90.

INTRODUCTION

Preterm birth is a health and social problem, considered the leading cause of neonatal mortality worldwide. It is associated with higher rates of neurodevelopmental morbidity, sensorineural impairments and other complications. [(1)] Approximately 70% of neonatal deaths, 36% of infant deaths and 25—50% of cases of long term neurologic problem in children can be caused by preterm birth.[(2)]

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Received: March, 2021
Accepted: April, 2021
Printed: May, 2021

Long term morbidity comprises cerebral palsy, neurological developmental delay and chronic lung disease. Gestational age is inversely proportional to the risk of mortality and morbidity. [(3)]

According to WHO definition, preterm labour refers to the onset of labour after the gestation of viability and before 37 completed weeks of pregnancy.[(4)] The diagnosis of onset of labour consists of documented uterine contraction, rupture fetal membrane, documented cervical change with cervical length of more than 2cm or less and / or cervical dilatation of more than 2cm, whereas threatened preterm labour comprises of only documented uterine contraction without cervical change. Every year about 15 million babies are born at preterm and this number is rising. Prematurely complications are the main cause of mortality among babies under 5 years. [(5)] It is estimated worldwide that the preterm birth rate ranges from 5—18% of live birth[(6)], while in Pakistan, preterm birth rate is 15.8/100 live birth. [(7)]

The key element of management consists of avoiding neonatal complication though administering corticosteroid to mother and antibiotic to obviate

neonatal sepsis and during the pregnancy to reach its possible physiological term by tocolysis.[8] Tocolysis is the suppression of uterine contraction and is the principal preterm birth preventive measure until the etiology of premature birth is revised.[9]

Progesterone administration allows the pregnancy to reach its term because at adequate level in the myometrium, it antagonizes the oxytocin effect of prostaglandin F2α· Progesterone has been widely used in primary and secondary prevention of preterm labour [10], so it is good for maintenance Tocolysis too. Calcium-channel Blockers block the calcium to transfer across the myometrial cell.

They reduce intracellular free calcium concentration and causes myometrial. Nifedipine is an affective agent with simple oral route and low neonatal complication. It should not be used in patients with jeopardize cardiovascular conditions. It is used for the maintenance Tocolysis is controversial. [11]

The aim of this study to compare the efficacy of oral Nifedipine and oral perforation in the time of threatened preterm labour.

MATERIALS AND METHODS

This Quasi experimental study was carried at Departments of obstetrics and gynecology of Al-Tibri Medical College and Hospital and Kulsoom BaiValika Social Security Hospital, Karachi from November 2020 to February 2021. The sample size was calculated by using WHO sample size determination software [12]. A total of 188 patients with threatened preterm labor of age 18-40 years with singleton pregnancy, gestational age between 24-37 weeks confirmed by LMP or ultrasound were included and divided into two groups. Groups A (n=94) was treated with 20mg of nifedipine three times in a day for 48-72 hours and Group B (n=491) was treated with the 100mg progesterone twice daily for 72 hours. However, pregnant women with twins and gestational age <24 and >37 weeks were not included. Patients with comorbidities like diabetes, chronic hypertension, renal disease, cardiovascular disease, hypothyroidism, vaginal infections, cervical incompetence, placental abruption and placenta praevia were also excluded. An informed consent was taken from women before starting the recruitment process. Patients of Group A were given 20mg orally and followed by 20mg three times daily for up to 48-72 hours. The maximum dose given during study was 60 mg/day. Patients of Group B were given 100mg of progesterone twice daily for 72 hours. Uterine contraction, cervical dilation and fetal heart rate were checked before and after treatment up to 4 hours and there after 4 hourly observations for 72 hours were taken. Effectiveness of the drug was measured in term of elongation of delivery time after treatment.

Data Analysis: Data was analyzed using SPSS version 20. Frequency and percentages was calculated for categorical variables like effectiveness and mean standard deviations were reported for continuous variables like age, gravida, parity and gestational age. Chi-square was applied to compare the efficacy in both groups taken $p \leq 0.05$ as significant.

RESULTS

Age distribution of the patients with respect to groups is shown in figure 1. The mean age of the patients in Group A was 27.59±5.41 and in Group B was 28.11±5.37 years. The average gravida in Group A was 3±1.23 and in Group B was 3±1.20. The average gestational age in both groups was 33.04±3.62 and 33.07±3.59 respectively. (Table 1).

Table No.1: Mean demographic presentation of the data

Variables	Group A n=94	Group B n=94	Overall n=188
Age (Years)	27.59±5.410	28.11±5.379	27.85±5.39
Gravida	3±1.23	3±1.20	3.61±1.22
Gestational Age (Weeks)	33.04±3.62	33.07±3.572	33.05±3.59

The comparison of the effectiveness (Success in stopping uterine contractions is defined as no contractions after 12 hours) between nifedine and progestagen is presented in Table 2. Effectiveness was significantly high in group A 76.8% than group 66% (p=0.0005).

Table No.2: Percentage of effectiveness of oral nifedipine versus oral progesterone alone among different groups

Groups	Effectiveness	
	Yes	No
Group a (n=94)	72 (76.8%)	21 (23.3%)
Group b (n=94)	62 (66 %)	32 (34%)

Chi-square test was applied; p-value ≤ 0.05 considered significant.

With respect to gravida, effectiveness was also significantly high in group A than group B for 2 to 3 gravida women and 4 to 5 gravida women while it was insignificant for above 5 gravida women as shown in table 3.

Table No.3: Percentage of effectiveness of oral nifedipine versus oral progesterone alone with respect to gravida among different groups

Gravida	Effectiveness	Group A n=94	Group B n=94	P-Value
2 to 3	Yes	42(75.6%)	35(65.1%)	0.006
	No	14(24.4%)	19(34.9%)	
	Total	**56**	**54**	
4 to 5	Yes	23(80.6%)	20(67.5%)	0.011
	No	5(19.4%)	9(32.5%)	
	Total	**28**	**29**	
>5	Yes	8(73.2%)	7(66.1%)	0.41
	No	3(26.8%)	4(33.9%)	
	Total	**11**	**11**	

Chi-square test was applied; p-value ≤ 0.05 considered significant.

Effectiveness was significant between groups in those cases whose gestational age was ≤30 weeks while it was observed significantly high in group A than group B for above 30 weeks gestational age as presented in table 4.

Table No.4: Effectiveness between groups in the treatment of threatened preterm labor with respect to gestational age

Gestational age	Effectiveness	Group A n=94	Group B n=94	P-Value
≤ 30	Yes	15(72.8%)	14(68.9%)	0.54
	No	5(27.2%)	6(31.1%)	
	Total	20	20	
31 to 35	Yes	39(77.1%)	33(66.4%)	0.007
	No	11(22.9%)	16(33.6%)	
	Total	50	49	
36 to 37	Yes	19(79.4%)	16(62.9%)	0.004
	No	5(20.6%)	9(37.1%)	
	Total	24	25	

Chi-square test was applied; p-value ≤ 0.05 considered significant

DISCUSSION

In the current study the comparative analysis of oral nifedipine and oral progesterone in the treatment of threatened preterm labor was done and we have found that oral nefidipine was more effective in term of arresetation of preterm labor than oral progrresterone. The Effectiveness of the drug; measured in percentage was significantly high in group A than group B (76.8% vs. 66%; p=0.0005). With respect to gravida, effectiveness was also significantly high in group A than group B for 2 to 3 gravida women and 4 to 5 gravida women while it was insignificant for above 5 gravida. Effectiveness was significant between groups in those cases whose gestational age was ≤30 weeks while it was observed significantly high in group A than group B for above 30 weeks gestational age. These findings are in the line of the previous researches indicating nefidipine was more effective and better choice of drug in the treatment of preterm labor. [13,14] Howerver, some studies found no significant difference in the effcetiveness of both drugs[15] while other study showed contradictory finding that progesterone showed better outcomes and prevented preterm labour than nifedipine. [16]

For pregnant women and clinicians, preterm birth is a clinical challenge. It is the most common of all births, accounting for about 8%. In addition, it not only causes premature birth, but also has many fetal complications related to it. Over the years, great attention has been paid to prevent the preterm labor. However, threatened preterm labor classified as periodic uterine contractions can progress to about 25% of preterm labor. [17] It was previously observed that Terbutaline (bricanyl) has been the first line drug which used intravenously or subcutaneously to inhibit preterm labour for over 20 years. However, there is evidence regarding failure of oral salbutamol in terms of impeding contraction. Federal Drug Association has not yet approved magnesium sulfate to use for inhibiting contraction due to high feto-maternal complications. [18] There is great evidence reporting less side effects with use of progesterone in terms of preterm pre labour and preterm babies weight. [19] Among all drugs, it is found that nifedipine has fewer side effects to mother and fetus. [11,12,18] Chawanpaiboon S et al [19] included patients of mean age of 28.3 years He concluded that progesterone and nifedipine played vital role in inhibiting contraction in 77% and 73% cases respectively. Another randomized clinical trial was conducted to determine prophylactic efficacy of neifedipine in terms of prevention of preterm labour and the finding of that study are analogous to our study. [14]

The wide variation efficacy of both drugs is to be emphasized. Areeruk W et al. in his study found no difference between both groups however our results showed significant difference in both groups. [20] In a study conducted by Nisa Su et al. she concluded that preterm labour was arrested when combination therapy of both nifedipine and progesterone was induced which is contradictory to our findings. [21] Our finding are also contradictory to an Iranian study where progesterone was equally effective as nifedipine. [22] However, Nifedipine (calcium channel blocker) is effective and safe tocolytic agent and successful treatment of preterm labor than progesterone.

CONCLUSION

Nifedipine (calcium channel blocker) is effective and safe tocolytic agent, it should be recommended to halt premature contractions. Preterm birth leads to variety of neonatal complications and to avoid this. Premature prelabouse must be reducing. Nefidine is not only effective in causing inactivity of uterine contraction; it has fewer side effects and less complication rate for perinatal morbidity and mortality.

Author's Contribution:

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

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Original Article

Pre and Post Fusional Reserve Assessment following Orthoptic Exercise

Assess the Pre and Post Fusional Reserve following Orthoptic Exercise

Ashique Hussain Gadehi[1], Israr Ahmed Bhutto[2], Imran Ali Pirzado[3], Mazhar Ali[4], Asim Ateeq[2] and Uroosa Memon[5]

ABSTRACT

Objective: Assess the Pre and Post Fusional Reserve Vergence (PFV) following Orthoptic Exercise.
Study Design: A Longitudinal Interventional Based Study
Place and Duration of Study: This study was conducted at the Isra Postgraduate Institute of Opthalmology and Muhammad Medical College from Oct. 2020 to April 2021.
Materials and Methods: 60 patients that had CI were selected for this study. All of the patients were taught and prescribed the pencil push-up tests as the form of Orthoptic exercise which was to be carried out to improve CI. The Pre and Post PFV was measured and compared using the Chi-Square tests, the P-value was set at P-value ≤0.05.
Results: Significant Different was seen in the Pre and Post Fusional Reserve Distance Positive (Pvalue≤0.01), Pre and Post Fusional Reserve Distance Negative (P-value=0.02), Pre and Post Fusional Reserve near Negative (P-value=0.01), and Pre and Post Fusional Reserve near Positive (P-value ≤0.01).
Conclusion: Following Orthoptic Exercise Improvement was seen in the Post Fusional Reserve Vergence. Further studies can be to assess if Orthoptic Exercise can improve Near Point of Convergence or if it can improve symptoms of CI.
Key Words: Convergence insufficiency, Post Fusional Reserve Vergence, Orthoptic Exercise, Pencil Push-up.

Citation of article: Gadehi AH, Bhutto IA, Pirzado IA, Ali M, Ateeq A, Memon U. Pre and Post Fusional Reserve Assessment following Orthoptic Exercise. Med Forum 2021;32(5):91-93.

INTRODUCTION

Convergence insufficiency (CI) is a relatively common binocular disorder of the eye[1]. As it is a very common and frequently arising disorder of the muscular discomfort, it needs to be given clinical significance [2]. The disorder involves around the inability of a patient to converge eyes towards and object of interest which moves from a distance to a nearby point. Patients report multiple symptoms which include fatigue to the eyes, headaches, and diplopia while reading and studying [3-4]. Patients with CI reveal an exophoria or intermittent exotropia at near, but can also exhibit orthophoria. The symptoms of CI can worsen by illness in wakefulness, long working hours, and nervousness[3]. The prevalence in The United States of America is said to be 2% of the whole population. The frequency of complains related to CI tends to increase with near work[5]. CI tends to appear earlier than expected it there is an increase burden of near work for prolonged working hours[6]. CI can be clinically diagnosed by measuring a reduced near point of convergence (NPC), and a diminished Positive Fusional Vergence (PFV) at near [7]. Treatment for CI revolves around the fact that if the patient is asymptomatic or symptomatic. The treatment of choice includes intensive Orthoptic therapy. Treatment for symptomatic patients includes base-in prism reading glasses, pencil push-ups, orthoptic vision therapy, and office-based vergence/accommodative therapy[2]. Particularly, pencil push-ups and base-in prism reading glasses are the most commonly used treatment modalities for tackling CI, with approximately 87% of Ophthalmologists and Optometrists prescribing these methods to patients[8]. Pakistan is a country filled with many eye related defects, and CI is one of them. As there is a lack of information concerning CI and its improvement through orthoptic exercise in Pakistan, a cross sectional study was done to assess the pre and post fusional reserve following Orthoptic Exercise.

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Received: December, 2020
Accepted: March, 2021
Printed: May, 2021

MATERIALS AND METHODS

After being granted approval from the Institutional Review Board (IRB), a longitudinal interventional based study was conducted for a period of 6 months at the Isra Postgraduate Institute of Opthalmology and Muhammad Medical College from Oct. 2020 to April 2021. 60 patients aged between 15-30 years were chosen through non-probability convenience sampling

technique. All the patients were informed about their involvement in the study through written consent. All the patients went through an eye examination by the selected Ophthalmologist, who was able to confirm the diagnosis of CI. Before patients were prescribed Orthoptic exercise in the form of Pencil Push-up test, the Pre Fusional Reserve Vergence (FPV) was measured with the help of Prism Fusional Range (PFR) using prisms. Once Pre FPV was measured, all the patients were taught Pencil Push-up test. They were all asked to demonstrate the test that they will have to perform at home so that they performed it accurately and made no errors in doing so. The patients were followed up after a month and the Post FPV was measured using the same technique. Data was analyzed and compared using SPSS Version 21.0. to assess and compare the FPV difference that Orthoptic Exercise had, The Chi Square test was carried out with statistical significance being set at ≤0.05**.**

RESULTS

Figure 1.1: Shows the Percentage of Pre and Post Fusional Reserve Distance Positive.
Figure 1.2: Shows the Percentage of Pre and Post Fusional Reserve Distance Negative.
Figure 1.3: Shows the Percentage of Pre and Post Fusional Reserve Near Negative.
Figure 1.4: Shows the Percentage of Pre and Post Fusional Reserve Near Positive.

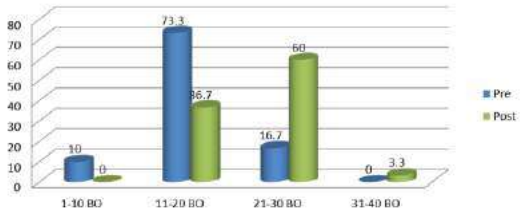

Figure No.1: Shows Percentage of Pre and Post Fusional Reserve Distance Positive

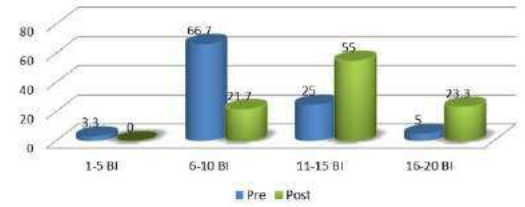

Figure No.2: Shows Percentage Pre and Post Fusional Reserve Distance Negative

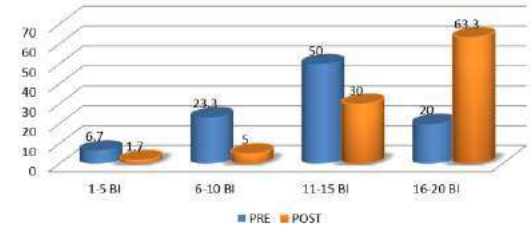

Figure No.3: Shows Percentage Pre and Post Fusional Reserve Near Negative

Table 1: Shows comparison of Pre and Post Fusional Reserve Reading from different Dimensions. Significant difference (P-value ≤0.05) was seen in all the comparisons of Pre and Post Fusional Reserve.

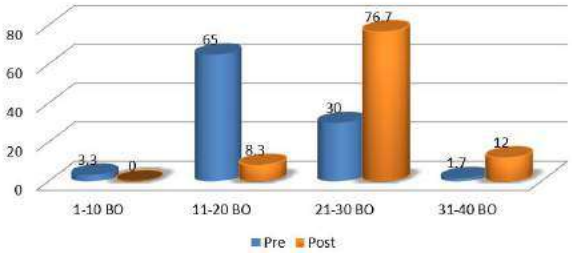

Figure No.4: Shows Percentage Pre and Post Fusional Reserve Near Positive

Table No.1: Shows Significant difference on Comparison of Pre and Post Fusional Reserve Reading from different Dimensions

Fusional Reserve Distance Positive		Fusional Reserve Distance Negative	
Pre	Post	Pre	Post
≤ 0.001		0.002	
Fusional Reserve Near Positive		Fusional Reserve Near Negative	
Pre	Post	Pre	Post
≤ 0.001		0.001	

DISCUSSION

Current reports of the frequency and prevalence of CI shows to be 2.25% and 8.3%, however earlier reports find that the incidence of data varies from 1-25%[9]. Further studies need to be done in Pakistan and across the globe to full determine the prevalence and the situation of CI on the globe. It is also necessary to find out more about the etiology of CI and to also determine if there might be a genetic predisposition to it or not. It is important to treat CI as if it is left untreated can reduce level of achievement of individuals; especially students and can create negative factors related to healthy and quality of life [10-11]. As stated earlier the treatment commonly prescribed is orthoptic exercises. In our study we used Pencil Push up as the orthoptic exercise for treating CI. We prescribed Pencil Push up due to the fact that it had a better compliance with patients and was easier to carry out[8]. Our study evaluated the Pre and Post Fusional Reserve of the Patients only, future studies can also be done to assess Near point of Convergence (NPC). There was significant difference in Pre and Post Fusional Reserve in all the parameters that was studied. This goes in line with another study in which Orthoptic exercises were done to improve CI which also demonstrated an improvement of Positive Fusional Vergence [6]. Another study supporter our finding in which just like our study used pencil push-up tests as a form of Orthoptic exercise and produced favorable results by recording an

improvement in prime fusion vergence as well as NPC[12]. Our study only used one form of Orthoptic Exercise to check for improvement in PFV, future studies can be done to assess different Orthoptic Exercises and see which produces the best improvement. Other treatment options are available for doctors and patients to try and prescribed to the patients, these methods include home-based computer orthoptic exercise programs which have been proven to improve CI[13]. Our study cements that Orthoptic Exercise can improve Post Fusional Reserve Vergence but studies need to be done to see if it reduces symptoms or not in the future.

CONCLUSION

Improvement in Post Fusional Reserve Vergence was observed in our study following Orthoptic exercise, however future studies need to be conducted to see if NPC and symptoms can also be reduced or not. Types of Orthoptic Exercises need to be pitted against each other to see which of the following the more dominant treatment modality is.

Author's Contribution:

Concept & Design of Study:	Ashique Hussain Gadehi
Drafting:	Asim Ateeq
Data Analysis:	Israr Ahmed Bhutto, Imran Ali Pirzado, Uroosa Memon
Revisiting Critically:	Ashique Hussain Gadehi, Asim Ateeq
Final Approval of version:	Mazhar Ali

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

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Original Article

Prevalence of Leaving against Medical Advice (LAMA) from Paediatric Wards Patients of Al-Tibri Medical College and Hospital

Nighat Seema[1], Erum Saboohi[1], Jamil Ahmed Siddiqui[3], Amna Khan[2], Ahmad Ashraf[2] and Ume Kulsoom[2]

ABSTRACT

Objective: The aim of this study was to present the prevalent rate of LAMA among paediatric hospitalized patients.
Study Design: Retrospective observational study
Place and Duration of Study: This study was conducted at the Paediatric wards of Al-Tibri Medical College and Hospital, data was collected during 1 year from June 2018 to May 2019.
Materials and Methods: Both genders, from infants till 12 year olds, admitted ICU / NICU and ward paediatric patients were included. SPSS was used for analysis of data. Frequency and percentages were reported for qualitative variables and Chi-Square test was applied to test for significance.
Results: Total of 734 patients 107 (15%) patients Left Against Medical Advice among which 54 (50.5%) were males and most of them 74 (69.2%) being infants. Over half of the patients, i.e. A significant difference was reported in between type of discharge with age, month of admission and diagnosis.
Conclusion: Our study reported a 15 % prevalence of LAMA among paediatric population reported in various other studies from both developing as well as developed countries. The prevalence rate was in between the rates presented in researches. Effective communicating techniques, awareness of health care system and improving health care performance are needed to minimise the rates of LAMA among patients.
Key Words: LAMA, DAMA, Paediatrics, Health-care Indicator

Citation of article: Seema N, Saboohi E, Siddiqui JA, Khan A, Ashraf A, Kulsoom U. Prevalence of Leaving against Medical Advice (LAMA) from paediatric wards patients of Al-Tibri Medical College and Hospital. Med Forum 2021;32(5):94-98.

INTRODUCTION

Leave Against Medical Advice (LAMA) also known as discharge against medical advice (DAMA) is the discharge of a patient against the agreement of the treating physician, especially due to caregivers of the paediatric patients. It has become a serious issue in health care provision since it includes risks linked with inadequacy of treatment, leading to an increase in readmissions, disease burden, causing increase in mortality [(1)]. This keeps patients from benefitting from maximum utilization of health care facilities[(2)].

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Parent's decision regarding their child's health has a vital influence of the outcome of their child's illness. LAMA distresses the paediatrician and other health facilitators involved in the care of paediatric patients. Slowly but surely, LAMA has become a serious public health issue[(3)].

The prevalence of LAMA has varied across the globe, from low 01 % to as high as 31 % in studies, depending upon the treating population [(4-5)]. Different reasons exist in developed countries as compared with developing countries. An increase rate in developing countries is seen where financial constraints play a huge part. Lack of quality care from patient's parents / guardian point of view, i.e. dissatisfaction with the care being received, lacking of achieving access to qualified and skilled physicians, inexperienced doctor / staff, lack of medical equipment / facilities and prolonged hospitalizations are some of the various reasons of parents / guardian are opting out for LAMA. Lack of health insurance in middle-lower income population also increases LAMA frequency [(6)].

LAMA is termed as an indicator of health care facilitations[(7)]. It is potentially a negative indicator of health care system's performance that included increased frequencies of readmissions, increase in duration of hospital stay on readmission, thereby increasing health-care costs [(8)]. LAMA among

paediatric patients poses a difficult challenge since their both emotional as well as cognitive immaturity forms a barrier thereby being dependant on their parents / guardian for taking ethical and sound decisions about their child's health [9].

Literature has reported that LAMA is likely to cause adverse health effects with LAMA patients being readmitted with a relatable first-time diagnosis within 30 days of first admission. The increase in health care costs, post-LAMA readmissions is stressful to the whole community from patients to physicians and overall health care system [10]. Countries have regulated a special law where a paediatric patient's parents can only discharge them after doctor's agreement (discharge on request) or if the parents agree to treat their child from another hospital under a specialized paediatrician. Such laws could aid in reducing LAMA related discharges from hospital [11]. Paediatricians and other health professionals can significantly contribute in reducing LAMA patients but providing all relevant information to the parents regarding their child's health and also explain the possible negative health impact on the child's health in considering LAMA [12]. Many health professionals struggle to maintain a balance in keeping the paediatric child's health as a priority and at the same time, convincing the parents / guardian to provide the child with the best possible treatment facility [13].

The purpose of this study is to present the prevalence of LAMA among paediatric patients, the common diagnosis at LAMA at Al-Tibri Medical College and Hospital, Karachi, Pakistan.

MATERIALS AND METHODS

Approval ethical review board's approval from Al-Tibri Medical College and Hospital Karachi, Pakistan, a retrospective observational study with the utilization of non-probability type of convenient sampling technique was carried out in the paediatric ward of the above respective hospital. Paediatric patients that were admitted from June 2018 to May 2019 with any diagnosis were included in the study after taking written and informed consent from the patient's parents / guardian. Emergency or ICU (Intensive Care Unit) / NICU (Neonatal Intensive Care Unit) paediatric patients, patients that were admitted but referred, surgical paediatric patients and those parents' / guardian who refused to give consent were excluded from the study. After applying inclusion and exclusion criterion, a total of 734 patients were enrolled in this study.

SPSS version 23.0 was utilized for analysis of data. Data was collected and kept confidential. Descriptive statistics of qualitative data such as age, gender, diagnosis and month of admission were presented as frequency and percentages. Chi-square test was applied to test the significance between LAMA patients and patients discharged on attending doctor's advice keeping a p-value of ≤ 0.05 as statistically significant.

RESULTS

During the duration of study, 107 (14.6%) out of 734 patients Left Against Medical Advice (LAMA) and rest 627 (85.4%) were discharged on attending doctor's advice [Figure 1]. Out of the 734 paediatric patients in the study, 423 (57.6%) were males and 311 (42.4%) were females. 284 (38.7%) were infants, 289 (39.4%) between 1-4 years, 106 (14.4%) between 5-8 years and 55 (7.5%) were between 9-12 years.

According to month-wise admission, 55 (7.5%) of patients were admitted in June 2018, 95 (12.9%) in July 2018, 86 (11.7%) in August 2018, 51 (7.4%) in September 2018, 39 (5.3%) in October 2018, 26 (3.5 %) in November 2018, 48 (6.5%) in December 2018, 56 (7.6%) in January 2019, 55 (7.5%) in February 2019, 70 (9.5%) in March 2019, 62 (8.4%) in April 2019 and 88 (12%) in May 2019.

357 (48.6%) of paediatric patients were diagnosed with acute gastroenteritis, 104 (14.2%) with Respiratory Disease, 86 (11.7%) with Viral Fever, 67 (9.1%) with Urinary Tract Infection, 36 (4.9%) with Neurological Disease, 25 (3.4%) with Enteric Fever, 29 (4%) with Protein Caloric Malnutrition, 20 (2.7%) with Haematological Disease and 10 (1.4%) with Sepsis [Table 1].

During the duration of study, 107 (14.6%) out of 734 patients were LAMA and rest 627 (85.4%) were discharged on attending doctor's advice. 54 (50.5%) of paediatric patients that were LAMA were male and 54 (49.5%) were female. An insignificant difference of 0.92 was reported between LAMA patients and patients discharged according to medical advice in relation to gender. As shown in Figure 1.1

74 (69.2 %) of the LAMA Paediatric patients were infants, 19 (17.8 %) were between 1- 4 years, 09 (8.4 %) were between 5-8 years and 05 (4.7 %) were between 9-12 years of age. A significant difference of <0.001 was reported between LAMA patients and patients discharged according to medical advice in relation with age.

Among LAMA patients, 05 (4.7 %) paediatric patients were admitted in June 2018, 04 (3.7 %) in July 2018, 07 (6.5 %) in August 2018, 03 (2.8 %) in September 2018, 12 (11.2 %) in October 2018, 06 (5.6 %) in November 2018, 16 (15 %) in December 2018, 11 (10.2 %) in January 2019, 07 (6.5 %) in February 2019, 12 (11.2 %) in March, April and May 2019 each respectively. A significant difference of <0.001 was reported between LAMA patients and patients discharged according to medical advice in relation with month of admission.

58 (54.2 %) of the 107 LAMA Paediatric patients were admitted due to acute gastroenteritis, 15 (14.0 %) due to respiratory disease, 04 (3.7 %) due to viral fever, 03 (2.8 %) due to urinary tract infection, 08 (7.5 %) due to

neurological disease, 04 (4.7 %) due to enteric fever, 08 (7.5 %) due to protein calorie malnutrition and 07 (6.5 %) due to sepsis. A significant difference of <0.001 was reported between LAMA patients and patients discharged according to medical advice in relation with diagnosis. [Table 2].

Table No.1: Descriptive statistics of paediatric patients admitted in-between June 2018-May 2019

Variables		Frequency n=734	Percentage (%)
Age	Infants	284	38.7 %
	1-4 Years	289	39.4 %
	5-8 Years	106	14.4 %
	9-12 Years	55	7.5 %
Gender	Male	423	57.6%
	Female	311	42.4 %
Month of Admission	June 2018	55	7.5 %
	July 2018	95	12.9 %
	August 2018	86	11.7 %
	September 2018	54	7.4 %
	October 2018	39	5.3 %
	November 2018	26	3.5 %
	December 2018	48	6.5 %
	January 2019	56	7.6 %
	February 2019	55	7.5 %
	March 2019	70	9.5 %
	April 2019	62	8.4 %
	May 2019	88	12 %
Diagnosis	Acute Gastroenteritis	357	48.6 %
	Respiratory Disease	104	14.2 %
	Viral Fever	86	11.7 %
	Urinary Tract Infection	67	9.1 %
	Neurological Disease	36	4.9 %
	Enteric Fever	25	3.4 %
	Protein Calorie Malnutrition	29	4.0 %
	Haematological Disease	20	2.7 %
	Sepsis	10	1.4 %

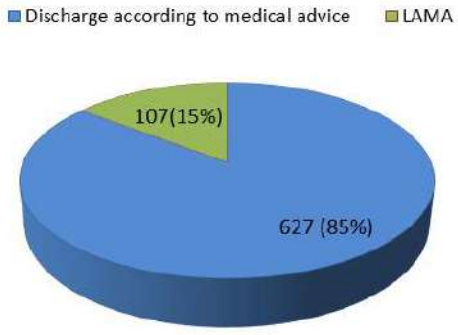

Figure No.1: Shows the frequency of discharged patients

Table No.2: Descriptive variables based on discharge type of hospitalized paediatric patients at Al-Tibri Medical College and Hospital

Variables		Discharge Type n=734		P-value
		Discharge on Medical Advice n= 627	Leave Against Medical Advice n=107	
Age (Years)	Infants	210 (33.5 %)	74 (69.2 %)	<0.001
	1-4 Years	270 (43.1 %)	19 (17.8 %)	
	5-8 Years	97 (15.5 %)	09 (8.4 %)	
	9-12 Years	50 (8.0 %)	05 (4.7 %)	
Gender	Male	369 (58.9 %)	54 (50.5 %)	0.92
	Female	258 (41.1 %)	53 (49.5 %)	
Month of Admission	June 2018	50 (8.0 %)	05 (4.7 %)	<0.001
	July 2018	91 (14.5 %)	04 (3.7 %)	
	August 2018	79 (12.6 %)	07 (6.5 %)	
	September 2018	51 (8.1 %)	03 (2.8 %)	
	October 2018	27 (4.3 %)	12 (11.2 %)	
	November 2018	20 (3.2 %)	06 (5.6 %)	
	December 2018	32 (5.1 %)	16 (15 %)	
	January 2019	45 (7.2 %)	11 (10.2 %)	
	February 2019	48 (7.1 %)	07 (6.5 %)	
	March 2019	58 (9.3 %)	12 (11.2 %)	
	April 2019	50 (8.0 %)	12 (11.2 %)	
	May 2019	76 (12.1 %)	12 (11.2 %)	
Diagnosis	AGE	299 (47.7 %)	58 (54.2 %)	<0.001
	Respiratory Disease	89 (14.2 %)	15 (14.0 %)	
	Viral Fever	82 (13.1 %)	04 (3.7 %)	
	Urinary Tract Infection	64 (10.2 %)	03 (2.8 %)	
	Neurological Disease	28 (4.5 %)	08 (7.5 %)	
	Enteric Fever	20 (3.3 %)	04 (4.7 %)	
	Protein Calorie Malnutrition	21 (3.3 %)	08 (7.5 %)	
	Haematological Disease	20 (3.2 %)	00	
	Sepsis	03 (0.5 %)	07 (6.5 %)	

DISCUSSION

Leave Against Medical Advice (LAMA) especially among paediatric patients is a serious problem of health care in which the provider of health care is stuck between provision of complete health care to patient and decision of parents to leave against medical advice. As stated above, different countries have reported a different rate of LAMA where mostly decreased rates were observed in developed countries. The lower the rate of LAMA in a health care institution, the better is the performance of the hospital.

In our study the prevalence of LAMA from June 2018 till May 2019 was reported to be 107 (15%) from the total of 734 paediatric admissions during the months. The rest 627 (85%) of discharges were according to medical advice. Although over half of the admitted patients were male, i.e. 423 (57.6%), almost equal number of patients of either gender were observed in LAMA. Majority (69.2%) of LAMA patients were infants. Majority of the LAMA patients, i.e. 54.2% were of acute gastroenteritis, but owing to the fact that majority of the admitted patients were also of acute gastroenteritis. A highly substantial difference existed between discharge on medical advice and LAMA with regards to age, month of admission and diagnosis. Since equal number of LAMA patients were both male and female, hence the difference between them was not significant.

In a study in Iran, the prevalence of LAMA was reported to be 27 %, while another study in the same country reported a prevalence of LAMA at 8.4 % (14, 15). In another study done in Saudi Arabia, 04 % prevalence of LAMA was reported [16]. In a study from India, 3.8% prevalence of LAMA was reported [17]. A Nigerian study observed 2.3% prevalence of LAMA[18]. A study from Kuwait published a prevalence rate of LAMA Paediatric patients at 8.5 % (04). In a Pakistani study of a tertiary care hospital situated in Karachi, the prevalence among patients of all ages was 0.9 % [19]. Similar to this, in another Pakistani study on the epidemiology of paediatric emergency patients admitted in a hospital in Karachi, reported a prevalence rate of 11 % patients that left against medical advice [20]. Our study reported a prevalence rate similar to the above study, i.e. 15 %. Variation of different rates of prevalence even in the same city might be possibly due to different facilities present at the hospital. Private vs public health sector facilitations vary from institution to institution. Community's socio-economic burden, literacy and awareness of health issues are vital for a health care institution to achieve lower rates of LAMA.

Infants were the largest group of paediatric patients (55%) that were discharged against medical advice according to a study in Kuwait (04). Another study from Qatar reported 90 % infants being discharged against medical advice [21]. In a Nigerian study, 52.5% of infants were discharged against medical advice [22]. Studies have reported that 66 % infants were recorded to leave against medical advice [1, 3].

Although majority of studies have evaluated the causality of LAMA patients, keeping in mind the objectives of this study, only prevalence of LAMA among paediatric hospitalized patients was studied and reported that too from a single tertiary care private centre. None of the studies done in Pakistan have focused of paediatric population for reporting the frequency of LAMA patients. Further studies evaluating the cause and steps to improve the current situation of hospital discharges against medical advice through such researches would be beneficial not only to the health care system but also improve health care performance and overall patient's health outcome.

CONCLUSION

Our study reported a 15 % prevalence of LAMA among paediatric population reported in various other studies from both developing as well as developed countries. The prevalence rate was in between the rates presented in researches. Effective communicating techniques, awareness of health care system and improving health care performance are needed to minimise the rates of LAMA among patients.

Acknowledgment: I pay my regards to my institute, colleagues and those who contribute to make this task successful.

Author's Contribution:

Concept & Design of Study:	Nighat Seema
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Twins and Caries, is there a Correlation? An Observational Study

Bilal Arjumand[1] and Abdul Malik Alharbi[2]

ABSTRACT

Objective: To find the genetic correlation in twins and caries by accessing DMFT index.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the department of conservative dentistry, College of Dentistry, Qassim University for a period of 03 months from January to March 2019.
Materials and Methods: A total of 25 pairs of twins were examined in the study. Data was analyzed by SPSS version 20.0. Mean values of each component of the DMFT index were calculated by using descriptive statistics, and comparison was made between male and female groups by using Pearson's correlation.
Results: The comparison showed significant differences in decayed and overall DMFT scores between male and female groups. The comparison amongst each subgroup of male and female twins showed a positive genetic correlation in both subgroups of the twin.
Conclusion: This study concluded that the DMFT index is a valid tool to determine caries. There was a significant difference in decayed and overall DMFT scores between the male and female twin groups. Also, there might be genetic influence to the carious disease process among the twins in both males and female subgroups.

Key Words: DMFT index, caries, twins, genetics, environment, decayed, missing, filled, teeth.

Citation of article: Arjumand B, Alharbi AM. Twins and Caries, is there a Correlation? An Observational Study. Med Forum 2021;32(5):99-103.

INTRODUCTION

Dental caries is a prevalent chronic disease in the world. It's an infectious disease characterized by a multifactorial etiology, followed by the demineralization and destruction of hard tissues of teeth. (1)
Many factors contribute to the etiology of caries, and one of them is host susceptibility, which in turn is linked to potential genetic contribution for caries risk. The understanding of genetic contributions in caries can be helpful in future for the dentists in explaining to patients that some forms of caries are attributed to inherited risk associated with that kind. (2)
There has been circumstantial evidence of the degree of susceptibility of genetics in the etiology of caries. (3)
One way to determine the correlation is to study twins. A study of healthy twins, if properly conducted, will certainly be able to provide multidimensional evidence to distinguish the relative contribution of genetics and environment to disease variation. (4)

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Similar genotypes, family environment and ability to isolate a characteristic in twins, is valuable in determining the role of genes in a disease. Although, it is difficult to predict the exact influence of heredity due to various genetic patterns, twin studies are valuable in providing evidence against the purely environmental model. (5)
The Decayed, Missing, and Filled Teeth (DMFT) index has been used since the 1930, s and gives the estimate of the prevalence of the disease, as well the severity of the affected teeth and tooth surfaces. It determines the number of decayed teeth, the number of treated teeth, and the number of teeth missed due to decay. Although the DMFT provides an indicator of both current and past caries experience, individual variables (decayed/ missing/filled) can be separated in the data collection process. (6)
In this study, we investigated the genetic contribution in caries by assessing the DMFT index of twins.

MATERIALS AND METHODS

Data Collection: A cross-sectional observational study was undertaken after obtaining ethical clearance under Code #: EA/M-2018-3023, from the institute's Research Ethics Committee. Study was conducted in the department of conservative dentistry, College of Dentistry, Qassim University. The study duration was 3 months from January to March 2019. Twenty-five pairs of twins (13 pairs of males and 12 pairs of females), aged 13 to 24 years (mean age 18.5 ± 5.5 years), who are reared together, were included in the study. It's assumed that twins have been sampled from similar

environmental factors set upon them. The study samples were selected using the convenience sampling method, based on the availability of twins. Smoking, medically compromised patients, ongoing orthodontic treatment (an established risk factor for caries), periodontal disease, craniofacial syndromes and malocclusion were the exclusion criteria in this study. Written consent of each study participant was obtained from them or the parents/guardians.

The sample consisted of 50 subjects, divided into 2 groups. Group A consisted of males (13 pairs of twins), Group B consisted of females (12 pairs of twins). Each group A and B were further subdivided into subgroups. Group A had 13 subgroups, each subgroup consisting of a pair of male twins and Group B had 12 subgroups, each subgroup consisting of a pair of female twins. Caries detection was performed by two examiners and the dental caries status was recorded using Decayed Missing and Filled Teeth (DMFT) index. Inter-examiner reliability was determined by using Kappa co-efficient. K=0.85 (K < 1). The K value shows a good agreement between the examiners in detection of caries.

RESULTS

The group distribution, mean age, mean values of each component of DMFT index, and comparison between male and female are shown in Table 2. The highest mean score for both male and female was seen in missing teeth, followed by decay and the least score was observed for filled teeth. The comparison of male and female DMFT scores showed there is a significant difference in the score of decayed teeth (P=0.001). Also, the difference was significant in the overall DMFT index between the male and female twins. (P=0.002) Both the scores were significantly higher in females, whereas, there was no significant correlation between missing and filled teeth when compared in male and female twins.

Data were entered in Microsoft Excel (Ver.16.0 Microsoft corporation 2016, California) and statistically analyzed using SPSS (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp) to calculate the descriptive statistics, the mean DMFT scores of males and females were compared using student sample t-test. Pearson's correlation coefficient was calculated to determine the correlation among the twin pairs. The level of significance was set at 0.05. (P<0.05).

The sample consisted of 50 subjects, divided into 2 groups. Group A consisted of males (13 pairs of twins), Group B consisted of females (12 pairs of twins). Each group A and B were further subdivided into subgroups. Group A had 13 subgroups, each subgroup consisting of a pair of male twins and Group B had 12 subgroups, each subgroup consisting of a pair of female twins. Caries detection was performed by two examiners and the dental caries status was recorded using Decayed Missing and Filled Teeth (DMFT) index. Inter-examiner reliability was determined by using Kappa co-efficient. K=0.85 (K < 1). The K value shows a good agreement between the examiners in detection of caries.

Before each examination, participants received professional oral hygiene care to remove plaque and calculus, and examination was carried out under good light, using WHO probe and compressed air to access carious lesions. Data were collected according to the World Health Organization Oral Health Assessment Form 2013 by WHO. The permanent dentition status of each tooth (crown and root) is recorded as a score from 0 to 9. Table 1.

Table No.1: Showing the DMFT scoring criteria according to WHO assessment form

DMFT score for each tooth (WHO ,2013)	
Score	Status
0	**Sound** - A crown/root is coded as sound if it shows no evidence of treated or untreated clinical caries.
1	**Carious crown** - Caries is recorded as present when a lesion in a pit or fissure, or on a smooth tooth surface, has an unmistakable cavity, undermined enamel, or a detectably softened floor or wall.
2	**Filled crown, with caries** - A crown is considered filled, with caries, when it has one or more permanent restorations and one or more areas that are decayed.
3	**Filled crown, with no caries** - A crown is considered filled, without caries, when one or more permanent restorations are present and there are no caries anywhere on the crown.
4	**Missing tooth, due to caries** - This code is used for permanent teeth that have been extracted because of caries and are recorded under coronal status.
5	**Permanent tooth missing due to any other reason**
6	**Fissure sealant**
7	**Fixed dental prosthesis abutment**, special crown or veneer - This code is used under coronal status to indicate that the tooth forms part of a fixed bridge abutment.
8	**Unerupted tooth (crown)** - This classification is used only for a tooth space with an unerupted permanent tooth.
9	**Not recorded** - This code is used for an erupted permanent tooth that cannot be examined for any reason such as severe hypoplasia etc.

Showing the group distribution, mean values of each component of DMFT index and P value. Pearson's correlation showed a significant correlation in Decay (0.001*) and DMFT scores (0.002*).

Table No.2: Group distribution, mean values of each component of DMFT index and P value.

Variables	Gender	N	Mean	Std. Deviation	P-Value
Age	Male	26	18.23	2.804	0.023*
	Female	24	20.08	2.749	
Decay	Male	26	3.42	2.802	0.001*
	Female	24	7.88	5.424	
Missing	Male	26	12	0.326	0.329
	Female	24	25	0.608	
Filled	Male	26	1.73	2.662	0.602
	Female	24	1.42	1.283	
DFMT Score	Male	26	5.27	3.317	0.002*
	Female	24	9.54	5.883	

Table 3, illustrates the comparison of DMFT scores between subgroups within male and female twin groups respectively. The results show a significant p value of DMFT score between the twins of both male and female subgroups (P= 0.007* and 0.000* respectively). Also, the Pearson co-relation suggests a positive genetic co-relation between caries and twins showing the Pearson's correlation and comparison between the mean DMFT scores of male and female twin subgroups.

Table No.3: Comparison of DMFT scores between subgroups within male and female twin groups respectively

Twin Groups	Twin Subgroups	N	Pearson's Correlation	P Value
Male Group A	Subgroup (1-13)	13	0.705*	0.007*
Female Group B	Subgroup (1-12)	12	0.861*	0.000*

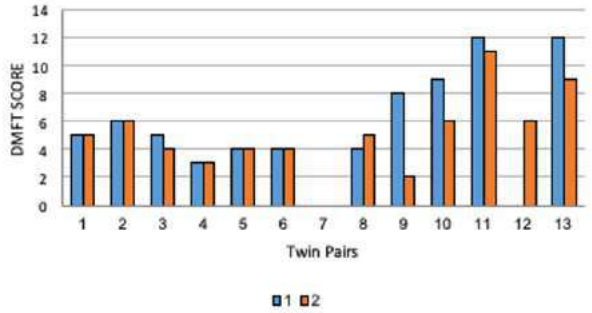

Figure No.1: Shows the distribution of DMFT score among subgroup within male twins

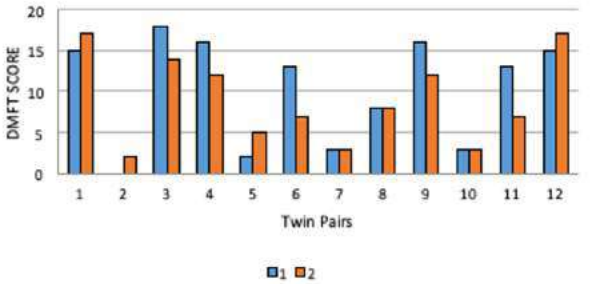

Figure No.2: Shows the Distribution of DMFT Score Among Subgroup Within Female Twins

Figure 1 & 2, illustrates the DMFT scores amongst the male and female subgroups of twins respectively. Figure 3, illustrates the percentage distribution of scores among the male and female groups of all the 25 twins (50 samples). 9 pairs of them had the same DMFT score (36%), 7 pairs had closely related scores ± 3 (28%) and 9 pairs of them had different scores (36%).

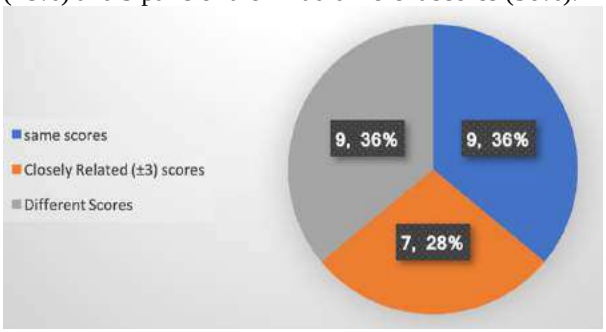

Figure No.3: Showing the percentage distribution of scores among the male and female groups of all the 25 twins (50 samples). 9 pairs of them had the same DMFT score (36%), 7 pairs had closely related scores ± 3 (28%) and 9 pairs of them had different scores (36%)

DISCUSSION

Interpretation of twin studies has gained importance in dental literature following genetic correlation. If a study on twins shows higher intrapair correlations, it suggests that heredity may play a role and that it may be worthwhile to look for the possible role of genes in a disease. However, it does not constitute proof and the estimates may be off. An effort was made in the present study to determine genetic influence on caries, it does not take into account the environmental factors. Thus, sticking to genetic correlation will only tell us about possible genetic influence on a disease.

This study aimed to correlate the caries status (Decayed, Missing and Filled Teeth, DMFT Index) among 25 pairs of twins, and investigated the possible role of genes in the oral health status of twins by using the DMFT index. The results demonstrated that it is possible to use caries experience as an approximation of an overall dental health status of the twins.

In this study, there was a significant difference in the score of decayed teeth, also, the difference was significant in the overall DMFT index between the male and female twins. Missing teeth were highest in both male and female twins, while the filled teeth were least in both the groups and the difference was insignificant for both missing and filled teeth between both the groups. Females showed significantly higher mean values of decayed and overall DMFT scores (Table 2). The difference in DMFT values and decayed teeth, between male and female groups in our study, may be due to influence of varied environmental and risk factors. There is a possibility that DMFT of one gender

may have been influenced by poor oral hygiene practices, eating habits, fluoride exposure, access to dental care and other risk factors etc. Also, it is likely that the effect of environmental factors on caries may vary with gender and age. Moreover, shared and non-shared environmental factors may have been the reason for difference in DMFT/ caries risk in males and female groups.

Eslamipour, showed prevalence of decayed teeth did not vary significantly between genders. His results also showed a higher number of filled teeth in females than in males [7], these finding differ from our study.

Twin researches have indicated a strong genetic component to many dental traits. [8,9] Horowitz et al., [10] Goodman et al., [11] and Finn and Caldwell [12] indicated that dental caries have a genetic component. In our study, the comparison of male and female subgroups (twin pairs), showed the possibility of genetic correlation with the DMFT scores.

Genetic basis of certain variables such as oral flora, tooth morphology, tooth eruption time and sequence, arch shape, tooth spacing, and diet have been found to cause dental caries. [13,14] However, still requires further investigation.

A study by Rintakoski K, observed a strong genetic component behind caries experience in twins, differing between males (49%) and females (68%), suggesting genetic influence on oral health with possible gender differences. [15] Corby et al, noted moderate to high heritability estimates for microbial species (h2 = 56–80%) in 118 caries-free twins and 86 caries-active twins. In caries-free twins, the similarity of the overall oral microbial flora was more obvious. Therefore, colonization of oral beneficial species in twins due to similar genetic factors may in turn be a reason for good oral health. [16]

The higher concordance and heritability between twins in various other studies demonstrates that dental caries occurrence and severity are influenced genetically by several factors. However, the influence of environmental factors cannot be dismissed. In a recent study by Mihiri J. Silva about genetics and environmental role in caries, concluded that associations with genetic factors, although credible in dental caries, are less pertinent caries risk at an individual level compared with environmental factors[17].

The classic Vipeholm study showed, although the greater exposure to food rich in sugars increased the severity of caries, yet 20% of the sample had not developed any carious lesion. They concluded that individual genetic susceptibility also controlled caries experience. [18] Another study done on twins by Alexendre, also suggests genes most likely influence individual susceptibility to caries, and these include genes involved in enamel development, in saliva function, and in immune response. [19] Several variables related to caries experience (missing, filled, decayed) show statistically significant concordance rates in twins. Also, many studies done on twins in different parts of the world measure heritability, or the amount of variation in the disease due to genetics, show the heritability values ranging from 25-80%.[20] This is a high range of genetic susceptibility and is in concordance with our study.

The comparison of male and female subgroups in our study showed closely matched percentage distribution and scores of DMFT index in twin pairs. (Fig 3) This suggests there might be a genetic component involved in carious disease process. Interaction of host factors, bacteria and substrate that favors cariogenic pathogens play a role in caries process. Genetic influences controlling these factors, such as bacterial adhesion due to saliva factors or its buffering capability may explain how a twin pair may have similar caries experience.

Based on the limited number of study participants in our study, definite conclusions should be drawn with caution.

CONCLUSION

This framework allowed us to test the evidence, whether caries manifestation in twins is influenced by genes. The study concluded that the DMFT index is a valid tool to determine the caries in twins. There were significant differences in decayed and overall DMFT scores of male and female twin groups. Study further showed a possible contribution of genes in the carious disease process as the comparison of male and female subgroups suggested positive co-relation showing there might be a genetic component involved in caries.

Recommendations: Longitudinal studies with larger samples and longer duration are required to establish stronger correlation between genes and caries.

Multidisciplinary studies of twins, with input from dentists, molecular geneticists and twin researchers hold great promise for the future in unraveling the mysteries of how genetic factors contribute to oral diseases and disorders.

Author's Contribution:

Concept & Design of Study:	Bilal Arjumand
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Revisiting Critically:	Bilal Arjumand, Abdulmalik Alharbi
Final Approval of version:	Bilal Arjumand

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

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Original Article

First One Hundred Corrective Surgeries for Tetralogy of Fallots: Lessons Learned

Corrective Surgeries for Tetralogy of Fallots

Faiz Rasool[1] and Mohammad Sarwar[2], Nighat Sultana[1]

ABSTRACT

Objective: Tetrology of fallots(TOF) is the most common cyanotic heart disease with the incidence of 0.34/1000 live births. Results of surgery has tremendously improved in last two decades. In this article author is discussing the lessons that were learned while doing first one hundred primary repairs in the patients of tetrology of fallots

Study Design: A Retrospective Study

Place and Duration of Study: This study was conducted at the Children's hospital Lahore, University of Lahore teaching hospital and Hameed Latif hospital Lahore from September, 2017 to February, 2020.

Materials and Methods: Age, weight, pre-operative status, intra operative time, management strategies, icu stay, hospital stay and follow up echocardiogram were looked for. Mortality and complications were given in percentages.

Results: 100 primary repairs were done, mortality rate was 9%. Complete heart block occurred in 1, JET in 10, mean icu stay was 40hrs, mean ventilation time was 12 hours, mean duration of inotropes was 30 hours.

Conclusion: Pre-operative MAPCA coiling, adequate right ventricular outflow tract resection, avoidance of pulmonary regurgitation, and good post-operative care can produce acceptable results after repair of tetralogy of fallots.

Key Words: tetralogy of fallot, MAPCA, monocusp valve, pulmonary valve preserving total correction.

Citation of article: Rasool F, Sarwar M, Sultana N. First One Hundred Corrective Surgeries for Tetralogy of Fallots: Lessons Learned. Med Forum 2021;32(5):104-107.

INTRODUCTION

Congenital heart disease (CHD) is the most common birth defect[1]. It is estimated that every year 42000 babies are born with CHD in Pakistan. [2] Tetralogy of fallots (TOF) is the most common cyanotic heart disease with the incidence of 0.34/1000 live births. [3]

It is also most common surgically treated congenital heart disease in Pakistan [4].

Surgical repair of TOF was first described in 1955 by Lillehei et al. [5] since there has been a lot of changes in the surgical management strategies.

Results of surgery has tremendously improved in last two decades, [6] recently studied mortality rate in the modern world is 0-1.4% [7] but mortality in low income countries where delayed surgeries are performed, is still up to 12.5% [8]

In this article author is discussing the lessons that were learned while doing first one hundred primary repairs in the patients of tetralogy of fallots.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

MATERIALS AND METHODS

It is a retrospective study of the patients who underwent primary repair for TOF from September 2017 to February 2020.

Settings: Children's hospital Lahore, University of Lahore teaching hospital and Hameed Latif hospital Lahore. All the patients underwent primary repair via trans atrial trans pulmonary approach with aorto bicaval cannulation and moderate hypothermia. Files were reviewed and data was looked for immediate post-operative results and short term follow up. Age, weight, pre-operative status, intra operative time, management strategies, ICU stay, hospital stay and follow up echocardiogram were looked for. Mortality and complications were given in percentages.

RESULTS

From September 2017 to February 2020, 100 patients underwent complete repair by the author. Breakup of the operative settings is given in fig 1. Which shows 89 were done at childrens hospital Lahore, 7 at Hameed Latif hospital and 4 at university of Lahore teaching hospital.

Base line characteristics, intra operative characteristics and post-operative details are given in Table 1,2, and 3 respectively. Mean age was 3.2 years (range from 9 months to 14 years). Mean weight was 13kg (ranged from 7 kg to 45kg). Baseline characteristics are given in table 1. There was no intra operative death. 91 patients were discharged home successfully (survival 91%), 8

patients died in ICU, one patient was shifted from ICU to ward but had patch dehiscence of additional muscular VSD for which pulmonary artery band was performed but the patient didn't survive.

Out of 8 patients who died in ICU, 5 died of right ventricular dysfunction, resulting in low cardiac output syndrome. 1 died of ventricular fibrillation and 2 died of pulmonary sepsis because of multi drug resistant gram negative rods.

Out of 91 who survived 57 patients were extubated on the day of surgery. Average ventilation time was 12 hours (ranged from 3 hours to 72 hours). Inotropes were required for mean of 30 hours post operatively. Average ICU stay was 40 hours. (24-122)

7 patients had delayed sternal closure because of bleeding or ventricular dysfunction.

5 patients needed reopening for the bleeding. 2 patients required tube thorocostomy or pleural effusion. One patient required permanent pacemaker for iatrogenic complete heart block.

Junctional ectopic tachycardia (JET) was most common arrhythmia, that occurred in 10% One patient developed ventricular fibrillation which was successfully cardioverted.

Table No.1: Pre-Operative Characteristics

Mean Age	3.2years (0.9 -14)
Mean Weight	13kg(7-45)
Male	67
female	33
Mean Oxygen saturation	73% at room air (33-93)

Table No.2: Intra Operative Characteristics

Mean cardiopulmonary bypass time	120 min ± 40
Mean cross clamp time	73 minutes ± 30
Cardioplegia	DelNido in all
Trans annular patch	73%
Pulmonary valve normal	12%
Pulmonary valve commissurotomy	15%
Branch pulmonary artery repair	10%

Table No.3: Post-Operative Characteristics

Mortality	9%
Mean ICU stay	40 hours (24 -122 hours)
Mean duration of ventilation	12 hours
Mean duration of inotropes	30 hours
Post-operative residual VSD	None
Post-operativez Heart block	1%
Residual outflow tract obstruction	none
Significant pulmonary regurgitation	20%
JET	10%
Re opening for bleeding	5%
Additional VSD patch dehiscence	1%

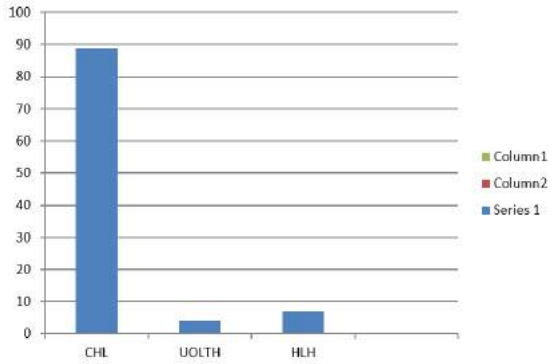

Figure No.1:

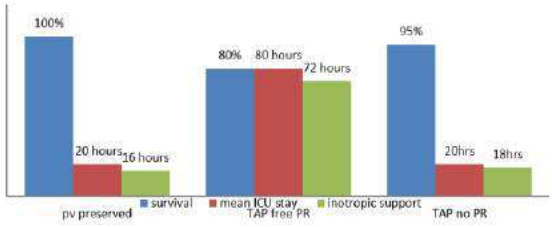

Figure No.2

DISCUSSION

Lessons Learned:

Pre-operative Assessment: Looking at the echocardiogram the surgeon should look specifically to the pulmonary arteries and severity of right ventricular outflow tract obstruction. If the patient is older than one-year pre-operative angiography is done in all cases specially to look for major aortopulmonary collateral arteries(MAPCAs) and if found they should be coil occluded before going to operation theatre. MAPCAs can result in a number of complications, including erosion of the bronchi, haemoptysis, postoperative pulmonary oedema and prolongation of postoperative mechanical ventilation and ICU stay[9]. It is recommended by many to occlude MAPCAs preoperatively[10].

Cannulation: Author used aortic cannation and DLP metal tip venous cannulae. Although many surgeons prefer to cannulate superior vena cava (SVC) through the right atrium,[11] author always cannulate SVC directly.

Temperature: Although it is arguable at what temperature surgery should be done [12], the author has learned to decrease the temperature to 26^0 C, especially when there is lot of blood coming in the left atrial vent because of collaterals. At this temperature brain protection is better and surgeon can ask the perfusionist to decrease the blood flow rate so that there is blood less field.

Cardioplegia: Because of its better myocardial protection and lesser post-operative arrhythmias[13] DelNido cardioplegia was used in all patients

Right ventricular outflow tract resection: After retracting the tricuspid valve, obstructing muscle bundles at the parietal and septal surfaces are identified and divided. It is essential to visualize the pulmonary valve annulus to be certain that all potentially obstructing muscle bundles have been divided. Author always open the pulmonary artery and look the right ventricular outflow tract from the pulmonary valve to be sure that there are no obstructing muscle bundles. There has to be not more than mild obstruction. Author disagrees with Iqbal Hussain Pathan[14] according to whom we can leave residual right ventricular obstruction without any consequences. In author's experience, leaving more than mild right ventricular outflow tract obstruction can lead to low cardiac output syndrome, renal failure and death.

Adequacy of RVOT resection is assessed by Hagar dilator.

Dealing with pulmonary valve/ monocusp valve: Opening the pulmonary artery allows the surgeon to assess the pulmonary valve. If required, commissurotomy of the valve is done under vision. Every attempt is made to preserve the pulmonary valve and still leaving no obstruction as described by Choi [15]. But in most of the cases trans annulus of the pulmonary valve had to be divided. Whenever trans annular patch was required, monocusp valve made up of PTFE or autologous pericardium was implanted to prevent pulmonary regurgitation and right ventricular dilatation. [16 -20]

In author's experience those patients who had their pulmonary valves saved had excellent outcome in terms of mortality, duration of ventilation and ICU stay. Those who had trans annular patch and significant pulmonary valve regurgitation despite of monocusp valve had worst outcome. Fig 2

Preservation of small coronary arteries close to annulus: In author's experience, surgeon must try his best to preserve even the small coronary artery branches that are crossing RVOT, dividing them can have devastating consequences

VSD closure: Author used interrupted suture technique in all cases. Dacron or bovine pericardium was used as the patch material.

Intra operative echocardiogram:

After coming off pump, intra operative echocardiogram was done in all cases to look for any residual lesion. In 2 cases, CPB had to be established again for residual VSD, 16 times for residual RVOT obstruction. With experience the chances of going back on pump to correct the residual lesions decreased.

Post-operative management points:

Keeping the chest open for 24 hours if there is right ventricular dysfunction, or bleeding is quite effective in reducing the post-operative mortality.

Post-operative milrinine infusion reduces the chances of going into low cardiac output state.

Follow up: mean duration of follow up was 1 year, all of the patients were in NYHA class I or II. Monocup Pulmonary valve was functional in all of the patients.

CONCLUSION

Pre-operative MAPCA coiling, adequate right ventriculart outflow tract resection, avoidance of pulmonary regurgitation, and good post-operative care can produce acceptable results after repair of tetralogy of fallots.

Author's Contribution:

Concept & Design of Study:	Faiz Rasool
Drafting:	Mohammad Sarwar
Data Analysis:	Mohammad Sarwar, Nighat Sultana
Revisiting Critically:	Faiz Rasool, Mohammad Sarwar
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Simple Closure of Duodenal Ulcer Perforation Short Term Complications and Mortality

Closure of Duodenal Ulcer Perforation

Muhammad Idrees Achakzai[1], Nazeer Sasoli[2], Iftikhar ul Haq Tareen[5], Abdul Sadiq[6], Shah Wali[3] and Ashiq Hussain[4]

ABSTRACT

Objective: The aim of this study was to observe short term complications and frequency of mortality after simple closure.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Department of Surgery Sandeman provincial Hospital Quetta from April 2018 to April 2019.

Materials and Methods: A 40 cases for an appropriate statistical analysis. Patient selection was done by keeping the inclusion and exclusion criteria. After initial resuscitation patients were operated and perforation closed by simple closure and thorough peritoneal toilet done. Post-operatively all the patients were given I/V antibiotic, analgesic plus H. pylori eradication therapy for seven days.

Results: The highest age incidence was in 30 – 40 years range with male to female ratio of 7:1. The post-operative complication seen after simple closure observed.

Twenty-six (67.5%) patients developed complications which have pneumonia, wound infection, urinary tract infection, thrombophlebitis and leakage. These patients recovered with further treatment. Simple closure is best, when the etiological factors like NSAIDs, cigarette smoking is avoided. At the same instance H. Pylori eradication therapy should be administered to the H. Pylori infection positive patients to prevent recurrence of ulcer in a long term follow up.

Conclusion: Pperforated duodenal ulcer had highest age incidence of 3rd decade with male female ratio of 7:1. Pperforations were repaired by simple closure. The closure of perforation by omental patch is thought to be the procedure of choice but simple closure of ulcer perforation with thorough peritoneal toilet especially in anterior wall duodenal ulcer perforation has successful results.

Key Words: Peptic duodenal ulcer, perforation, simple closure

Citation of article: Achakzai MI, Sasoli N, Tareen I, Abdul Sadiq, Wali S, Hussain A. Simple Closure of Duodenal Ulcer Perforation Short Term Complications and Mortality. Med Forum 2021;32(5):108-112.

INTRODUCTION

Peptic ulcer disease is defined as discontinuity in the inner lining of the duodenal and gastric epithelial wall (meanwhile high level of pepsin is essential in addition to acid requirements)[1,2,3]

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Helicobacter pylori and non-steroidal anti-inflammatory drugs, Aspirin and steroid have been known as a most important risk factor for the causation of gastroduodenal ulcer.[2]

History presumably begins with the identity of the duodenum perforation by to Cheng in 1984 once he found a duodenal perforation in a preserved body of 167 BC in China.[3]

Perforation is one of the serious and potentially fatal complication of peptic ulcer and its high morbidity, mortality.[4] In the United States, almost 5 million cases of are peptic ulcer, 500,000 new cases are reported each year and 15,000 deaths annually[5].

However, an epidemiological change that is increase in age, and increase in the number of female patents has been occurred. And common site of perforation is anterior wall of first part of duodenum. Nonsteroidal inflammatory drugs appear to be responsible for most of these perforations. Helicobacter Pylori has less role in perforations compared to nonsteroidal inflammatory drugs.[6]

The classical pattern of presentation is rare. Patient may have history of symptoms of chronic peptic ulcer with

sudden onset of generalized abdominal pain. With the passage of time patient develops bacterial peritonitis and there is fever, Tachycardia, hypotension, abdominal pain, tenderness and board like rigidity.[7] X-ray chest shows free gas under right dome of diaphragm in 50% of cases. Ultrasound sound, CT scan and diagnostic peritoneal lavage are helpful in diagnosis and differentiation from acute pancreatitis.[8] With the advent of newer agents to suppress the gastric acid secretion the number of elective surgical procedures declined.[9] However, the number of patients with peptic ulcer disease who sustain life threatening complications has not shown a corresponding decline. Over the last decade the discovery of Helicobacter pylori in peptic ulcer disease and advancement in minimal invasive surgery have further changed the surgical management of these complications.[10,11]

Various modalities of treatments for perforated duodenal ulcer over the years are medical, simple closure, closure by omental patch, serosal patch technique, jejunal pedicle graft, partial gastrectomy and finally the possible addition of proximal gastrojejunostomy. Today surgery is restricted mostly to the complications of duodenal ulcer. In the presence of risk factors and lack of expertise there is a need to define the type of surgery which can reduce morbidity and mortality.[12] Usually these perforations can be closed primarily and does not present problem of surgical management except in cases of large defects (> 2.5cm) which can be closed by omental patch. Thorough peritoneal toilet and simple closure is sufficient in large majority of cases and definitive ulcer surgery is no longer justified inpatients presenting in emergency. It can be performed in a very short time in emergency even by a trainee general surgeon.[13,14]

With perforated peptic ulcer being common presentation at emergency in Sandeman Provincial Hospital, it is worthwhile to define the success and complications of primary simple closure which is easier and less time consuming but of questionable efficacy.

Although Graham (omental) patch is a well-established technique, some researchers have proposed simple primary closure.[13]

MATERIALS AND METHODS

This study was conducted in Sandeman Provincial Hospital Quetta from April 2018 to April 2019. A 40 cases collected. All those patients who reported to emergency and accident department and outdoor patient department of SPH Quetta were included whom fulfilled the inclusion and exclusion criteria. Patients above 13 years with features of perforated duodenal ulcer on history, examination, investigations and surgical explorations were included while those patients unfit for general anesthesia or found to have peritonitis due to causes other than perforated duodenal ulcer on exploration were excluded. All the patients were initially resuscitated with establishment of I/V line, correction of fluid and electrolyte imbalance, nasogastric suction, urinary catheterization and analgesic. A detailed history and thorough examination performed. Routine investigations, serum amylase electrolytes and creatinine, and an X-ray chest and abdomen were carried out. After initial resuscitation all patients were explored through a midline incision under general anesthesia. The perforation was exposed and pieces taken from its margins for histopathological examination. The perforations were closed by simple closure or by omental patch. Peritoneal toilet with 4 liters of normal saline was done.

Post-operatively the patients were monitored by temperature, pulse, B.P and intake output charting. Intravenous antibiotics i.e., Ceftriaxone 1gm BID, Gentamycin 80mg TDS Metronidazole 500mg/100ml TDS for five days. Analgesics Inj. Tramadol S.O.S and I/v Omeprazole 40 mg OD were also given.

Omeprazole, amoxicillin and clarithromycin were given to the patient for the 7-days as a Helicobacter pylori eradication therapy omeprazole was prescribed for 6 weeks.

During the post-operative period patients were closely monitored for the development of any complications. All the findings were noted in a proforma.

Data was analyzed by using SPSS version 17 on computer. Descriptive statistics like frequency, percentage and mean etc. were computed for data presentation.

Any statistical test of significance was not applicable for this descriptive type of study.

RESULTS

A significant number 35 (87.5%) patients presented and were operated within 24 hours of onset of symptoms. Five (12.5%) patients were presented late i.e., time of onset of symptoms of perforation was of more than 24 hours.

Operative findings of all 40 patients were found to have biliary peritonitis. In 36 (90%), the aspirated fluid was 500ml or more. Majority of 34 (85%) patients, the perforation was in the first part of the duodenum, anteriorly. Only 6 (15%) cases had a perforation in the pre-pyloric region of the stomach.

The average size of perforation was 0.75cm (range from 0.4 to 1.25cm). Only 4 (10%) patients had perforation more than 1cm.

Thirty-six patients underwent primary closure with single layer by interrupted 3/0 polyglycolic acid sutures. Four cases, where perforation was more than 1cm, underwent buttressing with omental patch.

The respiratory complication occurred in only 10 (25%) of patients, in which 9 (22.5%) suffered from respiratory tract infection pneumonia while 1 (2.5%) developed pulmonary embolism and expired on the 5th post-operative day. Wound infection was seen in 8

(20%) of the patients while these patients on the operative findings were all of them had more than one liter of peritoneal fluid on laparotomy. Only 2 (5%) cases had bile leak from the drains after 4th post-operative day. Both of them were re-explored on the 5th day, whereby a dehiscence of the repair-line was found and buttressed with omental patch.

Three patients each had thrombophlebitis and urinary tract infections. Both of these complications responded well to broad spectrum antibiotics without further sequelae.

The overall morbidity rate was 24 (60%), two cases with urinary tract infection also had atelectasis. Of these 24 patients, five were diagnosed to be diabetic. Mean hospital stay was 6.5 days (range from 4 – 10 days). Only four patients with extensive wound infection stayed longer than a week. The follow-up one month after surgery was of 38 (95%) that was satisfactory. Of the remaining 2, 1 patient expired on the 5th post-operative day and one never turned up for follow-up.

The overall mortality was 2.5%; only one patient expired due to pulmonary embolism.

Demographic data of the 40 cases 35 (87.5%) were male and 5 (12.5%) females. Male to female ratio 7:1 as shown in Fig-1.

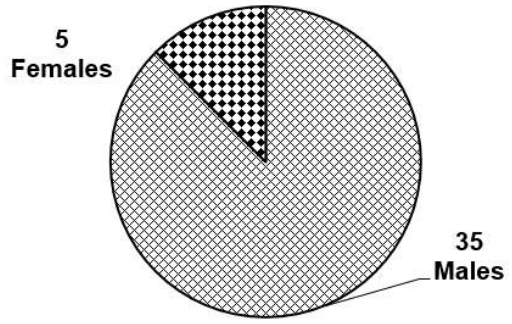

Figure No.1: Distribution of Sex

Age distribution the majority of patients 32 (80%) were of age ranging (30 – 50 years) the highest age incidence was in 3rd decade age distribution is depicted in Fig-2.

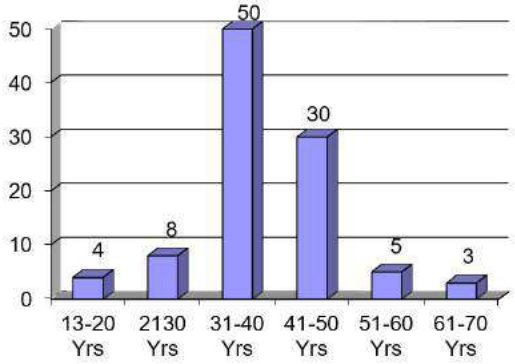

Figure No.2: Age Incidence

DISCUSSION

In this study majority of the patients were of age incidence ranging from 30 – 50 years with their highest age incidence in the 4th decade of life. In Pakistan the age incidence in a study by Mukhtar Mehboob in Quetta in 2000 has found most of his patients in their 3rd decade of life with a mean age of 31.4 years.[15]

In 1990 Waqar Uddin Ahmed reported a most of his patients in the 4th decade of life.[16] In another study of Mathur in Rajasthan, India in 2016 patients between ages of 30-50 years were commonly affected.[17] After all the age incidence in various parts of Pakistan and India is not much different from each other. While it is different our demographic profile compared to developed countries wherever the common of the patients are above 60 years It may be due to difference in the life style.[18]

In this study there were 35 (87.5%) male and 5 (12.5%) female patients with a male to female ratio of 7:1. It is 9:1 by Sushama surapaneni.[19] and 7.8:1 by Waqaruddin[16] in their study. It is mostly same in Pakistan while male-to-female ratio is much higher in the East than in the West a study performed by Lam.[20] This may be due to the increase use of etiological factors of duodenal ulcer by their females. In this study 35 (87.5%) patients presented during the first 24 hours of onset of pain in the abdomen and 5 (12.5%) patients presented late i.e., more than 24 hours of onset of pain. These patients were referred from the remote areas of province. Duration of perforation that is more elapsed time since perforation is a risk factor, in accordance with studies that more than 24 hours of delay in hospitalization can have an adverse effect on improvement of the disease.[21]

The late presentation in our set up is probably due to the poverty, misdiagnosis and long-distance areas to reach the hospital. In this study 85% patients had perforation on the anterior wall of the first part of duodenum and 15% patients had perforation in the prepyloric region. The average size of perforation was 0.75mm only 4 patients had perforation of more than 1cm size.

Most common site of perforation was in the first part of the duodenum reported (93.3%) perforation in the duodenum and (6.6%). in the prepyloric region.[22]

Mukhtar Mahboob reported all patients to have perforation in the first part of duodenum on its anterior abdominal wall the median size of perforation was 4.5mm.[15]

Morbidity and mortality of duodenal ulcer perforation are also dependent on the site of perforation as gastric perforations has high lethality than duodenal and prepyloric perforations.[23] The major complications in case of this study was pneumonia, pulmonary embolisms, wound infection, thrombophlebitis, urinary tract infection and leakage of the perforation.

Respiratory tract infection was seen in 9 (22.5%) patients,

1 (2.5%) patient developed thromboembolism and wound infection and leakage of perforation was seen in 20% and 2.5% respectively. In a study of Mukhtar Mahboob, the main complications after simple closure with omental patch were wound infection and respiratory tract infection, which was 30% and 20% respectively.[15] Azam M in 1995 reported 16.6% wound infection and fistula formation in 3.3%.[24] Chest infection and wound infections are more common in elderly patients and in patients having other comorbid like chronic chest diseases and diabetes mellitus. The mortality in this study was 2.5%. It is was due to pulmonary embolism. In another study of carried by Whysocki A the mortality of peptic ulcer is influenced by the age of the patient rather than the type of surgery.[25]

CONCLUSION

In this study it was concluded that the patients of perforated duodenal ulcer had highest age incidence of 3rd decade with male female ratio of 7:1.

All the perforations were repaired by simple closure. Four cases closed by omental patch. Although the closure of perforation by omental patch is thought to be the procedure of choice but simple closure of ulcer perforation with thorough peritoneal toilet especially in anterior wall duodenal ulcer perforation has successful results. The main purpose of this surgery was, it takes minimal time, easy to be performed, it has low morbidity and mortality especially in the old year's patients.

we recommend the performance of simple closure for patients presenting with perforated duodenal ulcer. Such patients should be maintained on antisecretory drugs such as proton pump inhibitor until the H. pylori status is known. Because H. pylori infection in a proportion of patients may be eradicated by the course of peri-operative antibiotics, we should routinely perform gastroscopic examination two months after surgery to confirm healing of ulceration as well as to obtain antral biopsy specimens for determination of H. pylori status**.**

Author's Contribution:

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Final Approval of version:	Muhammad Idrees Achakzai, Shah wali

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

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Original Article

Spirometric Reference Values in Healthy Non-Smoking Adults of Urban Population of Hyderabad Division

Ahmed Hussain Suhag[1], Masood Nabi Noor[3], Kelash Kumar[2], Altaf Hussain Memon[3], Ameer Abbas[3] and Ghullam Mujtaba Shah[3]

ABSTRACT

Objective: To provide spirometric reference values in safe non-smoking adults from the Hyderabad division facilitate the pulmonologist and physicians to diagnose monitor and prognoses.

Study Design: Descriptive and cross-sectional study

Place and Duration of Study: This study was conducted at the Jamshoro University of Health and Medical Department for Physiology, Liaquat University from January, 2019 to December, 2019.

Materials and Methods: Respiratory system physical examination, blood pressure, height, weight, and BMI were noted. A proper protocol was applied for spirometry measurement using the Vitalograph alpha touch. The spirometric testing was performed in a standing position with nose clips applied on the volunteer`s nose using the manufacturer`s instructions. The Data was analyzed using SPSS version 16.0 for windows.

Results: A total of 450 subjects were included. Out of them 290(86.67%) were male, while 60 (13.33%) were female. The mean age SD of the sample group was 33±17.5 years. The male and female were of equal age and had the same Body Mass Index (BMI). (p = 0.9). An important variation was found between the expected and subject values (p0.05), while PIF was found to be significantly significant (p=0.001). Age was shown to have a strong negative association with FVC (r=-0.28, p=0.0001), FEV1 (r=-0.309, p=0.0001), FEV1/FVC x100 (r=-0.28, p=0.84), FEV6 (r=-0.141, p=0.003), FIVC (r=-0.97, p=0.04), and PIF (r=-0.157, p=0.001). Except for FEV1R (r=0.03, p=0.53), PEF (L/s) (r=0.016, p=0.78), and PEF (L/min) (r=0.016, p=0.74), all spirometry parameters were positively correlated with height for both male and female. FVC (r=0.94, p=0.0001), FEV1 (r=0.51, p=0.0001), and (r=0.54, p=0.0001) were all positively correlated with height (r=0.54, p=0.0001).

Conclusion: The results of pulmonary function test values are comparable to studies reported from Pakistani and south East Asia. The prediction equation obtained may be utilized as reference values for pulmonary function testing for the population of Hyderabad Division.

Key Words: Spirometry Pulmonary Function Tests Hyderabad Sindh

Citation of article: Suhag AH, Noor MN, Kumar K, Memon AH, Abbas A, Shah GM. Spirometric Reference Values in Healthy Non-Smoking Adults of Urban Population of Hyderabad Division. Med Forum 2021;32(5):113-117.

INTRODUCTION

Respiratory patients must have access to local data for analyzing the spirometry findings. Studies or therapeutic procedures should be conducted on a stable population and according to guidelines of the American Thoracic Society (ATS) for ethnicity and stature.[1] The GLI task force was to define internationally accepted references for the spirometric indices, and derive continuous predictions of lung function [2] In terms of data collection, we used scientific information from countries across the world as well as information from African, South Asian, and Latin American studies. [3] Therefore, measurements of African reference criteria for lung function may not be acceptable. In several African countries, the local calculation equation won't be valid, like Mozambique. So, racial comparison values are also used to correct national ones in African countries. In this way, this approach, particular ethnicities can cause an inferior or subclinical diagnosis in people with (or not have these people) pulmonary symptoms.[4,5] In this study, we focused on the non-symptomatic adults who live in Maputo, Mozambique, to provide estimates that can be used to assess the CF activity of patients in clinical trials.[6,7]

MATERIALS AND METHODS

This study Descriptive and cross-sectional study was conducted at the Jamshoro University of Health and

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Medical Department for Physiology, Liaquat University. The Advanced Studies and Research Board (ASRB) and the Committee on Research Ethics approved the study for the period of one year from January to December 2019.

A sample of 450 healthy non-smoking individuals was selected. Those interested in participating were informed in detail of the purpose of the study and the methodology and were asked. They had also been told that, if they wanted, they could withdraw from their study at any time. These participants took a complete biodata and it was anonymized. Healthy participants without a diagnosis of lung disease or history, negative job experience, Hyderabad Division urban residents, non-smoking residents i.e. no smoking history since last 10 years, age 18-35 years of both genders were included while any respiratory symptoms or signs were not included in the otherwise normal-looking subjects, influenza or pulmonary diseases over the last seven days, subjects with a history of pulmonary tuberculosis, bronchial asthma, pulmonary chronic obstructive disease, workers and residents of Hyderabad industrial areas.

Medical Screening Session: The weight and height index (BMI) by formula was calculated; BMI= Weight(kg)/height (m2). The averages of two readings in the supine and standing conditions were recorded for each subject. Blood pressure systematic was described as ~140 mmHg or blood pressure diastolic >>90 mmHg.

Spirometric analyses for lung function were performed using the Vitalograph alpha touch/power laboratory spirometer (AD instrument). Vitalograph alpha touch/power laboratory (AD instrument) spirometer's specifications are as follows:

To achieve at least two acceptable and reproductive values, 3-5 lung function maneuvers were recommended for each subject. Statistical analysis considered the largest and second-largest FEV1 and FVC values in 200 ml each.

For each subject, the FVC, FEV1, and PEF have been recorded. All recordings have been performed according to the guidelines of the American Thoracic Society (ATS).

Data Analysis: SPSS version 20.0 for analysis was used to evaluate data. Mean ± SD is used to test the quantitative variables. For categorical variables, frequency and percentages were presented. The distinction between FVC/FEV1 and age and height was employed by Pearson/Spearman. The categorical variables have been tested in chi-square. For predictive models using age and height as a standard variable and FVC and FEV1 as a dependent variable, the multiple linear regression analysis was employed. P-value ≤ 0.05 was taken as significant level.

RESULTS

In the sample, 450 healthy adults aged 18 to 35 from the Hyderabad Division were spirometrically controlled. The participants included the young students, physicians, paramedical and nursing personnel, and peons of the Medical Sciences of the Jamshoro University of Liaquat belonging to the various Hyderabad districts. Out of 450 individuals, 290 were males (86.67%) and 60 (13.33%) were females. The ratio of men to women is 4.8:1. The average study age ±SD was 33±17,5, respectively. The men and women of the same generation were BMI-equivalent. [p=0.9].

The majority of the sample population, both men and women, was around 33 years of age. (Table I.) In graphs II and III, men to women are seen in percentage and height per centimeter. Information of the VC, FVC, FEV1, FEV1R, FEV1/FVC x100, FEV6, PEF (L/S), PEF, FEF 25-75, and PIF expected and subject value can be found in Tables 1 through 11. Table 1. A substantial difference was observed (p<0,05) between the expected values and the subjects, while the PIF (p=0,001) was highly significant. The FVC era (r=-0.28, p=0.0001), FEV1 (r=-0.28, p=0.0001, p=0.001), FEV1/FVC x100 (r=-0.28,p=0.84), FEV6 (r=-0.141, p=0.0003), FIVC (r=-0.97, p=0.04), and PIF (r =-0.157, p=0.001), were noted as being significantly negative. This included: Table.3 shows specifics of Pearson's age association with various variables. The height of both male and male except for FEV1R (r=0.03, p=0.53), PEF(L/s) (r=0.016, p=0.78) and PEP(L/min) was associated positively with all parameters of spirometry except for FEV (r=0.016, p=0.74). The height of FVC (r=0.94, p=0. 0001), FeV1 (r=0.51, p=0,0001) and (r=0.54, p=0.0001) is strongly positive. Table.3 shows descriptions of Pearson's height association with various variables.

Table No.1: Anthropometric characteristics of the participants

Parameter	Males (ni=i290) Mean	SD	Females (ni=i60) Mean	SD
Agei(years)	20.4	1.3	20.5	1.2
Heighti(cm)	172.3	6.5	164.4	8.1***
Weighti(kg)	65.3	8.6	60.1	8.8***
BMIi(kg/m2)	21.9	2.7	22.2	2.7
Thoraxi(cm)	88.8	7.0	79.5	7.1

ni=itotalinumberiofiparticipants.
SDi=istandardideviation.
***Pi<i0.001.
BMIi=ibodyimassiindex

Table No.2: Mean Lung volumes and capacities in health young males and females reference value for young Caucasians

Parameter	Malesi (ni=i290)i			Females (ni=i60)i		
	Measuredivalues		difference%	Measuredivalues		Difference (%)
	Mean±SD	Mean±SD		Mean±SD	Mean±SD	
RV(L)	1.69±0.17	1.58±i0.08	107*	1.54±0.21	1.37±0.14	105*
ICi(L)	3.05±0.31	3.53±0.35	86*	2.30±0.31	2.24±0.34	93*
FRCi(L)	3.84±0.22	3.17±0.15	110*	2.76±0.33	2.70±0.17	106*
VCi(L)	4.84±0.22	5.16±0.40	94*	3.82±0.40	3.72±0.37	97*
TLCi(L)	6.53±0.45	6.70±0.50	97*	5.07±0.57	5.06±0.52	99
FEV1(L)	3.75±0.36	4.20±0.28	94*	3.22±0.44	3.28±0.31	95*
FVCi(L)	4.59±0.40	5.04±0.44	93*	3.86±0.42	3.84±0.31	97*
FEV1/FVCi(%)	84.4±83.0		101*	87.8±84.0		104

SD=istandardideviation;ini=itotalinumberiofiparticipants. *Pi<i0.05i(pairedit-test).
RVi=iresidualivolume;iICi=iinspiratoryicapacity;iFRCi=ifunctionaliresidualicapacity;iVCi=ivitalicapacity;iTLCi=itotalilungicapacity;iFEV1i=iforcediexpiratoryivolumeiini1is;iFVCi=iforcedivitalicapacity.

Table No.3: Multiple regress on analysis of spirometric parameters and anthropometric factors in healthy young Iran animals and females

Parameter	Heighti(cm)		Weighti(kg)		BMIi(kg/m2)		Thorax (cm)	
Malesii(ni=i290)i	r	P-value	r	P-value	r	P-value	r	P-value
TVi	0.459	0.000	0.212i	0.009	–0.095i	0.245i	0.305i	0.001i
IRVi	0.537	0.000	0.241i	0.003	–0.066i	0.423i	0.233i	0.014i
ERVi	0.452	0.000	0.294i	0.000	–0.048i	0.554i	0.292i	0.002i
RVi	0.246	0.002	0.004i	0.960	–0.105i	0.200i	-0.103i	0.283i
ICi	0.706	0.000	0.321	0.000	–0.081	0.318	0.327i	0.000i
FRCi	0.743	0.000	0.244	0.002	–0.112	0.169	0.160i	0.094i
VCi	0.753	0.000	0.394	0.000	–0.053	0.517	0.384i	0.000i
TLCi	0.785	0.000	0.315	0.000	–0.138	0.091	0.302i	0.001i
FEV1i	0.426	0.000	0.111	0.173	–0.149	0.067	0.264i	0.005i
FVCi	0.448	0.000	0.176	0.030	–0.129	0.114	0.306i	0.001i
FEV1/FVCi	0.058	0.481	-0.041	0.614	–0.410	0.619	0.006i	0.954i
Femalesi(ni=660)								
TVi	0.341	0.000	0.161	0.050	–0.058	0.484	0.251	0.002
IRVi	0.732	0.000	0.607	0.000	0.180	0.028	0.640	0.000
ICi	0.726	0.000	0.610	0.000	0.186	0.023	0.637	0.000
ERVi	0.515	0.000	0.189	0.020	–0.183	0.025	0.424	0.000
RVi	0.782	0.000	0.416	0.000	–0.103	0.209	0.552	0.000
FRCi	0.785	0.000	0.366	0.000	–0.175	0.033	0.580	0.000
VCi	0.794	0.000	0.567	0.000	0.073	0.372	0.681	0.000
TLCi	0.866	0.000	0.564	0.000	0.013	0.876	0.703	0.000
FEV1i	0.762	0.000	0.468	0.000	–0.016	0.851	0.639	0.000
FVCi	0.586	0.000	0.366	0.000	–0.005	0.916	0.501	0.000
FEV1/FVCi	0.057	0.866	0.051	0.537	0.02	0.820	0.084	0.307

ri=icorrelationicoefficient; ni=itotalinumberiofiparticipants. BMIi=ibodyimassiindex.
TVi=itidalivolume;iIRVi=iinspiratoryireserveivolume;iICi=inspiratoryicapacity;
ERVi=iexpiratoryireserveivolume;iRVi=iresidualivolume;iFRCi=ifunctionaliresidual
capacity;iVCi=ivitalicapacity;iTLCi=itotalilung;iFEV1i=iforcediexpiratoryivolumeiini1s;iFVCi=iforcedivitalicapacity

DISCUSSION

The results of the present research are confirmed by other reports, from which have been recorded from the Far East.[8–11] If some disagree, what accounts for creativity, desires, likes, and dislikes are all impossible to put into words? PFT has shown pulmonary function values to be significantly diminished in the Asian population payola plies.[12,13]

Fulambarker A. et al.[14] did a comparative analysis on refugee and US-born Indians. In the survey included in this analysis, more than 262 Indians who were born in India and nearly 200 who were raised in the US participated. the average age of the participants was

around 16 or slightly younger; 18-35 years for the 18-35 demographic Volunteers had a mean age of around 18 to 35.

The analysis by Aggarwal et al. showed that there was significant regional variation in the results of the PFT test results and concluded that similar equations could not be drawn for the Indian population, with separate results in the North, South, and East Indian locations.[13] so, therefore, the usefulness of these prediction equations must be shown for that group before their application to a specific culture.[15] We also found that the PFT predictions and reference values that have been found in previous studies in Malaysia, India, and other Asian countries are similar.[15–17]

Sample population age, sex, and height values previously identified by other researchers.[18,19] Our FAP provided students with opportunities to seek external assistance with their behavior problems[20], skills for problem-solving, and alternative perspectives (27) [8,15,21], as well as the ability to request supports from trusted individuals when it allocated team roles to peers and brought staff into the classroom to assist.[21–24] Study results showed a similar pattern of pulmonary,[21] function test decline for age and those previously reported in other national and international research.[22–24]

The positive association of FEV1, FVC, and FEV1/FVC ratio is shown. It could be possible that differences in parameters in physical fitness test scores may be attributed to the variation in height.[25] Similar reference values for PFTs were discovered in the analysis of recent samples taken in Pakistan, Nepal, and India, as well as with the most recent results from Pakistan, India, Nepal, and Malaysia. In the present sample,[25] FVC and FEV1 values were found to be lower in both genders.[26]

Saleem et al.[8] The research by Saleem et al. reported on PFT values for people in Kashmir, which found that they were similar to those of Caucasians but slightly higher for the Indian population. It is because of their altitude, as well as racial distinctions, the adaptive reaction of highlanders, and possible genetic influences on the population, he speculated.[27]

Various population groups in Pakistan should be studied using various studies should be done to establish this show, people at the lower altitudes, Baltistan, including Karachi and Hyderabad could have a higher expiratory flow rate (FEFV) than those at higher altitudes.

In this study, an association with age and height (the VC, FV, FV1, and FV ratios. The findings of this analysis were consistent with previous research, which found that age has a strong inverse relationship with P41 values.[28] However, in children, a substantial relationship between VC, FVC, and FEV1 was observed. This may be explained in part by participants in the present study's age; nonetheless, the findings are quite close to previously published data.[28]

Results of the present study were found to be approximately 17% to 17-20% to 19% lower for FEV and 16% to 17% lower for FVC in European populations.[17] At the woman, FEV1 and FVC levels were 13% and 6% lower, while for the man, values were 18% and 19% lower (p=0.001).

CONCLUSION

In conclusion, findings from the investigation on the balanced, non-smoking individuals of the Hyderabad division give a wide variety of height and age about the PFT equation. Validated measures of pulmonary function assessment/testing are important for health and disease diagnosis and study. These estimates can be used as references for the people of the Hyderabad Division.

Author's Contribution:

Concept & Design of Study:	Ahmed Hussain Suhag
Drafting:	Masood Nabi Noor, Kelash Kumar
Data Analysis:	Altaf Hussain Memon, Ameer Abbas, Ghullam Mujtaba Shah
Revisiting Critically:	Ahmed Hussain Suhag, Masood Nabi Noor
Final Approval of version:	Ahmed Hussain Suhag

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

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Original Article

Relationship Between Vitamin D Status and Cardiovascular Risk Factors in Patients with Type 2 Diabetes Mellitus in Shaheed Benazir Abad

Masood Nabi Noor[1], Altaf Hussain Memon[1], Ahmed Hussain Suhag[2], Gunesh Kumar[2], Ghullam Mujtaba Shah[1] and Ameer Abbas[1]

ABSTRACT

Objective: To find out and identify hypovitaminosis D predictors for patients who have type 2 diabetes mellitus and vitamin D levels with glycemic control and cardiovascular risk variables.

Study Design: A cross-sectional study

Place and Duration of Study: This study was conducted at the Hospital Shaheed Benazir Abad from October 2018 and November 2019.

Materials and Methods: A cross-sectional study was conducted on 108 patients with consecutive patients treated at an outpatient department hospital Shaheed Benazir Abad.

Results: A total of 108 patients with T2-DM average period of 14.34 ± 8.05 and 9, 2 ± 2.1 percent with HbA1c were evaluated. Age was 58.29±10.34 years in average. Mostly, females (72.2%) with hypertension (75.9%) and dyslipidemia (76.8 percent). BMI was 28.01 ± 4.64 kg/m 2; overweight was 75.9%. Hypovitaminosis D was 62 percent prevalent. Independent hypovitaminosis D predictor was found to be women (OR 3.10, p =0.02), dyslipidemia (OR 6.50, p<0.01) and obesity OR 2.55, p =0.07) under the multiple logistic regression. Only the total cholesterol (β=−0,36, p<0,01) and BMI(β=−0.21, p=0.04) were still correlated with 25- hydroxyvitamin D in multiple linear regressions.

Conclusion: The prevalence of hypovitaminosis D in our T2DM participants has been as high. Hypovitaminosis D predictors were gender dyslipidemia and obesity. Low 25-hydroxyvitamin D levels were associated with high level of cholesterol of BMI.

Key Words: Vitamin D, Type 2 diabetes mellitus, Obesity, Dyslipidemia

Citation of article: Noor MN, Memon AH, Suhag AH, Kumar G, Shah GM, Abbas A. Relationship Between Vitamin D Status and Cardiovascular Risk Factors in Patients with Type 2 Diabetes Mellitus in Shaheed Benazir Abad. Med Forum 2021;32(5):118-123.

INTRODUCTION

Type 2 diabetes mellitus is a critical and rapidly increasing global health problem. Diabetes affected 382 million people in 2013, and the figure is expected to rise to 592 million by 2035. T2DM has the highest prevalence rates in developed countries.[1]

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Hypovitamin D is a global pandemic that affects one billion people[2], with estimates that its occurrence is rising rapidly.[2] Vitamin D has many pleiotropic effects out of the skeleton and the endocrine system as a major hormone for mineral homeostasis and bone integrity.[3] It is shown that hypovitaminosis D in patients with type 2 diabetes mellitus is normal in recent times.[4] In patients with type 2 diabetes, Hypovitaminosis D is likely to be neglected cardiovascular risk factor[5,6], since vitamin D appears to affect many pathways associated with the coronary artery, including inflammation, vascular calcification, smooth muscle cell proliferation in the vascular tissue, myocyte hypertrophy, arterial intimate thickness, renin-angiotensin system, blood-pressured blood.[7–9]

To further explore this question, we were working to determine the prevalence of hypovitaminosis D in patients with type 2 mellitus diabetes and to examine the connection between the vitamin D concentration and the glycemic control and risk factors for cardio-vascular disease.

MATERIALS AND METHODS

Between October 2018 and November 2019, a cross-sectional analysis was carried out with successive patients being treated in the Shaheed Benazir Abad ambulatory department. Type 2 diabetes mellitus in adult patients. We did not include any other form of diabetes or vitamin D or predecessors, pregnant wo men, chronic kidney disease, or post-bariatric mal-absorption or status patients, or cholestyramine or orlistat therapy.

In order to collect data on age, sex, self-reported ethnicity, time of diagnosis and drug use and comorbidités, we have carried out personalized interviews. Participants with lightweight clothes and no shoes weighed height to nearest 0.1cm and weight to the nearest 0.1 kg. The BMI participants were classified as overweight (25.0–29.9 kg/m2) and BMI participants (soon

30.0 kg/m2) were classified as obese. All patients were required to quit oral antidiabetic medicine and insulin.

For 3 days and for 10 hours at least before serum tests patients were asked to avoid stressful physical activity and alcohol consumption. For storage within 24 hours of collection, blood samples were processed. A chemiluminescence kit was used for serum 25-hydroglyvitamin D [25(OH)D] that recognizes both vitamin D2 and vitamin D3 equally. In each test the manufacturer carried out two levels of controls. On the basis of repeated study of a pooled control 15 and 13 percent were inter- and intra-assay coefficients of variance. The lower detection limits for the test were 2.8 ng/mL. In terms of deficiency (<20 ng/mL), insufficiency (20-29 ng/mL) and sufficiency (alternative to 30 ng/mL), 25-hydroxyvitamin D was stratifiably classified according to the 2011 endocrine society classifications. Using an HPLC test on the automated analyzer, serum glycated hemoglobin (HbA1c) has been measured.

Statistical analyses: Continuous data have been shown as median or median (±standard deviation) (inter-quartile range). A correlation analysis by Pearson's was used to determine the relationship between continuous parameters indicating glycemic regulation and cardiovascular risk factors with 25(OH)D levels. Then, variables associated with 25(OH)D were entered in a multiple linear regression model with $p < 0.10$. (with vitamin D level as the dependent variable). A similar strategy was used to determine logistic regression predictors for hypovitaminosis D (a binary event). A logistic regression model was entered into the variables associated with hypovitaminosis D ($p < 0.10$), in univariate analysis. In the final analysis, a two-side

p value <0.05 was considered significant. The IBM SP SS version 20.0 was used as a basis to perform all statistical analyses.

RESULTS

A total of 108 participants were recruited with mean age was 58.29 ± 10.34 years. The majority (72.2 percent). The period of diagnosed diabetes type 2 was 14,34± 8,05 years (Table 1). Of these, for 5 years or more 89,8% of the patients suffered from type 2 diabetes mellitus. The majority of patients were on medication with an average dose of insulin (72.2%). It was only used with NPH and normal insulin. Means: NPH 29.45 ± 14.20 IU (8.0-84.0) and insulin of daily 13.74 ± 7.37 IU (4.0-36.0) was used. Metformin was the most widely used oral antidiabetic drug (77.8 percent). Metformin, insulin and metformin plus sulphonylurea were the most popular combinations. Hypertension (74.1 percent) and dyslipidemia were key comorbidities associated with type 2 diabetes mellitus (76.8 percent).

Average of 25(OH)D was 28:10 ± 9.16 Ng/mL. The total prevalence was 62% (39.8%) inadequate and 22.2% deficient) of hypovitaminosis D (Fig. 1). Hypovitaminosis D was more common in men (70 vs. 40%), in women (77,1 vs. 54,2%, in overweight, p=0,02), in women (72,3 vs. 28%), in men (72.3 vs. 28%), in women (71% vs. non-users, p=0,01) and in women (71% vs. 46,1%, in men and women).We performed uniform logistic regression tests. Sex, history of dyslipidemia, statine use and obesity have been identified as independent forecasters of hypovitaminosis D, and only female gender have emerged in the model (OR 3.10, p=0.02), dyslipidemia (OR 6.50 p<0.01) and obesity (OR 2.55, p=0.07) (Table 2).

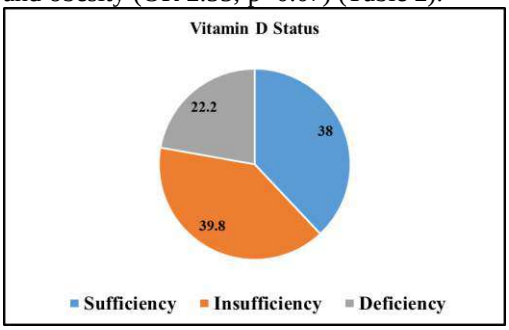

Figure No.1: Vitamin D status of 108 T2DM patients followed at an outpatient Endocrinology Clinic inShaheed Benazir Abad

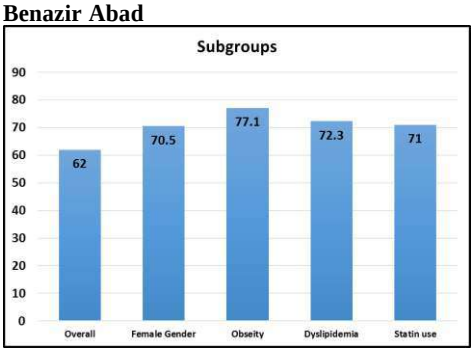

Figure No. 2: Prevalence of hypovitaminosis D: Overall and stratified into subgroups with significantlyhig herprevalence

Table No.1: Demographic and clinical characteristics of 108 T2DM patients followed at an outpatient Endocrinology Clinic

Variable		Overall	Hypovitaminosis D		P
		(n = 108)	No (n = 41)	Yes (n = 67)	
Age (years)		58.29 ± 10.34	58.24 ± 9.99	59.19 ± 10.33	0.48
Female gender		78 (72.2%)	23 (56.1%)	55 (82.2%)	*0.01*
Non-white skin color		97 (89.8%)	39 (95.1%)	58 (86.6%)	0.20
T2DM duration (years)		14.34 ± 8.05	15.38 ± 8.30	14.06 ± 8.30	0.59
BMI		28.01 ± 4.64	27.17 ± 3.87	28.65 ± 4.99	0.13
Obesity [a]		35 (32.4%)	8 (19.5%)	27 (40.1%)	*0.02*
Comorbidities	Hypertension	82 (74.1%)	30 (73.2%)	52 (77.6%)	0.60
	Dyslipidemia	83 (76.8%)	23 (56.1%)	60 (89.5%)	*<0.01*
Insulin use	Insulin use	78 (72.2%)	30 (73.2%)	48 (71.6%)	0.86
	NPH insulin	77 (71.3%)	29 (70.7%)	48 (71.6%)	0.92
	Regular insulin	42 (38.9%)	18 (43.9%)	24 (35.8%)	0.40
Oral antidiabetic agent	Sulfonylurea	26 (24.1%)	10 (24.4%)	16 (23.9%)	0.95
	Metformin	84 (77.8%)	34 (82.9%)	50 (74.6%)	0.31
	α-Glucosidase inhibitor	5 (4.6%)	1 (2.4%)	4 (6.0%)	0.40
Combination treatment	Insulin plus OAD	57 (52.8%)	24 (58.5%)	33 (49.2%)	0.35
	Insulin plus metformin	5 (4.6%)	2 (4.9%)	3 (4.5%)	1.00
	Insulin plus sulfonylurea	56 (51.8%)	24 (58.5%)	32 (47.8%)	0.28
	Metformin plus sulfonylurea	23 (21.3%)	9 (21.9%)	14 (20.9%)	0.90
Lipid lowering agents	Statins	69 (63.9%)	20 (48.8%)	49 (73.1%)	*0.01*
	Fibrates	4 (3.8%)	1 (2.4%)	3 (4.5%)	1.00
Antihypertensive agents		86 (79.6%)	33 (80.5%)	53 (79.1%)	0.86

Table No.2:Univariate and multivariate backward logistic regression analyses to identify independent predictors of hypovitaminosis D

Variable	Univariate	*p*	Multivariate	*p*
	OR (95% CI)		Adjusted OR (95% CI)	
Female gender	3.59 (1.49–8.63)	0.00	3.10 (1.16–8.29)	0.02
Dyslipidemia	6.71 (2.48–18.17)	0.00	6.50 (2.24–18.86)	<0.01
Statin use	2.86 (1.26–6.47)	0.01		
Obesity	2.86 (1.14–7.13)	0.02	2.55 (0.92–7.06)	0.07

All 4 variables were entered into the multivariate backward logistic regression model but statin use was removed by the system on the final step Dyslipidemia history of dyslipidemia, Obesity BMI ≥ 30 kg/m^2

Table No.3: Simple linear correlation and multiple linear regression with 25-hydroxyvitamin D levels as the dependent variable

Variables	Simple linear correlation	*p*	Multiple linear regression	*p*
	Pearson *r*		Unstandardized β coefficient	
BMI	−0.20 −0.22 −0.39	0.04	−0.41	0.04
HbA1c	−0.34	0.03	−0.09	<0.01
Total cholesterol	−0.23	0.00		
Triglycerides		0.00		
Microalbuminuria		0.02		

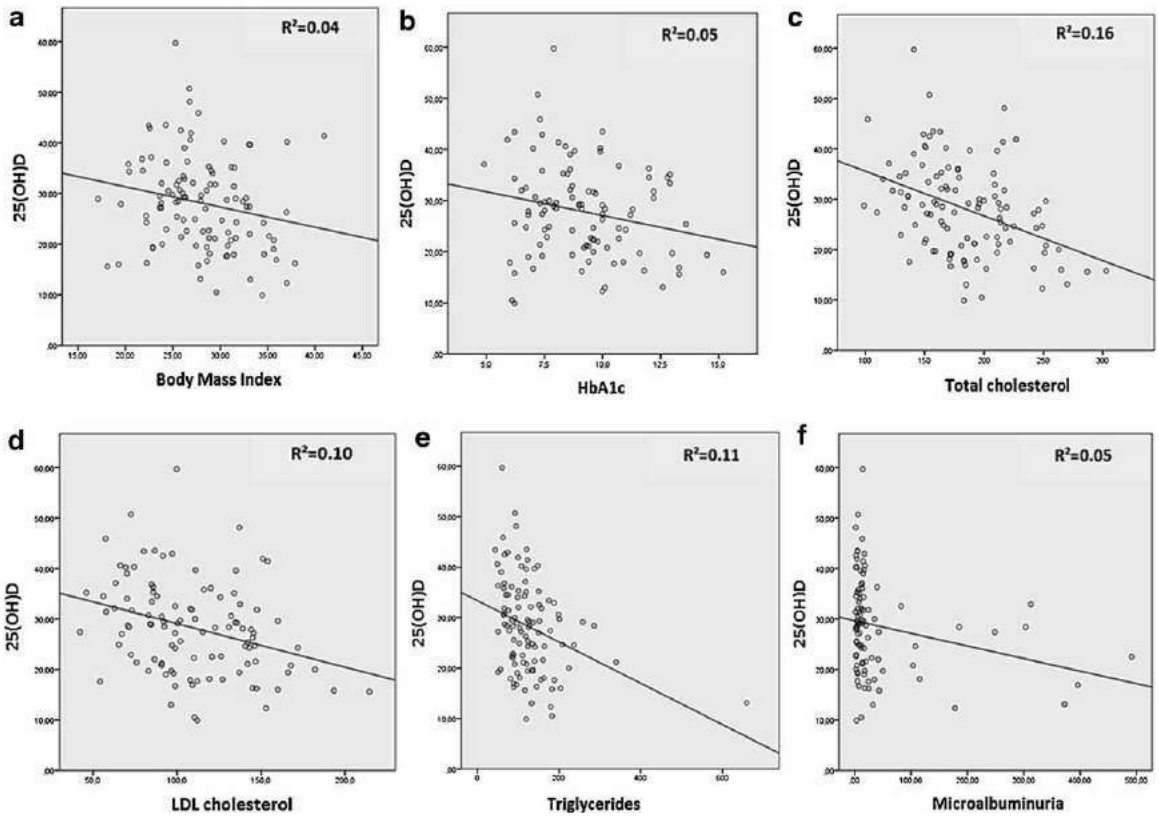

Figure No.3: Simple linear correlation between 25-hydroxyvitamin D and variables indicative of glycemic control and cardiovascular risk. 25(OH)D 25-hydroxyvitamin D, HbA1c glycated hemoglobin, LDL cholesterol low-density lipoprotein-cholesterol.

Correlation and multiple linear regression analyses have been performed to further study the relationship between the vitamin D levels, glycemic co ntrol and cardiovascular risk factors.

There were no links to blood concentrations of calcium phosphorus, alkaline phosphatase, PTH and vitamin D levels of diabetes, blood pressure, rapid glucose, HDL-c, ultralense CRP, uric acid, estimated glomerular filtration rates. Inverted, major variables with vitamin D levels have shown significantly reverse linear correlations: BMI (r=0,20, p=0,04), HbA1c (r=0,22), p=0,03) total cholesterol and micronuria (r=0,23, p=0,02); LDL-c (r=0,32, p<0,01), triglyceride (r= −0, 34, p<0,01) and microalbuminury (r=0.23, p= 0.02). (T able 3; Fig. 3). As total cholesterol and LDL-C are strongly associated (r = 0.932, p<0.01), we have opted to include in the last multiple linear regression model only one of those explanatory variables in order to prevent colinearity. The linear association with D-vitamin levels was greater than that of LDL-c and we selected total Cholesterol. These variables were then inserted into a multilinear backwards (vitamin D as the independent variable) regression model; the only total cholesterol (unstandardized coefficient $\beta = -0.09$, $p < 0.01$), and BMI (unstandardized coefficient $\beta = -0.41$, $p = 0.04$) were correlated with 25(OH) D levels independently of the standard (Table 3).

DISCUSSION

The high prevalence of hypovitaminosis D among individuals with type 2 diabetes found in this study may be considered surprising, given that Shaheed Benazir Abad. Our results arecomparable to thoseseen in non-tropical diabetic populations.[10–12] The high prevalence of hypovitaminosis D may be due to certain features of our study.[13]

Obesity was prevalent in our community, confirming the previously identified correlation between obesity and type 2 diabetes.[13] Obesity and hypovitaminosis D have been linked in many studies of diabetic patients.[12,14,15] Obese patients have lower serum vitamin D levels because vitamin D can be sequestered in body fat. Obesity is often attributed to a less healthy lifestyle, which includes less physical activity, less sun exposure, and, as a result, lowervitamin D levels and poorer clinical outcomes.[16]

Hoteit et al. and van der Meer et al.[17,18] proposed that female sex is a separate vitamin D deficiency indicator. Other findings of Type 2 diabetes confirm this result.[12,14,19]In our logistic regression model, female sex was an independent predictor of hypovitaminosis D.

Obesity is a known risk factor for vitamin D and type 2 diabetes. It ranges between the sexes and between races.[20–25] The women had higher BMIs

than men in our sample. The excessbody fat in women may have contributed to the observed gender-hypovitaminoid relationship. Dyslipidemia was independent predictor.

Our data are consistent with other literature studies that assessed risk of cardiovascular disease in patients with type 2 diabetes from sunny regions.[14,26]

It is controversial that HbA1c is linked to 25(OH)D. Similar to other previously published trials, we observed a strong poor adverse association between HbA1C and 25(OH)D.[10,15,21,26–28] However, when controlling for confounding variables is confirmed by Luo et al. and Al-Shoumer et al.[29,30] Considering that our mean 25(OH)D in Pakistan was very close to 30 ng/mL, further studies are required to assess the suitability of the current type 2 vitamin D cutoffs in Pakistan. In this analysis, a lower 25(OH)D normally reduced prevalence of hypovitamino D would have definitely resulted.[13]

CONCLUSION

We found that hypovitaminosis D is high in 62% of those participating in the treatment of Type 2 diabetes and that hypovitaminosis D is linked to female gender, obesityand dyslipidemia. The data show that adequate sunshine is not sufficient to prevent vitamin D deficiency alone and to sensitize the population, regardless of their geographical position, for hypovitaminosis D.

Author's Contribution:

Concept & Design of Study:	Masood Nabi Noor
Drafting:	Altaf Hussain Memon, Ahmed Hussain Suhag
Data Analysis:	Gunesh Kumar, Ghullam Mujtaba Shah, Ameer Abbas
Revisiting Critically:	Masood Nabi Noor, Altaf Hussain Memon
Final Approval of version:	Masood Nabi Noor

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

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Original Article

Manifestation of Hepatitis C Virus Infection Positively Associated with Gallstones in Patients with Diabetes Mellitus

Hepatitis C Virus Infection with Diabetes Mellitus

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ABSTRACT

Objective: To determine relationship between HCV infection and Gallstones (GS) in our adult population in Sindh Pakistan.

Study Design: Cross sectional and case control study.

Place and Duration of Study: This study was conducted at the Liaquat University of Medical and Health Sciences, Jamshoro from June 2016 to May 2018.

Materials and Methods: All adult HCV positive patients were included who visited our hospital. Stage of disease, weight, BMI, associated DM (Diabetes Mellitus), ethnicity was noted. We took control groups as well; who were attendants of patients visited our clinic. Those patients who had history of cholecystectomy were excluded. Data was analyzed using SPSS version 22.0.

Results: There were seven hundred and sixty-two (762) participants and controls were 295. HCV antibody was positive in 467(61.37%). Four hundred and twenty (55%) were males, of these, 270(64.28%) were HCV antibody positive and 150 (35.72%) were controls, of these 342 (45%) were females, 197 (57.60%) had HCV positive infection and 145 (42.4%) were control. There was a significant (p-value 0.007) difference in mean ages of both cohorts. There was no difference in mean weight and BMI of both groups. In HCV antibody positive (9.4 percent) gallstones was significantly higher (p- value 0.048) than controls (4.0 percent).

There were 2 positive HCV males (9.25%, n=270) and 25 positive HCV males (12.69%, n=177) in gallstones; 6 (4.13%), n=145) negatively HCV in males and 20 (13.3%), n=150) negative females.

However, hepatic disease severity, increased age, marital status and village residence were major factors in increase of prevalence of gallstones.

Conclusion: HCV infections with gallstones are closely correlated in males, while they are not related in females. Gallstones are also found with elevated age and incidence of liver disease.

Key Words: Gallstones, liver cirrhosis, Hepatitis C virus

Citation of article: Kalhoro N, Zardari AA, Qureshi S, Sahito MR, Abbas A, Kumar G. Manifestation of Hepatitis C Virus Infection Positively Associated with Gallstones in Patients with Diabetes Mellitus. Med Forum 2021;32(5):124-128.

INTRODUCTION

Gallstone formation is a very common issue in Pakistan[1] internationally as well as[2]. Gallstones may grow due to several different factors, i.e. two major types of stones. Stones containing cholesterol and pigment.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Different pathophysiological pathways for creation of these two major stone forms have been established.

The causative pathways have been established for cholesterol stones, hypersecretion, gallbladder hypomotility and mucin gel accrual and pigment stones.[3,4]

Several risk factors have been investigated, which may contribute to physiological problems in general public, and gallstones are frequent in females than males, with different factors like age, genes, ethnicity, obesity, rapid weight loss, aldohexaemic aversion, susceptibility to hypoglycaemic agents, use of alcohol, hypertriglyceridemia, pregnancy and multiple medications. [5]

In patients with liver diseases and development of gallstones, a growing correlation has been found. A number of published research literature confirm that cirrhosis is one of most significant risk elements for gallstones if precise cause of liver disease could help improve gallstone occurrence and morbidity has not yet been thoroughly studied. Although hepatitis C virus

infection has been used as an independent risk factor for gallston development in patients with chronic infections without cirrhosis. [6,7,8]

Since chronic hepatitis C infection is a serious public h ealth issue in Pakistan and some 10 million people are infected with HCV in Pakistan. This research was performed to find out occurrence of gallstones among HCV patients in Pakistan and to verify it compared to control group Particularly if HCV virus has a greater incidence of gallstones than non-HCV viruses.

MATERIALS AND METHODS

This research was undertaken as a cross sectional and case control dependent on hospital. Two groups of population were introduced by us, one of those people with "C" chronic hepatitis and next. Patients attending our hepatology clinic were monitored and either HCV antibodies were negative or they do not recognize their HCV-antibodies.

The sample population aged from 18 to 80 years of age. The HCV antibody was first tested by ELISA process. All tests were completed. If reactive, they are classified as patients and if negative, they are kept under supervision.

After at least 4 hours of fasting, all patients received ultrasound from abdomen. Using 3.5 MHz transducers in supine and left decubitus positions, ultrasound experiments were performed on TOSHIBA system. A diagnosis of gallstone demands two views of gallbladder echoes. All people in background with a diagnosis of HCV cholecystemoy. Even HCV positive antibody was removed from RNA negative.

We have also received knowledge about association between HCV and gallstone disease regarding ultrasound pelvis and HCV examinations. some other variables are currently capable of confirmed (GSD). The possible covariations in both sexes include age, weight, body mass index, highest completed year of schooling, race (Sindhi, Urdu Punjabi, Pushto and others) alcohol drinking, habits seriousness of liver disease,presence or absence of diabetes, hypertension a nd babies in women's cases in these studies.

For two years from June 2016 to May 2018, this research was performed in Medicine and Patholgoy University of Jamshoro University of Medical and Health Sciences.

Statistical Analysis: In SPSS version 20.0, results were evaluated through descriptive analysis. General analyses of participants were carried out. In case of a complex sample, a continuous variable was comparable to "t" with a person-basic chi-square measure. The variables were compared. The multivariate logistic regression analysis was undertaken to classify risk and ration variable (OR).

RESULTS

A total of 762 participants were included. Out of them, 467 (61.3%) were HCV antibodies and 295 (38.7%) were control subjects.

Table No.1: Demographic Finding (n = 762)

Factors	n (%)
Gender	
Male	420 (55.1)
Female	342 (44.9)
Age (in years)	40.9 ± 13.1
Weight (in kg)	62.6 ± 14.6
Body Mass Index (kg/m^2)	25.5 ± 5.5
Age Group	
< 32 years	188 (24.7)
32 – 40 years	220 (28.9)
41 – 50 years	198 (26.0)
> 50 years	156 (20.5)
BMI Group	
< 18.5 kg/m^2	71 (9.3)
18.5 – 22.9 kg/m^2	178 (24.4)
23 & above kg/m^2	513 (67.3)
Marital Status	
Single	96 (12.6)
Married	666 (87.4)
Educational Status	
Illiterate	222 (29.1)
Literate	540 (70.9)
Smokin	
Smokers	78 (10.2)
Non-Smokers	684 (89.8)

Table: 2. Clinical Finding (n = 762)

Factors	n (%)
Hepatitis C-Virus	467 (61.3)
Diabetic Mellitus	82 (10.8)
Ascites	63 (8.3)
Gall Stone	76 (10.0)
Bilirubin	
Normal (< 1.4 mg)	715 (93.8)
Mild / Sever (≥ 1.4mg)	47 (6.2)
Albumin	
Normal (> 3.5 mg/L)	614 (80.6)
Mild / Severe (≤ 3.5 mg/L)	148 (19.4)
Platelets	
Normal (≥ 150 10^3/cu.mm)	729 (95.7)
Mild (100 – 149 10^3/cu.mm)	21 (2.7)
Moderate / Severe (< 100 10^3/cu.mm)	12 (1.6)

In our study 420(55%) males and 342(45%) for females. Out of 420 Male patients, 270(64.28%) patients had HCV positive while 150(35.72%) word controls However 342 females, 197(57.60%) had positive and 145(42.4%) were controls Subjects Table Number 1 shows demographic details of patients. It was found that there was no significant difference between frequency of Hepatitis C with age, gender, BMI, and educational status. The marital status was found to be a

significant factor, which was seen in 426(91.2%, n=467) of married males and 240(81.4%, n = 295) of Married males and married females (P-value < 0.001), Moreover 420(55%) males and 342(45%) females out of 270 (64.28%) had positive infections and 150 (35.72%), were negative.

Table No.3: Characteristics of patients with hepatitis C virus (n = 762)

Factors	Hepatitis C Virus		P-value
	Positive (n = 467)%	Negative (n = 295)%	
Age (in years)	41.9 ± 11.9	39.2 ± 14.6	0.007
Gender Female Male	197 (57.60) 270 (64.28)	145 (42.4) 150 (35.72)	0.060
Marital Status Single Married	41 (8.8) 426 (91.2)	55 (18.6) 240 (81.4)	< 0.001
Body Mass Index (kg/m^2)	25.7 ± 5.2	25.2 ± 5.8	0.239
Body mass index <18.5 kg/m^2 18.5-22.9 kg/m^2 23 and above kg/m^2	37 (7.9) 107 (22.9) 323 (69.2)	34 (11.5) 71 (24.1) 190 (64.4)	0.199
Education Level Literate Illiterate	330 (70.7) 137 (29.3)	210 (71.2) 85 (28.8)	0.877
Smoking Habit No Yes	416 (89.1) 51 (10.9)	268 (90.8) 27 (9.2)	0.433
Diabetes Mellitus No Yes	411 (88.0) 56 (12.0)	269 (91.2) 26 (8.8)	0.168
Ascites No Yes	419 (89.7) 48 (10.3)	280 (94.9) 15 (5.1)	0.011
Gall Stones No Yes	417 (89.3) 50 (10.7)	266 (90.2) 29 (9.8)	0.699
Bilirubin Normal (< 1.4 mg) Mild / Severe (≥ 1.4 mg)	420 (89.9) 47 (10.1)	295 (100.0) 0	< 0.001
Albumin Normal (> 3.5 mg/L) Mild / Severe (≤ 3.5 mg/L)	352 (75.4) 115 (24.6)	262 (88.8) 33 (11.2)	< 0.001
Platelets Normal (≥ $150x10^3$/cu.mm) Abnormal (< $150x10^3$/cu.mm)	437 (93.6) 30 (6.4)	292 (99.0) 3 (1.0)	0.001

In chronic Hepatitis C frequency, we found that age, gender, BMI, ethnicity, and educational status were not significantly associated but in married males 426 and 420 married women per impacted by marital status in HCV (P-value < 0.002). In 467(61.2%) HCV positive patients cal stones were seen in 50(10.7%) patients and 295 (38.3%) HCV negative patients gallstones were seen in 26(8.81%) patients prevalence of gallstone was significantly higher in HCV positive than controls. Frequency of gallstones was seen in 25(9.25%, n = 270) HCV positive male patients and 25(12.69%, n = 197) HCV positive female patients however frequency of gallstone was observed in 6 HCV negative Mel patients and 20 (13.3%, n = 150). HCV negative females.

In our study most of patients with HCV positive infection present with gallstones.

In this study, most of females with HCV positive patients were observed in age group 51 to 60 years and it was not significantly associated with prevalence of gallstones and HIV positive.

Moreover, with regards to severity of liver disease, we assessed that serum total bilirubin level, serum albumin level, and platelet count was associated with gallstones. Analysis of logistic regression revealed that serum total bilirubin levels, lower serum albumin level, and lower platelet count were increased.

Table No.4: Logistic regression analysis showing risk of gallstones HCV pateints in gender

Variable	Crude Prevalence (95% CI)		Odds Ratios (95% CI)		
	HCV Positive (n = 467)	HCV Negative (n = 295)	Unadjusted	Age-Adjusted	Age and Race Adjusted
Males (n=420) Gallstones	9.3% (5.8, 12.8%)	4.0% (0.9, 7.1%)	2.5 (1.0, 6.1)	2.2 (0.9, 5.5)	2.2 (0.9, 5.4)
Females (n =342) Gallstones	12.7% (8.1, 17.3)	15.9% (9.9, 21.9%)	0.8 (0.4, 1.4)	0.7 (0.4, 1.3)	0.8 (0.4, 1.5)

DISCUSSION

Liver cirrhosis is one of common risks for gallstones, and incidence of gallstones is seen to rise with increased cirrhosis severity [10-12]

Recently Stroffolini et al[13] had a study to figure out whether etiology of cirrhosis had played a part in occurrence of gallstone development and he noted high prevalence of HCV-induced cirrhosis of gallstones relative to HBV-induced and alcoholic cirrhosis. Very few studies have been performed that HCV infection is an independent risk factor for development of gallstones without cirrhosis, thus, a review was conducted to see association between chronic hepatitis C and gallstones.

Both hepatitis C patients have been tested and compared to controls. Both participants were investigated by ultrasonography for gallstones since gallbladder is a fast and non-invasive imaging technique. [14]

Our research further shows that incidence of gallstones is more prevalent in females (13.15%) than in males (7.38%). However, since prevalence was measured based on sex, gallstones are significantly more common in females than in HCV+Ve patients (10.7%) than in males (8.81%). (OR 0.8).

Edmund J Bini EJ and McGready J [15] performed same form of analysis, with a substantial rise in prevalence of gallstones in HCV-positive males than HCV-negative (OR=3.57) in male positives. On other hand, gallstones were not substantially higher in HCV-positive women (OR=2.55).

Acalovschi M et al. [16] also performed this form of analysis and found that 88 of 453 HCV patients (19.4%) had gallstones compared with 158 out of 879 patients (17.9%) in control group, but that in HCV patients there was a greater incidence of gallstones in both men and women than in controls. In a trial at Lahore for gallstones in liver circrodes, Naheed et al [11] observed that 31% of cirrhotic gallstones and 70% of those have HCV are again heavy in relation to chronic hepatitis C. Gallstones and hepatitis are closely correlated. Gallstones have a strong correlation.

In our research, we also revealed that occurrence of gallstones raises incidence of liver disease, as determined by level of serum, serum albumin and platelet levels (Table 5). The comparative chances of gallstones improved with increased levels of serum bilirubin overall, lower level of serum albumin and lower levels of platelets Edmund JBini and John MC Gready[15] have observed.

The findings listed here and several other studies indicate that patients with hepatitis C have an elevated risk of gallstone formation and that different clinical studies have examined impact of development of gallstones in HCV+Ve patients. Shi S et al [17] had indicated that only risk factor for development of gallstones may be liver steatosis.

HCV NS5A was present in combination with lipid droplets and APoA, which indicates that NS5A and core protein may be associated with liver steatosis and gallstone formation.

Loria P[18] et al also observed that steatosis (fatty liver disease) is related to an elevated risk of obese gallstones. Liver steatosis has also been shown to develop increased tolerance of insulin[19], and increased insulin resistance can be linked with development of gallstones in patients with chronic hepatitis C virus by increasing bile saturation of cholesterol.

Additionally, overt disruption to bile duct by HCV infection was noted of these indirect pathways contributing to gallstone development. The involvement of HCVRNA in gallbladder cells by gallbladder culture has been shown by Loriot MA et al. [20] Further, in patients with chronic C hepatitis WilzelTM et al [21] were previous damage to bile duct. All these studies have shown that infection by HCV may affect function of Gallbladder and Gallbladder epithel and encourage production of Gallstones.

Finally, all evidence and our analysis favours facilitation of gallstone development through infection with hepatitis C virus.

CONCLUSION

Chronic HCV infections with gallstones are strongly correlated in adults, but in female patients there is no correlation. In our adult patients with a growing age and heaviness of liver disease gallstones are also observed.

Author's Contribution:

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

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Original Article

Pattern of Coronary Artery Disease in Young Patients on Coronary Angiography

Muhammad Rafique Kanher, Sarfraz Hussain Sahito, Muhammad Hassan, Muhammad Ismail, Javed Khurshed Shaikh and Rizwan Khan

ABSTRACT

Objective: To find the frequency of pattern of coronary artery disease on coronary angiography in young patients of age <35years presenting with the acute coronary syndrome.

Study Design: Cross-Sectional Study

Place and Duration of Study: This study was conducted at the Angiography Ward, Punjab Institute of Cardiology, Lahore for 6 months i.e. October 2018 and November 2019.

Materials and Methods: On coronary angiography, main coronary vessels were viewed and a level of stenosis was noted. The collected data was entered and analyzed by using SPSS version 20.

Results: A total of 365 cases presenting with ACS who underwent coronary angiography were included in the study. The Mean age of patients was 26.68±4.04 years. After investigation 288(78.9%) patients had CAD. Among male patients, SVD was predominant followed by DVD and TVD. i.e. [SVD: 82(32.4%), DVD (26.1%) & TVD: 56(22.1%)]. Among STEMI patients, 22(17.5%) patients had normal vessels, 43(34.1%) had SVD, 31(24.6%) patients had DVD and 30(23.8%) patients had TVD. Among NSTEMI patients, 29(24.0%) patients had normal vessels, 34(28.1%) had SVD, 33(27.3%) patients had DVD and 25(20.7%) patients had TVD. However, the p-value showed no statistically significant difference for coronary artery disease in all ACS groups.

Conclusion: CAD is involved in many cases at least a single vessel disease was present in maximum cases.

Key Words: Coronary artery disease, younger age, coronary angiography

Citation of article: Kanhet MR, Sahito SH, Hassan M, Ismail M, Shaikh JK, Khan R. Pattern of Coronary Artery Disease in Young Patients on Coronary Angiography. Med Forum 2021;32(5):129-133.

INTRODUCTION

As recently as in 2011, this disease caused the most deaths among people of all ages, it is also the leading cause of death in the United States and in Pakistan.[1] The cardiac disease occurs less commonly in adults but has a devastating impact on patients and their families of any age, so it is referred to as "potentially devastating disease.[1] Most CHD incidents in young people are associated with atherosclerosis, but in seniors, the main cause is usually one of the risk factors.[2] These behaviors—heavy smoking, hypertension, an excess in the intake of animal fat, and diabetes type 2—were significantly linked to CAD in patients under the age of 40, with a BMI of 24 kg/m².[3] An early manifestation of CAD has a detrimental impact on the patient and the family.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Doctors also opt to examine CAD patients who are in their early 40s because this population seems to have the greatest potential for being helped. Patients under the age of 35 have been referred to as creative. More rigorous research in young patients is conducted on clinical presentation, the seriousness of the disease, its presence, and what it will be like in the future.[4]

The majority of ACS patients do indeed develop congestive heart failure (10 percent), and 15 percent of those will die within 15 years of their first heart attack (or of returning to hospital) (26 percent). Although its occurrence is trivial, its effect on human life spans is considerable. It is a critical requirement. At the age of CAD presentation, patients appear healthier and exhibit various arteriographic and clinical results.[1]

One study has found that among ACS patients of age <35years, the frequency of single-vessel disease (SVD) was 39%, double vessel disease (DVD) was 20% and triple vessel disease (TVD) was 12% while 28% had normal coronary vessels. [1] Other studies supported the evidence and reported that among cases of age <35 years, the frequency of SVD ranged 42-51.9%, DVD ranged 20.2-27.3%,[1–5] TVD ranged 15.6-18[1–3] and the normal coronary artery was ranged 10.4-21.8%.[4–6]

But some reported that SVD is less frequent 14.6-15.2%, DVD was 12.4-18.68%[1,2] and TVD was reported as 40.66% in one study[1] while other reported 6.3-10.6%[7–9] while normal was reported as 25.59%.[1]

The rationale of this study is to assess the pattern of coronary artery disease on coronary angiography in

young patients of age <35years presenting with the acute coronary syndrome. It has been observed through literature that younger patients with ACS can have a controversial angiographic pattern for coronary artery disease. Some have reported that SVD is found in maximum cases while others reported that the incidence of TVD is high. Even, local studies conducted previously contain ambiguity. So to confirm the extent of the problem, we want to conduct this study to confirm the angiographic pattern of ACS in young adults. The latest magnitude will help in planning the treatment strategies in ACS patients.

MATERIALS AND METHODS

This cross-sectional study was carried out in 365 cases presenting with ACS who underwent coronary angiography in Angiography Ward, Punjab Institute of Cardiology, Lahore for the pride of Six October 2018 and November 2019.

Patients having age range 18-35 years of either gender fulfil the criteria for ACS (as per operational definition) planned to undergo coronary angiography presenting with 24 hours of the start of chest pain were included however Patients with deranged LFTs (ALT>40IU, AST>40IU), deranged RFTs (serum creatinine >1.2mg/dl), lipid-lowering drugs like statins (on history and medical record), Diabetes mellitus (BSF ≥126mg/dl and BSR>186mg/dl) were not included. All basic demographic information of each patient (name, age, sex, type of ACS, and contact) was also obtained. The patients underwent coronary angiography under local anesthesia by a single cardiologist with the assistance of the researcher himself. On coronary angiography, main coronary vessels were viewed and a level of stenosis was noted. If stenosis was ≥50% in one, two, or three vessels, then single, double, or triple vessel disease was labeled (as per operational definition). If <50% stenosis, then labeled as normal. All this information was recorded through a pre-designed proforma.

Data Analysis: The collected data was entered and analysed by using SPSS version 20. Quantitative variables like age were presented in form of mean ± S.D. Qualitative variables like gender and angiographic pattern (normal, single, double, or triple vessel disease) were presented in form of frequency and percentage. Data was stratified for age (18-25, 26-35 years), gender (male and female), type of ACS, and smoking. Post-stratification, chi-square was applied to compare stratified groups taking p-value≤0.05 as significant.

RESULTS

A total of 365 cases presenting with ACS underwent coronary angiography were included in the study. The Mean age of patients was 26.68±4.04 years. The minimum and maximum ages of patients were 20 and 35 years respectively. Gender distribution of patients showed that there were 253(69.3%) male and 112(30.7%) female patients. Among the included patients 170(46.6%) were smokers. The mean lesion size of patients was 60.64±13.50. The minimum and maximum sizes of the lesion were 30 and 85 respectively. After investigation 288(78.9%) patients had coronary artery disease lesions.

Vessel involvement after angiography showed that 120(32.9%) patients had single-vessel disease, 91(24.9%) patients had double vessel disease and 77(21.1%) patients had triple vessel disease.

Age was stratified into two groups. i.e. 18-25 years and 26-35 years to see the pattern of the coronary lesion. In the age group, 18-25 years 55(32.5%) patients had SVD, 38(22.5%) had DVD and 36(21.3%) patients had TVD. While in the age group 26-35 years 65(33.2%) patients had SVD, 53(27%) patients had DVD and 41(20.9%) patients had TVD. In both age groups, it was observed that SVD was predominant followed by DVD and TVD. However, the p-value showed no statistically significant difference for coronary artery disease in both age groups.

Table No.1: Descriptive Statistics for Lesion Size and Age Distribution of Patients (N=365)

Age Distribution of Patients	
Mean	26.68
SD	4.04
Minimum	20
Maximum	35
Descriptive Statistics for Lesion Size	
Mean	60.64
SD	13.50
Minimum	30
Maximum	85

Table No.2: Baseline and clinical characteristics of the patients (n = 365)

	Frequency	***Percentage***
GENDER		
Male	253	69.3%
Female	112	30.7%
SMOKING		
Yes	170	46.6%
No	195	53.4%
CORONARY ARTERY DISEASE LESION		
Yes	288	78.9%
No	77	21.1%
INVOLVEMENT OF VESSELS	7	21.1%
Normal Vessel	120	32.9%
SVD	91	24.9%
DVD	77	21.1%
TVD		
Type OF ACS		
Unstable angina	118	32.3%
STEMI	126	34.5%
NSTEMI	121	33.2%

Table No.3: Involvement of vessels in relation to bassline and clinical characteristics of patients (n = 365)

Age Group	Vessel Disease	Frequency	%age	p-value
18-25 Years	Normal Vessel SVD DVD TVD	40 55 38 36	23.7% 32.5% 22.5% 21.3%	**0.623**
26-35 Years	Normal Vessel SVD DVD TVD	37 65 53 41	18.9% 33.2% 27.0% 20.9%	
Gender				
Male	Normal Vessel SVD DVD TVD	49 82 66 56	19.4% 32.4% 26.1% 22.1%	**0.555**
Female	Normal Vessel SVD DVD TVD	28 38 25 21	25.0% 33.9% 22.3% 18.8%	
Smoking				
Yes	Normal Vessel SVD DVD TVD	22 57 47 44	12.9% 33.5% 27.6% 25.9%	**0.0023**
No	Normal Vessel SVD DVD TVD	55 63 44 33	28.2% 32.3% 22.6% 16.9%	
Type of ACS				
Unstable Angina	Normal Vessel SVD DVD TVD	26 43 27 22	22.0% 36.4% 22.9% 18.6%	**0.687**
STEMI	Normal Vessel SVD DVD TVD	22 43 31 30	17.5% 34.1% 24.6% 23.8%	
NSTEMI	Normal Vessel SVD DVD TVD	29 34 33 25	24.0% 28.1% 27.3% 20.7%	

The pattern of coronary artery disease was also seen in relation to the gender of patients. Among male patients, SVD was predominant followed by DVD and TVD. i.e. [SVD: 82(32.4%), DVD (26.1%) & TVD: 56(22.1%)] The same pattern was observed in female patients regarding coronary artery disease. i.e. [SVD: 38(33.9%), DVD (22.3%) & TVD: 56(18.8%)]. As per the p-value distribution of coronary artery disease was statistically the same in male and female patients.

Among smokers and non-smokers, a significant difference was seen for coronary artery disease. Among smokers, only 22(12.9%) patients had normal vessels while among non-smokers 55(28.2%) patients had normal vessels. This difference in having normal vessels among smokers and non-smokers was statistically significant. However, the pattern of the lesion was the same i.e. predominant lesion was SVD [Smokers: 57(33.5%) vs. Non-Smokers:63 (32.3%)] followed by DVD [Smokers: 47(27.6%) vs. Non-Smokers:44 (22.6%)] and TVD [Smokers: 44(25.9%) vs. Non-Smokers:33 (16.9%)] both in smokers and non-smokers.

There were 118 (32.3%) cases of unstable angina, 126 (34.5%) cases had STEMI while 121 (33.2%) cases had NSTEMI.

Among cases of unstable angina, 26(22.0%) patients had a normal vessel, 43(36.4%) had SVD, 27(22.9%) had DVD and 22(18.6%) patients had TVD. Among STEMI patients, 22(17.5%) patients had normal vessels, 43(34.1%) had SVD, 31(24.6%) patients had DVD and 30(23.8%) patients had TVD. Among NSTEMI patients, 29(24.0%) patients had normal vessels, 34(28.1%) had SVD, 33(27.3%) patients had DVD and 25(20.7%) patients had TVD. However, the p-value showed no statistically significant difference for coronary artery disease in all ACS groups.

DISCUSSION

In this study mean age of patients was 26.68±4.04 years. 169 patients were in between 18-25 years and 196 patients were in between 26-35 years.

The trend of coronary artery disease in adults under 35 years old, but with no established risk factors, is defined by Lubna Noor in his research. The mean age was 32,66±3,237 years (range 22–35 years) of the study patients.[10]

Hazrat Ullah Khan of Pakistan recently conducted a study to compare coronary artery disease patterns in young adults under 40 years of age with severe coronary artery coronary angiographic disease in young adults over 40 years old. In the report, 400 patients were taken at 40 years old (Group-A) and 48 years old (Group-B), while 352 years old (Group-B) (88 percent)[11]

The ages of >40 years were 16% and >40 years were 84%, respectively in Shah SS, et al. recorded in its analysis.[12] Tahir sagheer in his study took 299 patients. The patients in group I was those who were less than and equal to 40 years of age. The patients in group II were those who were greater than or equal to 41 years of age.[13]

The age distribution of patients of this study is following that reported by Lubna Noor, Hazrat Ullah Khan, and Tahir Sagheer. In this study, there were

69.3% male and 30.7% female patients. The male to the female percentage reported by Hazrat Ullah Khan in his study was 77% male and 22.5% female.[11] These results show the clear male predominance. Similar results were reported by Shah SS, et al[12], Akhtar P, et al[14], and Lubna Noor.[10] Wolfe et al, Result analyzed daily in pregnant women using maternal plasma-derived MMP-12; analyzed prenatal plasma-derived MMP-12 in expectant mothers 18 Wolfe and colleagues studied patients between the ages of 35 and 49 years, but recorded the only female frequency of 9% in the group of participants they studied.[12]

However, in this study female ratio was very high as compared to that reported by Wolfe. Similarly, the percentage of female patients reported by Lubna Noor, Hazrat Ullah Khan, and Tahir Sagheer was quite low as compared to that of this study.

In this study frequency of significant CAD was seen in 288(78.9%) of the patients. However total significant CAD reported by Hazrat Ullah Khan was 87.25%[11], by Akanda MAK, et al which was 74.4%[15], by Lubna Noor reported significant CAD in his study patients as 83.7%.[10]

In this study 77(21.1%) patients had normal vessels while 120(32.9%) patients had SVD, 91(24.9%) had DVD and 77(21.1%) patients had TVD. These results are comparable to Hazrat Ullah Khan who reported the frequency of SVD, DVD, and TVD as a whole was 30%, 24.5%, and 32.25% respectively.[11]

Akhtar P, et al.[14] found the prevalence of SVD, DVD, and TVD to be 24.9% and 25.7%, and Shah I et al discovered that these frequencies were 18% and 43.5%.[16] In his research, the incidence of one, two, three, and three-vessel disease was estimated to be 54% (21.2%), 22% (10.6%), and 11% (5.8%) respectively.[17] This reported pattern of SVD, DVD, and TVD was quite different from that of our study.

As per findings of this study it was seen that in the age group 18-25 and 26-35 the pattern of CAD was almost the same. In the age group, 18-25 a high frequency of normal vessels was seen in 23.7% of patients while in the age group 26-35 normal vessels were seen in only 18.9% of patients. The pattern of CAD was the same in both groups i.e. SVD was predominant followed by DVD and TVD. What studies have done compared to the younger age group with the old age group for frequency and pattern of CAD? i.e. (p-value=0.623).[17]

Among male patients, significant CAD has seen in 80.63% and among females, it was 75%. No statistically significant difference was seen for CAD and its pattern in male and female patients. However, CAD was predominant in male patients. (p-value=0.555)

Tahir Sgaheer and Hazrat Ullah Khan in their study reported the frequency of smoking among CAD patients as 62%[6] and 41%.[11] In this study as a whole 46.6% included patients were smokers. Among smokers, the frequency of normal vessels was only 12.9% while among non-smokers this frequency was 28.2% which was significantly higher in non-smokers (p-value=0.0023) So these results show that smoking plays a major role in the development of CAD in the younger age group.

CONCLUSION

It has been concluded that CAD is involved in many cases at least a single vessel disease was present in maximum cases. Now we have proved the controversy and revealed that in younger age groups, the incidence of CAD is high and among them, SVD is highly prevalent as compared to other lesions.

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

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Original Article

Expression Analysis of SR-B1 Gene in Type-2 Diabetes Mellitus Patients with and Without Dyslipidemia

Tayyaba Batool[1], Anila Humayun[2], Farooq Ahmad Malik[3], Zia Ullah[1], Saifullah[3] and Saifuddin Nasir[4]

ABSTRACT

Objective: To perform expression analysis of the SCARB1 gene to find out the association of High-density lipoprotein cholesterol (HDL-C) level with SR-B1 receptor expression in patients of type 2 diabetes mellitus

Study Design: A cross sectional comparative study

Place and Duration of Study: This study was conducted at the department of Biochemistry, Quaid e Azam Medical College, Bahawalpur from January, 2020 to June, 2020.

Materials and Methods: A total of 60 subjects of both genders aged 18 to 70 years were enrolled. Group-A (n=20) comprised of patients who had type 2 diabetes with dyslipidemia, Group-B (n=20) as type 2 diabetes without dyslipidemia while Group-C (n=20) was control (without diabetes and having normal lipid profile). PCR conditions optimized and quantitative real time PCR performed using SYBER Green fluorescence dye kit. Comparative ΔΔCT method applied to quantify the SCARB1 gene expression in control and disease groups.

Results: In a total of 60 subjects, there were 34 (56.7%) male and 26 (43.3%) female. Overall, mean age was recorded to be 48.24±6.77 years. ΔΔCT discovered the reduction in *SCARB1*gene expression in Group-A in comparison to Group-B and Group-C.Difference in expression of target gene was noted to be 1-fold in comparison to other groups. Mean values were found to have significant differences among Ct of Group-A (26.47±6.21), Group-B (18.69±3.76) and Group-C (19.78±5.25). Raised Ct value in Group-A reviewed abundance of target gene transcript with less copy number and found to have alterations in SR-B1 receptor which could be the cause of derangement in lipid profile in type 2 diabetes.

Conclusion: Hyperglycemia inhibits the expression of SCRB1 gene. Hyperglycemia might be responsible for reverse cholesterol transport by controlling SR-BI expression in diabetic patients resulting in the atherosclerotic changes and increasing the incidents of cardiovascular complications.

Key Words: Diabetes mellitus, cholesterol, atherosclerosis

Citation of article: Batool T, Humayun A, Malik FA, Zia Ullah, Saifullah, Nasir S. Expression Analysis of SR-B1 Gene in Type-2 Diabetes Mellitus Patients with and Without Dyslipidemia Med Forum 2021;32(5):134-137.

INTRODUCTION

Diabetes mellitus (DM) is known to be a metabolic syndrome occurring because of deficiency in production of insulin and/or inappropriate response of the cells to insulin.[1]

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Received: December, 2020
Accepted: March, 2021
Printed: May, 2021

Comorbidities are common among patients with DM while an important aspect of complications is chronic inflammation related to vessels which could be contributing significantly to atherosclerosis.[2,3]

Type 2 diabetes mellitus (T2DM) is associated with dyslipidemia which includes decrease in high density lipoprotein (HDL) and increase in triglyceride and LDL.[4,5] Hyperglycemia is known to be an important entity contributing to atherosclerosis. "Hepatic scavenger receptor class B type I (SR-BI)"by binding with HDL helps promoting reverse cholesterol transport and minimize the chances of atherosclerosis and plaque creation.[6,7] The protein encoded by SR-B1 is a plasma membrane receptor for HDL.SR-BI is known to localize in the basolateral and canalicular membranes of these cells (Figure 1).[8,9]

Researchers have revealed the linkage of insulin resistance with SR-B1 expression and decline in HDL levels because of hepatic over expression of SR-B1 receptors.[10,11] This research was performed aiming expression analysis of the SCARB1 gene to determine the association of HDL-C level with dyslipidemia in T2DM patients.

MATERIALS AND METHODS

This cross sectional comparative study was done at "The Department of Biochemistry, Quaid e Azam Medical College, Bahawalpur" from January to June 2020. Approval from" Institutional Ethical Committee" was acquired. Informed consent was sought from all study participants.

A total of 60 subjects of both genders aged 18 to 70 years were enrolled. Group-1 (n=20) comprised of patients who had type 2 diabetes with dyslipidemia, Group-2 (n=20) as type 2 diabetes without dyslipidemia while Group-3 (n=20) was control (without diabetes and having normal lipid profile). Patients having comorbidities like hypertension, cardiovascular disease or chronic liver disease were excluded.

Blood samples of all subjects were taken as 5ml syringe after ensuring aseptic measures. All samples were transferred to ethylenediaminetetraacetic acid tube. Lipid profile was done. Extraction of RNA was done from the blood within 6 hours adopting "Pure Link RNA Mini Kit ambion" by "life technologies ™. The cDNA synthesis was done through" Revert Aid first strand cDNA synthesis kit", Thermo scientific. The primers of SCARB1 gene were designed employing primer 3 software. Real time analysis was done for the analysis of SCARB1.At 1st, optimization of the gene was performed through conventional polymerase chain reaction (PCR).Optimization program was:

RESULTS

In a total of 60 subjects, there were 34 (56.67%) male and 26 (43.33%) female. Overall, mean age was recorded to be 48.24±6.77 years. The ΔΔCT method found decline in SCARB1 gene expression in Group-Ain compasison to Group-B&C. Difference in expression of traget gene in Group-A was 1-fold in comparison to other two study groups. Our findings revealed that T2DM causes change in SCARB1 gene expression which is leading to dyslipidemia (Table 1).

Table No.1: Relative Expression of SCARB1 genes among study groups

Groups	Mean CT		ΔCTSCARB1-ΔCTCONTROL	ΔΔCT DISEASE-CONT	FOLD EXPRESSION
	SCARB1	CONTROL			
Group-A	2647±6.21	18.62±0.52	7.68±6.2	5.69±6.2	.00028-1.5
Group-B	18.69±3.76	18.62±0.52	0.07±3.7	-1.49±3.7	0.027-0.2
Group-C	19.78±5.25	18.22±0.72	1.56±5.2	0.0±5.2	0.0272-36.75

Significant difference was noted in terms of mean ct values among study groups. Mean ct values were found to 26.47±6.21, 18.69±3.76 and 19.78±5.25 in Group-A, B &C respectively.

Table No.2: Mean CT value of target gene and control gene among study groups

Groups	*SCARB1* (Mean±SD)	Control gene (Mean±SD)
Group-I (n=20)	26.47±6.21	18.62±0.52
Group-II (n=20)	18.69±3.76	18.62±0.52
Group-III (n=20)	19.78±5.25	18.22±0.72

95^0C……6 min
93^0C……30 secs
48.5^0C…….35 sec
72^0C……1 min
72^0C……8 min
4^0C……10sec
} 35 cycles

Following optimization of PCR program, real time PCR was done on "smart cycler (Cephid)". The qPCR was performed utilizing" SYBER® Green ER™ qPCR Super Mix Universal kit" as :

95°C……..10 min
93°C……..30 sec
48.5°C……..….35 sec
72°C……60 sec
} 40 cycles

Data analysis of qPCR was done through comparative CT method (ΔΔCT method) on 4 steps (Figure 2).[12]

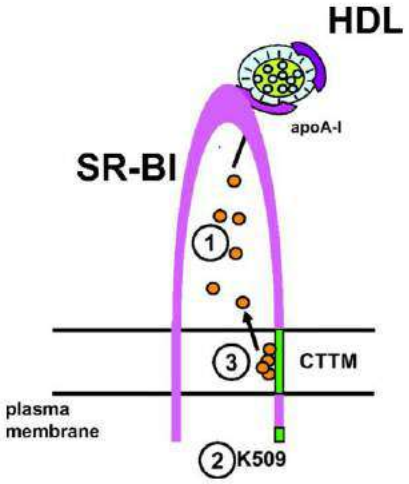

Figure No.1: Structure of SR-B1 Receptor[8]

Step 1: calculation of the standard deviation of ΔCT value by using the formula

$$S= (S1^2 - S2^2)^{½}$$

Step 2: calculation of ΔΔCT value by the formula

ΔΔCT=ΔCT test sample-**ΔCT** calibrator sample

Step 3: calculation of the standard deviation of ΔΔCT value

Step 4: incorporation of standard deviation of ΔΔCT value into fold difference

Range of target=$2^{-\Delta\Delta CT}$

Figure No.2: qPCR by comparative CT method (ΔΔCT method) on 4 steps

The control gene β-actin revealed constant expression in all samples (Figure 3). The efficiency of the target gene assay and control gene assay were estimated as:
E=[10(-1/SLOPE)-1.
The estimated efficiency of the target and control was noted to be equal to 1.2 showing correctness of qPCR.

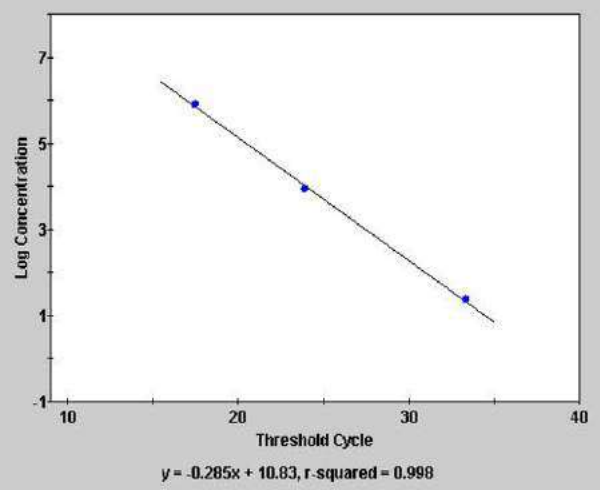

Figure No.3: Standard Curve of the Internal Standard (Beta actin)

DISCUSSION

"Diabetic dyslipidemia" is known to be a mixture of plasma lipid as well as lipoprotein disorder which are metabolically interconnected to each other. Dyslipidemia is known to be linked with insulin resistance, visceral obesity and liver fat contents.[3] Researchers are putting efforts in discovery of definite regulation steps that can help controlling the complications related to dyslipidemia among patients with DM. Genetic contribution to natural course of DM is well established.[13] Researchers have confirmed the enhanced production of apoBin T2DM which is known to be an important constituent of VLDL and LDL because of up-regulation of intestinal SR-B1 receptor.[14] Low insulinization is also thought to contribute to increased lipolysis in adipocytes resulting into transportation of fatty acid to the liver while this mechanism is thought to be a common abnormality among T2DM patients.[15]

The current study demonstrates that hyperglycemia is directly related to the dyslipidemia. In the present study, aiming expression analysis SR-B1 gene, RT-qPCR was done as it considered to be the best method aiming analysis of change in gene expression.[16] For RNA, only qualitative analysis is not enough. That is why, it is essential performing quantitative analysis through RT-qPCR. A "house-keeping gene" is described as a gene having most stable expression (small coefficient of variation as well as maximum fold changes of less than or equal to 2). Ct is described to be as number of cycles that a reaction requires for reaching the threshold of fluorescence. After collection of the ct value reaction relative expression level of the samples was estimated [17]

Our results found high abundance of target gene (SCARB1 gene) among controls which was noted following 15-cycles of amplification. The Group-B showed the ct value from 20-26 cycles showing relative low abundance of target transcript in comparison to controls but this low abundance of gene did not alter the SCARB1 gene expression and functioning of SR-B1 receptor. Real time results found that patients having DM have change in expression of SCARB1 gene and might be prone to lipid derangments.[18,19]

The ct value of Group-A showed range of 26-34cycles.The high ct value shows the late amplification of the sample which indicates the low abundance of the target gene and consequently the decrease transcription of the receptor. This ct value was found to have consistency with derangement in lipid profile of this group. Keeping in mind the findings of the present research, we can say that hyperglycemia was directly found to relate with decrease expression of gene. A study done by Murao K et al from Japan concluded that possible glucose suppression by SCARB1 expression could be credited to fractional mediation of p38 MAPK-Sp1 pathway and highlights the probability while all this highlights that changes in SCARB1 expression under influence of hyperglycemia might be providing conditions what accelerate the process of atherosclerosis among patients having diabetes.[20]

CONCLUSION

Hyperglycemia inhibits the expression of SCRB1 gene. Hyperglycemia might be responsible for reverse cholesterol transport by controlling SR-BI expression in diabetic patients resulting in the atherosclerotic changes and increasing the incidents of cardiovascular complications.

Acknowledgement: The authors are thankful to Muhammad Aamir (Research Consultant, Bahawalpur) for volunteer assistance in statistical analysis of this research.

Author's Contribution:

Concept & Design of Study:	Tayyaba Batool
Drafting:	Anila Humayun, Farooq Ahmad Malik
Data Analysis:	Zia Ullah, Saifullah, Saifuddin Nasir
Revisiting Critically:	Tayyaba Batool, Anila Humayun
Final Approval of version:	Tayyaba Batool

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

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Original Article

Difficult Intbation (DI) in Patients of Cardiac Surgery of Punjab Institute of Cardiology, Lahore

Syed Imran-ul-Hassan, Shehryar, Muhammad Rashid, Maryam Liaquat, Javeria Saleem and Kanwal Awan

ABSTRACT

Objective: The objective of this study was to determine the frequency of difficult intubation among patients of cardiac surgery in the Punjab Institute of cardiology.

Study Design: Observational Study

Place and Duration of Study: This study was conducted at the Department of Anesthesia, Punjab Institute of Cardiology from October 2020 to February, 2021.

Materials and Methods: All the patients of age 20 to 80 years of either gender undergoing elective or emergency cardiac surgery meeting the American Society of Anesthesiologists' (ASA) grades I-IV undergoing general anesthesia with endotracheal intubation were included in the study. Patients were not told anything about this classification and no medication was given beforehand to any of them. While in the Operation Theater, patients ECG was monitored along with all other vitals. Any patient in which Cormack Lehane grade III and IV if seen on laryngoscopic view or if bougie was used in patients with Cormack grade II, was defined as a case of DI.

Results: Data of the physical examination was collected and late analyzed to calculate the BMI of these patients. Among all the 110 patients enrolled, the mean value of BMI was 31.2 + 5.9. 50 of 110 patients had a BMI of more than 30, falling into obesity. While categorizing the patients into ASA grading, 71 patients were of grade III or IV and rest 39 patients were of ASA grade I or II. The frequency of difficulty intubation DI among these patients of our study was 23.6% (26 patients among the total 110 patients). Among these patients who had DI, female gender was dominantly affected but the difference of DI among male and female gender was not statistically significant, ($p = 0.77$).

Conclusion: Around one fourth of the patients undergoing cardiac surgery can have difficult intubation, depending upon the age, gender, BMI, ASA grading and some other factors. Pre-operative assessment of the patients by the anesthetist should be done thoroughly taking in account the risk factors and Cormack Lehane grade of the patient. If pre-op assessment is not done properly, patients can have DI and end up into cricothyrotomy and lead to significant increase in morbidity and mortality. Studies should be done in all fields of surgery to see the incidence of DI, correlating it with various risk factors.

Key Words: Difficult Intubation, Cormack Lehane, Cardiac Surgery, Anesthesia, Preop Assessment

Citation of article: Hassan SI, Shehryar, Rashid M, Liaquat M, Saleem J, Awan K. Difficult Intbation (DI) in Patients of Cardiac Surgery of Punjab Institute of Cardiology, Lahore. Med Forum 2021;32(5):138-142.

INTRODUCTION

The airway management is the cornerstone in the practice of anesthesiology. It is important for the success of surgeon as well as anesthesiologist. One step in the process of general anesthesia is intubation. And difficult intubation (DI) leads to significant morbidity and sometimes can even end up in mortality.

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Received: March, 2021
Accepted: April, 2021
Printed: May, 2021

Published recommendations say the airway assessment should be done beforehand on routine basis and it should a regular practice of all the anesthesiologists so as to identify suspected cases of difficult intubation.[1,2]

Studies have shown various factors can predict DI. DI can be in the form of difficulty with the facemask ventilation, or tracheal intubation, requiring emergency surgical access through the trachea to maintain ventilation to prevent mortality. Pre-operative assessment for suspected DI can prevent potential complications before surgery and proper preparation can be done. Most important airway complications that can occur due to DI include failed airway management, oesophageal intubation and pulmonary aspiration.[3,4]

Which category of surgeries have the more chances of DI is still a difficult question. Most of the studies have shown DI in obstetric or ENT surgeries. Few studies are available accessing the frequency of patients of cardiac surgery with DI.[5]

A study on DI reported that among all the, incidence of DI in all the surgery patients included in the study was 122/627 (19.46%); this included cardiac as well as non-cardiac surgeries. Incidence of DI in cardiac surgery cases was 24%. Risk factors of DI pointed out in this study were advances age, male gender, higher Mallampati grade, and anticipated DI (P = 0.1). Main finding was the higher incidence of DI cardiac surgery cases versus non-cardiac surgery cases.[6] Another study reported that DI was more among the patients of cardiac surgery patients as compared to non-cardiac surgery (10% vs. 5.2%; P < 0.023).[7]

Cases of DI are seen routinely in the operation theaters by doctors practicing anesthesia. Limited local data is available regarding the frequency of DI cases among cardiac surgeries. The aim of the study was to determine the frequency of difficult intubation among patients of cardiac surgery in the Punjab Institute of cardiology. This study will give an insight of this issue while proving the hypothesis that the cardiac surgical patients have more chances of having DI. Knowing the exact burden of DI will prove the importance of pre-op evaluation for suspected DI cases.

MATERIALS AND METHODS

In this observational study conducted in the Punjab Institute of cardiology, one of the major tertiary care hospital specified for cardiology, from October 2020 to February, 2021, after the approval from the hospital ethical Review Board. Written informed consent was also taken from all the participants after explaining the rationale of the study and its data collection procedure.

During the study period of 6 months, 110 patients were included in the study. Sample size of 110 was calculated using the WHO sample size calculator, taking the expected percentage of patient of DI among all the patients undergoing cardiac surgery of 24%, with confidence level of 95% and an absolute precision of 8%.

All the patients of age 20 to 80 years of either gender undergoing elective or emergency cardiac surgery meeting the American Society of Anesthesiologists' (ASA) grades I-IV undergoing general anesthesia with endotracheal intubation were included in the study. While all the patients with planned regional anaesthesia and general anaesthesia with supraglottic airway devices (SADs) were excluded.

On the day of the visit for evaluation from the anaesthesiologist before the surgery few variables were documented. These included age, gender, body mass index (BMI), abnormal dental status (malaligned or loose teeth or presence of dentures), any facial abnormalities like short neck or presence of beard.

Modified Mallampati class will be assessed.

Class I: Soft palate, fauces, uvula, anterior and posterior tonsil pillars visible

Class II: Uvula is obscured by the base of tongue;

Class III: Soft palate and base of uvula are visible

Class IV: Only hard palate visible

After the evaluation, consultant anaesthesiologist was classified the patients with suspected DI to anticipate the problem beforehand. A patient with a combination of modified Mallampati class III or IV, with facial anomalies or abnormal dental status was considered as a predicted DI.

Patients were not told anything about this classification and no medication was given beforehand to any of them. While in the Operation Theater, patients ECG was monitored along with all other vitals.

All patients were pre-oxygenated for around 3 mins with 100% oxygen later on fentanyl 2 µg/kg IV and propofol 2 mg/kg IV was administered. The process of intubation was done under support of either suxamethonium 2 mg/kg IV or vecuronium 0.1 mg/kg IV, as per the choice of the on duty consultant anaesthesiologist for laryngoscopy.

Laryngoscope of various sizes of blades was made available at the time of intubation and patients' head was placed in sniffing position.

Any patient in which Cormack Lehane grade III and IV if seen on laryngoscopic view or if bougie was used in patients with Cormack grade II, was defined as a case of DI.[9]

The success of intubation was confirmed through the assessment of movements of the chest, and auscultation of the chest. If signs showed the failure of the tracheal intubation, a supra-glottic airway device (SAD) was inserted in order to maintain the oxygen level in the body, if still oxygen level was not maintained facemask ventilation was tried; still not successful last step was to do emergency cricothyroidotomy.

Continuous variables were expressed using mean values along with the standard deviations; while the quantitative or categorical variables were expressed in terms of frequencies and percentages. Frequency of patients with DI was our primary outcome variable. And secondary outcome was the effect modifiers of primary outcome variable i.e. incidence of DI in cardiac surgery patients. Data of the primary outcome variable was stratified for all the effect modifiers and post stratification chi square was applied to the effect of these on the outcome. P – Value of 0.05 was taken as significant.

RESULTS

In this observational study, 110 patients were included after they met the inclusion a as well as the exclusion criteria. Mean age of the patents was 47.95 $\pm$ 11.8 years. As the age limit was set between 20 to 80 years, we divided the patients into two age groups, 35 (31.8%) were of age 20 to 50 years old people and 75 (68.2%) were of the age between 51 to 80 years. Male and female ration was around 2:1, 67 were male and 43 were female patients.

Data of the physical examination was collected and late analyszed to calculate the BMI of these patients. Among all the 110 patients enrolled, the mean value of BMI was 31.2 ± 5.9. 50 of 110 patients had a BMI of more than 30, falling into obesity. While categorizing the patients into ASA grading, 71 patients were of grade III or IV and rest 39 patients were of ASA grade I or II.

The frequency of difficulty intubation DI among these patients of our study was 23.6% (26 patients among the total 110 patients). Among these patients who had DI, female gender was dominantly affected but the difference of DI among male and female gender was not statistically significant, (p = 0.77). Similarly, patients of advances ASA grade (3 or 4) had DI, but the difference of advanced ASA grade was not statically significant , p – value = 0.57.

Table no 2 shows the details of the patients who had DI and their effect modifiers / variables like age, gender, ASA grade and BMI.

Analysis of data collected from our patients clearly showed that the age and BMI were significant risk factors in the development of DI.

Table No. 1: showing the details of age, gender, ASA grade and BMI

Variables		No. (%)
Age (years)	Mean SD	47.95 ± 11.8
	20-50	35(31.82%)
	51-80	75(68.18%)
Gender	Male	67(60.91%)
	Female	43(39.09%)
BMI - Body mass index	Mean SD: 31.25±5.87	
	<30	60 (54.5%)
	>30	50 (45.5%)
ASA grade	I - II	51(46.36%)
	III - IV	59(53.64%)

Table No. 2: Association of age, gender, ASA grade and obesity with the incidence of DI in cardiac surgery patients

Difficult intubation	Age(in years)		Gender		ASA		BMI	
	20-50	51-80	Male	Female	I - II	III - IV	Upto 30	>30
Yes	6	20	10	16	8	18	9	17
No	44	40	35	49	31	53	51	33
P value	0.008		0.77		0.57		0.01	

P- value ≤ 0.05 is considered as significant

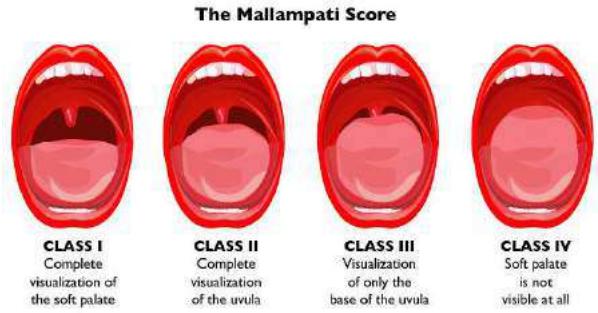

Figure No.1: The Mallampati Score

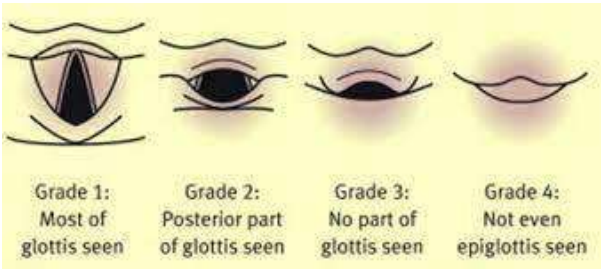

Figure No.2: Glottis detail

Among the total 26 patients who had DI, 20 (76.9%) were of advanced age group (age more than 50 years old); and 17of 26 patients (65.3%) were obese. Not all the patients with obesity developed DI, 17 of 50 (34%) obese patients had DI during their cardiac surgery. Among the total patients who didn't develop DI, 60% were not obese and 41% were male.

DISCUSSION

The evaluation of a patient admitted for surgery done by the anesthetist before surgery is important to declare the fitness of the patient, to get the desired anesthesia. The Airway assessment is the most important aspect of anesthetist practice to anticipate difficult intubation (DI). DI is more common in some fields of surgery like cardiac surgery, ENT and obstetrics. Even in the pediatric cardiac surgery patients, incidence of DI is twice than that in other pediatric surgeries.[8]

Difficult tracheal intubation can end up into serious complications both for adult as well as pediatric anesthesiologist. Pediatric cardiac surgery patients have more chances of development of DI due to underlying CHD, disturbed pulmonary blood circulation, making them to de-saturate. Even the process of preoxygenation is difficult among the patients of cardiac surgery.[9,10]

In our study, we included all the cardiac surgeries meeting the inclusion and the exclusion criteria. Every patient was evaluated pre-operatively to categorize into suspected DI case. After the evaluation, consultant anesthesiologist was classified the patients with suspected DI to anticipate the problem beforehand. A patient with a combination of modified Mallampati

class III or IV, with facial anomalies or abnormal dental status, as accessed by an unbiased consultant anesthesiologist was considered as a suspected DI. We included 110 patients, among these cases 23.6% (n = 26 of 110) patients had DI.

Borde DP, et al studied patients of surgery while dividing them into two groups: Cardiac surgery group and non-cardiac surgery group. The incidence of DI among all the surgeries was 19.5%. DI among the patients of cardiac surgery was encountered in 24%, similar to that reported in our study, while in non-cardiac surgeries it was seen in 14.4% patients (P = 0.002). Detailed data analysis showed that patients of advanced age, male gender, with a higher Mallampati grade, and categorization into suspected DI on pre-op assessment were the factors. Advances age, obesity, advanced ASA and obesity was also reported in our study as risk factors. The incidence of unanticipated DI was 48.1% and 53.4% in cardiac and non-cardiac surgery patients, respectively.[11] In an Indian study of around two hundred patients, difficult intubation DI was seen in 13% cases[12], this was 23.6% in our study, double than that reported.

In alarger study designed after review of literature showing well known risk factors of DI to be male gender, obesity, old age, similar to that reported in my study. This study analyzed around twenty thousand surgeries done under general anesthesia. Poor laryngoscopy was observed more among the patients of cardiac surgery when compared with general surgery patients (7% v 4.2%).[13]

In another study, comparison was done to develop a better approach of anticipation of DI cases along with some other airway parameters. These parameters included inter incisor gap, prognathism, obesity and modified mallampati grading. After the pre-op assessment, patients were also evaluated intra-operatively and were classified according to the Cormack and Lehane views. Frequencies of patients of all types of surgeries with difficult intubation were 3.3%. Major factor behind DI was head and neck movements and h arched palate had the highest specificity (99.38%). Head and neck movements strongly correlated for patients with difficult intubation.[14] Our study focused on only DI cases in cardiac surgery

Workeneh SA, et al defined three different terms; difficult laryngoscopy, difficult intubation, and failed intubation, they reported the frequency of patients of these three terms to be: 12.3%, 9%, and 0.005%, respectively. While analyzing different variables which can predict a case of DI, mouth opening less than 30 mm and a Mallampati classes III or IV were found most sensitive and specific (P value < 0.001).[15]

Studies have shown that any patient with advanced age, overweight or obese, with history of snoring, uncontrolled diabetes, positive upper lip bite test, Mallampati grade (MPS) class III or IV, and having larger inter-incisor gap are more prone to have DI.[16] Few of these risk factors were also accessed by us in our study, but most of these were not seen, this is a limitation of our study.

Patients with thyroid disease leading enlargement of the gland are also more prone to develop DI. Incidence of DI was reported to be around 5% versus 2.5% when comparing cases of DI between patients of thyroid disease with non-thyroid. Unlike other studies this study reported younger age of thyroid disease with higher ASA category and smaller body habitus to be more significantly associated with DI.[17]

A meta-analysis on the predictors of DI analyzed many studies on Mallampati test, its modifications, Wilson risk score, thyromental distance, sternomental distance, mouth opening test, and upper lip bite test. Most of the studies showed patient selection. Modified Mallampati classification was reported to be most sensitive in the prediction of a case of DI as compared to most of the other tests.[18] Heinrich S, et al reported after analyzing a large data, DI was seen in 4.9 %. Most of the cases were of oromaxillofacial surgery (9%), ENT 7 %, and cardiac surgery (7.0 %).[19]

DI varies with the fields of surgery along with other effect modifiers. More awareness and a structured plan of patient evaluation made by the institutional administration making airway assessment a compulsory step before the declaration of fitness for general anesthesia can prevent significant morbidity and mortalities.

CONCLUSION

Around one fourth of the patients undergoing cardiac surgery can have difficult intubation, depending upon the age, gender, BMI, ASA grading and some other factors. Pre-operative assessment of the patients by the anesthetist should be done thoroughly taking in account the risk factors and Cormack Lehane grade of the patient. If pre-op assessment is not done properly, patients can have DI and end up into cricothyrotomy and lead to significant increase in morbidity and mortality. Studies should be done in all fields of surgery to see the incidence of DI, correlating it with various risk factors.

Author's Contribution:

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

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Original Article

Frequency of Subclinical Atherosclerosis in Patients with Rheumatoid Arthritis

Faheem Ahmed Memon[1], Ghulam Fareed[5], Shahid Hussain Memon[6], Pardeep Kumar[3], Lachman Das Maheshwari[3] and Tarachand Devrajani[4]

ABSTRACT

Objective: To determine the frequency of subclinical atherosclerosis in patients with rheumatoid arthritis.
Study Design: Observational / analytical study.
Place and Duration of Study: This study was conducted at the Department of Orthopedic Surgery and Traumatology, Liaquat University of Medical and Health Sciences, Jamshoro from January 2019 to December 2019.
Materials and Methods: Fifty patients of RA were contemplated and were analyzed. A large portion of the patients were more than 40 years old and experienced cardiovascular issues. Patients were assessed utilizing the normalized clinical meeting. Routine biochemical assessments were performed, furthermore, for incendiary markers, for example, CRP and ESR were acted in the clinic's clinical research facility. The rheumatoid factor (RF) was resolved utilizing ELISA. Illness action was estimated utilizing the sickness movement score 28 joints (DAS 28). The DAS 28 with CRP utilized as the score for illness the executives while the assent was gotten from the patients prior to gathering blood tests and performing tomography scan checks while the information was analyzed in SPSS and separated to have frequencies and rates.
Results: The demographics of the 50 RA patients were studied. The average age of the RA patients was 55.21±7.64 years. Sixty four percent were female and 20 percent had a BMI >30. Systolic blood pressure and waist circumference and were found to be highly significant. The mean ± SD of BMI (kg/m^2), WC, systolic & diastolic blood pressure, serum cholesterol (mg/dl), High density lipoproteins (mg/dl) and triglycerides (mg/dl) was 24.77±0.7, 88.86 ± 5.41, 160.85±4.61, 92.45 ± 5.31, 521 ± 20.72, 28.87 ± 3.43 and 210.84 ± 8.63. The mean ± SD for ESR and CRP (mg/dl) was identified as 85.12±8.74 and 25.74±5.87 while the fasting glucose (mg/dl) was 155.75±9.68. The Framingham risk score among rheumatoid male and female population was 1.6±0.51 and 7.10±3.31. The mean ± SD for disease duration (yrs) was 9.61 ±3.42 while the history of smoking and hypertension was found in 15 (30%) and 25 (50%) population. The majority of the patients belonged to rural community 35 (70%) and have lower class socioeconomical background 30 (60%). The mean ± SD for serum uric acid (mg/dl), DAS 28 and homocysteine (µmol/L) was 10.72±2.74, 6.78 ± 1.85 and 22.53±3.65.
Conclusion: We determined the important non invasive biological markers for CVD in rheumatoid arthritis individuals.
Key Words: Rheumatoid arthritis, atherosclerosis and cardiovascular.

Citation of article: Memon FA, Fareed G, Memon SH, Kumar P, Maheshwari LD, Devrajani T. Frequency of Subclinical Atherosclerosis in Patients with Rheumatoid Arthritis. Med Forum 2021;32(5):143-145.

INTRODUCTION

Rheumatoid joint inflammation (RA), a disorder that influences joints, has been accounted for in roughly 1% of everyone.[1] A few investigations have recorded the expanded mortality rates in these subjects, which could be because of hidden, sped up coronary vein and cerebrovascular atherosclerosis.[2]Ladies with RA are at double the danger of creating myocardial localized necrosis contrasted and ladies who don't have RA; notwithstanding, this expanded danger is additionally found in men. Aggravation intervened vascular endothelium brokenness has been appeared to prompt atherosclerosis, and has been considered important contributing element to expanded CVS dreariness and death rates.[3] Smooth muscle and connective tissue likewise relate to destinations of lipid affidavit and thrombus development.[4,5]Former reports on expanded subclinical atherosclerosis in SLE and RA have been distributed; nonetheless, it is scant in our populace.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

Rather than everyone, there is no data in regards to the connection between the CVS and FRS coronary disorder in patients with RA. Accordingly, we determine the CVS and FRS are related with coronary artery disease in RA individuals.

MATERIALS AND METHODS

Fifty patients of RA were contemplated and were analyzed by the ACR rules. A large portion of the subjects were more than 40 years old and experienced cardiovascular issues. Patients were assessed utilizing the normalized clinical meeting. The data were noted in the patient proforma, insights about smoking were recorded. BMI in kg/m^2 was determined for every persistent and control to recognize the wellbeing status of the person. Pulse was recorded, and blood was gathered following a 12 hour short-term quick for all normal research facility examinations. Routine biochemical assessments were performed, furthermore, for incendiary markers, for example, CRP and ESR were acted in the clinic's clinical research facility. The rheumatoid factor (RF) was resolved utilizing ELISA. Illness action was estimated utilizing the sickness movement score 28 joints (DAS 28). The DAS 28 with CRP has been utilized as the score for illness the executives. The composite, worked on coronary forecast model based on the pulse and cholesterol classifications was utilized. Patients went through a registered tomography sweep of the chest to recognize coronary disturbance which filled in as a proxy proportion of subclinical atherosclerosis. The exclusion parameters were the patients more youthful than forty years old and nonsmokers were barred, just as those with a background marked by diabetes mellitus. No different diseases were noted. The assent was gotten from the patients prior to gathering blood tests and performing tomography scan checks while the information was analyzed in SPSS and separated to have frequencies and rates.

RESULTS

The demographics of the 50 RA patients were studied. The average age of the RA patients was 55.21±7.64 years. Sixty four percent were female with significant BMI. Around 20 percent had a BMI >30 while systolic blood pressure and waist circumference were raised. The mean ± SD of body mass index (kg/m^2), WC, systolic and diastolic blood pressure, total cholesterol (mg/dl), HDL cholesterol (mg/dl) and triglycerides (mg/dl) was 24.77±0.7, 88.86 ± 5.41, 160.85±4.61, 92.45 ± 5.31, 521 ± 20.72, 28.87 ± 3.43 and 210.84 ± 8.63. The mean ± SD for ESR and CRP (mg/dl) was identified as 85.12±8.74 and 25.74±5.87 while the fasting glucose (mg/dl) was 155.75±9.68. The Framingham risk score among rheumatoid male and female population was 1.6±0.51 and 7.10±3.31. The mean ± SD for disease duration (yrs) was 9.61 ±3.42 while the history of smoking and hypertension was found in 15 (30%) and 25 (50%) population. The majority of the patients belonged to rural community 35 (70%) and have lower class socioeconomical background 30 (60%). The mean ± SD for serum uric acid (mg/dl), DAS 28 and homocysteine (µmol/L) was 10.72±2.74, 6.78 ± 1.85 and 22.53±3.65. Parameters such as BMI, CRP and blood pressure correlated with insulin resistance indicates that the chance of metabolic syndrome is responsible for coronary disturbances in RA population. The magnesium, zinc and homocycteine levels were detected to be responsible for coronary events in RA patients and thus, can be utilized to determine the RA during early age. Significant levels of insulin were observed in patient serum indicating insulin resistance while the complement C3 was also highly raised.

DISCUSSION

We had the option to distinguish significant markers for CVD in RA population. We had study RA patients by variables as RF and DAS28, the wellbeing evaluation survey for RA patients and incendiary markers ESR and CRP were totally discovered to be exceptionally huge. Besides, more seasoned patients with high-grade aggravation exhibited diminished beta-cell work. Notwithstanding, age was a critical factor for resistance of insulin. Comparable outcomes were likewise appeared by former studies.[6-8] RA patient's insulin resistance was autonomously connected with markers of irritation, infection qualities and CAC. These outcomes were in concurrence with the distributed writing, in which these boundaries were contemplated, and aggravation was recommended to assume a focal part in the improvement of atherosclerosis.[9-12] No comparative examination on population has been directed in our country to recognize subclinical atherosclerosis. Our information demonstrated that an expansion in RA illness seriousness was related with a high pervasiveness and more prominent degree of CAC. The literature shows aggravation in RA patients and CRP to be a provocative marker in CVS illness suggested that the atherogenic event detected in RA is because of irritation. Gender and age contrasts in RA patients have been related with an expanded danger of subclinical atherosclerosis, autonomous of conventional danger factors generally ordinary.[13-15] The preventive strategies ought to be taken particularly in RA and more youthful patients present with early indications of critical factors; these outcomes corresponded with the examination by former researchers.[16] Distributed RA writing founds coursing $CD4^+CD28$ cells are expanded and correspond with preclinical atherosclerotic infection and endothelial cracks. Such cells are likewise expanded in the dissemination and in thrombus with intense coronary condition, also, have endothelial cell cytotoxic action.[16] Maturing, contaminations and

ongoing irritation sicknesses are related with the development of this curious T cell.[17] In older people, $CD4^{+}CD28$ T cells are utilized as a marker of safe reaction. Consequently, the expanded recurrence in subjects relates with the improvement of immune system marvel and with flawed B cell reactions portrayed by weakened creation of antibodies. In spite of fact that CVD is a perplexing sickness in everyone, more unpredictable in RA subjects, a scope of conventional danger factors and incendiary markers all add to CVS deaths.[18] Subsequently, complete appraisal of such conventional markers should frame business as usual consideration of RA patients at risk of atherosclerotic events.

CONCLUSION

We identified important biological non invasive markers for CVD in rheumatoid arthritis individuals and have been observed relationship between the coronary artery atherosclerosis and FRS and in RA subjects.

Author's Contribution:

Concept & Design of Study:	Faheem Ahmed Memon
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Data Analysis:	Pardeep Kumar, Lachman Das Maheshwari, Tarachand Devrajani
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Comparison of Self-Assessment and Students' Perspective Regarding Teaching Effectiveness of Medical Teachers

Sidra Aamer[1], Fizza Sahar Anwar[2], Beenish Abbas[3], Batool Zara[4], Farah Farhan[5] and Saima Zafar[1]

ABSTRACT

Objective: The objective of this study is to compare the teaching effectiveness of medical teachers from a teacher's self-evaluation perspective and student's evaluation of teaching effectiveness.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Operative Dentistry, Foundation University College of Dentistry and Hospital, Islamabad for one-month March to April 2021.

Materials and Methods: This study was conducted in Foundation University College of dentistry FUCD of Fauji Foundation University. This study was a cross-sectional study of 1-month duration. 200 dental students from all four years of BDS and 20 medical teachers were selected through non-purposive convenience sampling. Teaching effectiveness was assessed first from 20 teachers and then similar teachers were evaluated by 200 dental students (10 students evaluated 1 teacher). For self- evaluation of teaching effectiveness, the validated tool "Self- assessment Instrument for teacher evaluation (SITE)" was used and filled by teachers. For student's evaluation of teaching effectiveness, the tool "Evaluation of teaching performance (CEID)" was used and filled by 200 students from all 4 years of BDS.

Results: Teachers rated their teaching more effective with a mean score (M=120) than students. The result was significant statistically. With respect to 60% cut-off score, all the teachers (100%) rated themselves as effective teachers.

Conclusion: Teachers think that their teaching effectiveness is more as compared to students perception evident by results. This reflects evaluation and communication gap between teachers and students. Therefore, there is a need of development of evaluation system with evaluation tool of 360-degree vision either six monthly or yearly in which students should be the major stakeholders for teachers evaluation. Other than that Faculty development program and workshops should be made part of curriculum.

Key Words: Teaching effectiveness, Self-evaluation of teaching, student Feedback, Medical teachers, Teacher's evaluation

Citation of article: Aamer S, Anwar FS, Abbas B, Zara B, Farhan F, Zafar S. Comparison of Self- Assessment and Students' Perspective Regarding Teaching Effectiveness of Medical Teachers. Med Forum 2021;32(4):146-150.

INTRODUCTION

Teacher effectiveness is evaluated through a prescribed and systematic method of teacher appraisal system. It is mandatory for teachers to meet the certain set criteria of teaching which helps to identify effective and ineffective teachers[1]. In literature, various concepts have been used regarding the effectiveness of teaching.

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Received: April, 2021
Accepted: April, 2021
Printed: May, 2021

Effective teaching is based on characteristics of a teacher, teaching processes and teaching outcome. Effective teachers aid their students to cultivate a healthy body, mind and improve their performances. Nonetheless, there is consensus on certain characteristics of effective teaching. These include preparation of the course content, subject expertise, guiding throughout the process of learning, unbiased assessment plans for students, organization and management skills during class, having better communication skills, indulgent behavior, act as a mentor and use blend of teaching aids properly[2]. Teaching effectiveness of a teacher is assessed to improve student's performance and for promotion.

Literature supports differences regarding the perception of teaching effectiveness by students and teachers. According to students, effective teacher has good communication skills, easily available, always support students and make teaching and learning process more exciting and pleasant during class to reduce monotony

and pressure in the classroom[3]. However, teachers consider essential to maintain high set standards for students, give more importance to enthused students to make them lifelong self-directed learners. Students can assess their teachers in an undesirable way. It is observed that the assessment of teaching effectiveness is also effected by other reasons.

Teachers evaluation can be influenced by many factors like students own interest in particular subject, difficulty level of the subject, requirement of the course and motivation of students[4]. Sometimes more weightage is given to written students evaluation of teachers, which leads to lack of interest at teacher's level to take feedback from students. Occasionally student's evaluation of teachers is considered deceptive, prejudiced, and unacceptable.

Students play a vital role in education process therefore there is an utmost need to include student's perception of effective teachers in evaluation process of teachers to improve the standards of education. In many institutes, student feedback is a key element in assessment system[5]. Literature supports that teachers are inclined to adopt only those teaching strategies which leads to good student's feedback. Hence, students' feedback should not be the only medium of evaluating teachers and the process of education. To maintain the balance between the required characteristics of an effective teacher the job of teachers are becoming very challenging with time[6].

Ideally, information from numerous ways should be utilized to evaluate teacher's efficiency rather than trusting single source. It will give a broad, holistic and clear findings regarding teacher's performance. Variable opinions are present in literature regarding the student's evaluation of faculty performance, use of feedback from students and lack of self-evaluation of teachers to improve quality of teaching[7].

The present study was conducted to compare self-evaluated and students- reported teaching effectiveness of the medical teachers. Earlier studies conducted on evaluation of teaching effectiveness from students and teachers' perspectives have been found in management and pure sciences. Dental education that is highly competitive and challenging, studies on this area are less in Pakistan[5]. The objective of this study was to compare self-evaluated, and student reported teaching effectiveness of medical teachers.

MATERIALS AND METHODS

The study was conducted at Foundation University College of Dentistry, Islamabad. The college was selected for its infrastructure, courses and approachability to the participants for rating of elective teacher for one year starting from 10th Feb 2020 to 10th Feb 2021. Twenty dental teachers were selected for the study and ten dental students of the respective teachers each, a total of two hundred students participated in the study, from four years of BDS. Ten dental students had to rate one teacher each, who was currently teaching them. Sampling technique was Nonprobability convenient sampling. Participants were selected depending upon their availability and willingness for the study. The inclusion criteria was all the BDS qualified dental teachers (both male and female), currently working in Fauji Foundation Dental College having Minimum teaching experience of 1 year and dental students of the respective teachers from all 4 years of BDS. Whereas teachers who are teaching in colleges in specialties other than dental like medical, rehabilitation, nursing etc. & dental teachers not currently teaching or having experience of <1 year were excluded from the study.

The study was briefly introduced to the participants and required instructions provided. A consent form was also signed from all participants. Twenty faculty members were contacted, depending upon their availability and willingness to participate in the study, whose students had to rate them. These teachers were provided with a pre-validated "Self-assessment Instrument for Teacher Evaluation(SITE)[2].

Students of 1st, 2nd, 3rd and 4th year BDS participated in the study, depending upon their availability. They were provided a pre-validated questionnaire regarding evaluation of teaching performance CEID [Centro de Estudios e Investigaciones Docentes][8]along with the criteria for rating different aspects of the teacher's effectiveness. It was confirmed that faculty members were not present at the time of rating and researcher was available for any query. Ten students had to rate one teacher. The rating was anonymous, and names of the raters were not required. Confidentiality of data received from the participants was guaranteed.

Two tools were used to measure teacher effectiveness. In "Self-assessment Instrument for Teacher Evaluation (SITE)"[2], the items are constructed for self-evaluation of teachers. Evaluation of teaching performance of the teachers is rated by students using CEID [Centrode Estudiose Investigaciones Docentes (Center for Teaching Studies and Research)] questionnaire [8].

Self-assessment Instrument for Teacher Evaluation (SITE): The instrument was designed by Muhammad Akram, et al. The scale consists of a total of 28 items. The items were rated on five points Like rt scale with response categories of never, rarely, sometimes, often, always. Knowledge of the subject, teaching lessons and planning, assessment, environment for learning and communication were the aspects of teaching assessed through test items. The reliability coefficient of the scale was high(α=.94)[2]

Evaluation of teaching performance (CEID) using students rating scale:

The instrument, CEID [Centro de Estudios e Investigaciones Docentes (Center for Teaching Studies and Research)] questionnaire was developed by

Moreno-Murcia, Torregrosa and Pedreno in 2014. It was used to rate teaching performance by the students. The scale consists of 28 items assessed three major areas i.e., planning of lessons, development, and assessments. The items were rated on five points like rt scale with response categories of never, rarely, sometimes, often, always. The reliability coefficient of the scale was 0.94 For analysis of data SPSS version 21 was used. Descriptive statistics were calculated in terms of frequencies, percentages and means. Descriptive statistics were calculated in terms of frequencies, percentages, and meas. Independent t test at 5% level of significance was applied to analyze the data. Two different scales were used to calculate teaching effectiveness for self-evaluated and students-reported teaching effectives. Percentages obtained from both scales were used to compare self-evaluated and students reported teaching effectiveness of medical teachers. A cut off score of 60% was taken as teacher effectiveness for each item i.e.,≥ 60% = teacher effective, <60% = teacher not effective.

RESULTS

There were total 20 teachers included in the study, who rated their teaching style using SITE questionnaire. Similarly, there were 200 students included in the study to evaluate teaching methodology of those 20 teachers, 10 students rated each of the 20 teachers.

Teacher's self-evaluation: There were 10 (50.0%) males and 10 (50.0%) female teachers in the study group (n=20). The mean teaching experience was 7.40±4.0 years, with minimum of 2 years of teaching experience and maximum of 16 years. Out of 20, 8 (40.0%) teachers had teaching experience of less than 5 years, while 12 (60.0%) had teaching experience of more than 5 years. There was no significant difference in teaching experience of male and female teachers i.e. 6.80±3.6 vs 8.00±4.4 p=0.519, respectively.

The mean score of SITE questionnaire was reported to be 120.15±8.2 by 20 teachers, with a range of 97 – 137. There was no significant difference found between mean scores of male and female teachers i.e. 119.60±10.2 vs 120.70±6.0 p=0.774, respectively. Similarly, no significant difference was reported between mean score and teaching experience i.e. 120.38±7.8 for <5 years teaching experience vs 120.00±8.81 for >5 years teaching experience (p=0.924) as given in Table 1.

With respect to 60% cut-off score, all the teachers (100%) rated themselves as effective teachers.

Student's evaluation for teachers: Ten students were selected to evaluate each teacher, so total 200 students were included in the study. There were 68 (34.0%) males and 132 (66.0%) females. There were 20 (10.0%) students from first year, 30 (15.0%) from second year, 50 (25.0%) and 100 (50.0%) were from third and fourth year of study. The mean score of CEID questionnaire was reported to be 107.19±17.0 by 200 students, with range of 41 - 130. No significant difference was observed between mean scores of male and female students i.e. 108.30±16.4 vs 106.61±17.3 p=0.510, respectively. Similarly, no significant difference was observed between mean scores of students of first, second, third and fourth year i.e. 103.5± 13.7 vs 104.8± 19.2 vs 106.6± 17.1 vs 108.9± 16.8 respectively (p=0.457) as given in Table 2.

Keeping in view the 60% cut-off score of effective teaching, it was found that 185 (92.5%) students rated teachers as effective, while 15 (7.5%) rated teachers as not effective as shown in table 3. A higher number of male students rated their teachers effective as compared to females i.e. 97.1% vs 90.2%, but the difference was not significant (p=0.079). On the other hand, significantly higher number of first (95.0%), third (94.0%) and fourth (95.0%) year students rated teachers as effective as compared to second year students (80.0%), p=0.046 as given in Table 4.

Comparison of student's and teacher's evaluation score: The mean score of teacher's self-evaluation was significantly higher than student's evaluation i.e., 120.1±8.2 vs 107.1±17.0 respectively (p=0.001).

Table No.1: Comparison of Teacher's self-evaluation score with gender and teaching experience

Teacher's Characteristics (n=20)		SITE score (mean±SD)	p-value
Total mean score		120.1±8.2	
Range		97 – 137	
Gender	Males (n=10)	119.6±10.2	0.774
	Females (n=10)	120.7±6.0	
Teaching Experience	<5 years (n=10)	120.3±7.8	0.924
	>5 years (n=10)	120.0±8.81	

Table No.2: Comparison of student's teacher-evaluation score with gender and year of study

Student's Characteristics (n=200)		CEID score (mean±SD)	p-value
Total mean score		107.19±17.0	
Range		41 - 130	
Gender	Males (n=68)	108.30±16.4	0.510
	Females (n=132)	106.61±17.3	
Year of Study	First year (n=20)	103.5± 13.7	0.457
	Second year (n=30)	104.8± 19.2	
	Third year (n=50)	106.6± 17.1	
	Fourth year (n=100)	108.9± 16.8	

Table No.3: Frequency/percentage of teachers with effective-teaching skills

	Teachers with effective teaching skills		p-value
	Yes (cut-off >60%)	No (cut-off ≤60%)	
Students (n=200)	185 (92.5%)	15 (7.5%)	0.205
Teachers (n=20)	20 (100%)	0 (0%)	

Table No.4: comparison of teachers with effective-teaching skills as reported by students

		Teachers with effective teaching skills		p-value
		Yes (cut-off >60%)	No (cut-off ≤60%)	
Students (n=200)	Gender • Male (n=68) • Female (n=132)	66 (97.1%) 119 (90.2%)	2 (2.9%) 13 (86.7%)	0.079
	Year of Study • First (n=20) • Second (n=30) • Third (n=50) • Fourth (n=100)	19 (95.0%) 24 (80.0%) 47 (94.0%) 95 (95.0%)	1 (5.0%) 6 (20.0%) 3 (6.0%) 5 (5.0%)	0.046

DISCUSSION

To eliminate bias, measurement of a teachers' effectiveness should be based on data from multiple sources and variable tools. The key stakeholders which include the teacher, the student and the educational institute, should be the primary sources of data[9]. The tools that can be employed may include questionnaires for self-evaluation of the teacher and formal and informal feedback from students through interviews and rating systems. In addition to this the institute can provide data though performance evaluation in the form of employee and administrator ratings and teaching portfolios. In the current study data from both faculty and students was used to measure effectiveness of the teachers. It was rated to be significantly higher by the faculty than the students. Similar results were reported in a study conducted in India where faculty members from medical and engineering colleges rated their teaching to be more effective as compared to that reported by their students. This may be attributed partly to lack of self-awareness on the teacher's part and collection of insufficient and irregular feedback from the students[10]. In order to improve this situation, the teachers need to allow for regular informal feedback from students and encourage them to give suggestions to better their teaching[11].

In the current study each teacher rated their teaching to be effective regardless of their years of teaching experience. However, when teaching experience was considered teachers with more than five years of experience rated their teaching to be more effective than those with less than five years of teaching experience. Research shows that relationship between years of teaching experience and teaching effectiveness is complex[12]. Positive association is reported particularly in initial years of teaching. However, in some cases as years of experience increases the level of interest of teachers wears off and they are not sufficiently motivated to keep up with the advancements in teaching and learning. This can be improved by continual learning and by making efforts to keep abreast with the current effective teaching and learning strategies[5] .

In our study statistically significant difference was found in self evaluated teaching effectiveness between males and females, where female teachers rated their teaching to be more effective. Findings of two different studies conducted in India show no statistically significant difference based on gender in both self-reported and student reported teaching effectiveness[13]. In contrast to this in a study conducted in USA student showed that teachers' gender affected the student's perception of effective teaching. In order to evaluate the gender bias reported in our study further research is needed with larger sample size and wider geographical inclusion.

Regarding characteristics of effective teaching, teachers in our study rated themselves in the areas of "they ensure students participation in the learning process" (88%) and "encourage students to interact respectfully" (88%). The characteristics of effective teaching reported in a study in Saudi Arabia were as follows; good communication skills (86.7%), honest (81.1%), students motivation (77.8%), organizes good lectures (76.7%) and expert on the subject (77%)[14].

In our study, students gave the highest scores to the following characteristics of effective teaching; teachers assess their students according to a criteria set in the subject curriculum (87.4%), keep a respectful relationship with the students (87.2%) and help students in practical application of their knowledge (87%). In a study conducted in India, students considered an effective teacher to have good communication skills, to be readily available to help and guide students, to approachable and to be able to make teaching and learning interesting and enjoyable in order to decrease boredom and stress in the class[15]**.**

CONCLUSION

A significant difference was found between self-evaluated and students- reported scores to quantify teaching effectiveness of medical teachers. The results can be utilized by other dental and medical institutions to identify the gap between teachers and students' perception of effectiveness of their teaching process and to recognize the areas that can be improved upon. Best judgment of teaching effectiveness can be done through student's performance in formative and summative assessments. Therefore, teaching effectiveness can be better judged through learning of their student. Although student's formal feedback in the evaluation of faculty members is controversial, however in formal personal feedback can build a rapport between teachers

and students. Teachers must be aware of their flaws in teaching performance and self-awareness training must be a part of faculty development programs. Moreover, the generalizability of the study can be increased by conducting the study in multiple institutions on a large sample size, particularly of the teachers.

Author's Contribution:

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

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Original Article

Experience of Women after First Cesarean Section and Their Preference for Preceding Pregnancy

Naheed Parveen

ABSTRACT

Objective: To note what a woman has decided in their next pregnancy after having a Cesarean procedure would be based on.

Study Design: Observational study

Place and Duration of Study: This study was conducted at the department of Obstetrics & Gynaecology, Liaquat University of Medical & Health Sciences Jamshoro's between January and June 2016.

Materials and Methods: Data was obtained from admitted patients in the postoperative ward after a caesarean section, as well as outpatient department patients who came for follow-up after a primary caesarean birth. Women were given a pre-designed questionnaire to assess their familiarity with C/S and their expectations for delivery mode in subsequent pregnancies.

Results: The study enlisted the participation of 180 qualified women. Their ages ranged from 20 to 40 years, with a mean age of 28.71 SD+5.3 years. The majority of women, 72 percent, were between the ages of 26 and 30, while 34 percent were between the ages of 20 and 25.

In terms of indications, foetal distress was observed in 38 =8.5 percent of cases and CPD in 31=7 percent of cases, and these were discovered to be the most common indications of the last C/S. Overall, 22=5.0% of women had hypertension, with PIH accounting for 11=2.5%, preeclampsia accounting for 8 =1.8%, and eclampsia accounting for 3 =0.7%. Breech presentation was observed in 14 =3.1%. When asked about their C/S experience, 71=39.4 percent of women liked and preferred C/S as a mode of delivery in their next pregnancy, Sixty percent of the women (109 women) disliked C/S as a mode of delivery, citing long hospital stays as the reason. C/S is considered expensive by 38 women. 8.6 percent, normal vaginal delivery is natural for 20 women (4.5 percent), 21women (4.7 percent), postoperative pain, dependency on others, inability to do heavy work after C/S in 19 =4.2 percent.

Conclusion: Traditional preference of women for the mode of delivery has been vaginal for centuries. Somehow we can also conclude from the study that the preference is still the highest for vaginal delivery.

Key Words: Cesarean section, Experience, Reasons, Preferred, Mode of Delivery

Citation of article: Parveen N. Experience of Women After First Cesarean Section and Their Preference for Preceding Pregnancy. Med Forum 2021;32(5):151-154.

INTRODUCTION

Cesarean section in the developing countries is one of the main surgical procedures.[1] In view of the CS complications inherent in mothers and infants, the overall caesarean section (CS/S) rate has risen by 5 times over the past 30 years.[2,3] Though WHO is advocated that the C/S levels be maintained between 10% and 15%.[4] The C/S rates even then differ globally.

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

The average rates, as in poor countries, are mostly African, remain 2% in comparison with developing countries like Latin America and Eastern Asia, where the incidence is 30 per cent or higher, whereas it has increased steadily from approximately 20 to 25 per cent in developed countries.[2,5] Today, signs for C/S, usually in case of foetal distress, prolonged work, breech presentation, many pregnancies and maternal desire, have changed greatly too.[6] Research has shown that C/S raises the complication rate. In contrast to vaginal delivery, the risk of maternal morbidity and mortality is higher.[7,8] Women who have a vaginal delivery experience vary from those who deliver. Most women undergoing a ceresarean section experience hostility to the doctor, deep deception at the expectation of treatment and the joyful moments of their normal births.[1,7] Women in the previous cassarean segment must determine their preferred mode of delivery during the next pregnancy.[9]

While there have been numerous studies worldwide, it seems important to assess the perceptions of women following the first few years to assess the role of

women in decision-making and their choice for delivery in our community's subsequent pregnancy.

The purpose of this study was to follow the experience of women after a portion of Cäsarea and their preference for pre-pregnancy methods of delivery.

MATERIALS AND METHODS

This research was performed from January 2016 to June 2016 at the Liaquat University of Jamshoro in Obstetrics and Gynecology Unit II. Both women who were first delivered by Cesarean Section had their C/S experience inquired. The admitted women who came for the postoperative unit for antenatal visits after first C/S were chosen or presented the next pregnancy for antenatal visits. The doctors of all women have filled out a predesigned questionnaire by asking their demographic information, parity, indication of the last C/S to know (whether an absoluteor a relative indication), experiences and impressions of the recent caesarean birth. In the following pregnancy, women were also asked to choose their mode of delivery.

The study removed women who repeated more than once or had one usual vaginal delivery accompanied by C/s.

Prior to the start of the study, every female received an informed consent and was clarified by the restructured questionnaire. SPSS version 16 was used to estimate the numbers and the percentages.

RESULTS

The current research included a total of 180 women. The age range ranged from 20 to 40 years and the average age was SD+5.3. Most women were 72 = 40% from 26—30 years of age and 34% from 20—25 years of age. Every woman was married. As for parity, almost all women were first delivered in C&S, but some were multigravids with a tradition of bedding. During their admission to the hospital or for further care for their next pregnancy, they were asked about their C/S experience.

Last C/S indications, foetal distress in 38 = 8.5%, and CPD in 31 = 7% of the women were observed, and these indications are normal. In 22=5.0% of women with pIH in 11 =2.5%, preeclampsia 8 =1.8%, Eclampsia 3 =0.7%, Breech in 14 = 3.1% of women and several other indications in the Table 1 over all hypertensive disorders were recorded.

Following this surgical delivery, the question was asked whether or not women enjoyed this experience, and 71=39.4% of women liked and favoured C/S in next pregnancy as their delivery method. These women had no work discomfort, ease of delivery at 53 = 10%, no choice at 11= 2.5%, want a successful BOH and an important pregnancy at 09 = 2.0% of women.

Table No.1: Indications of caesarean section observed in study women (n = 180)

Indications of C/S	Number	%ages
Fetal distress	38	(8.5%)
CPD	31	(07%)
Hypertensive disorders	22	(5.0%)
Breech presentation	14	(3.1%)
Non progress of labour	12	(2.7%)
Postdates pregnancy	09	(2.0%)
Maternal wish	09	(2.0%)
Transverse lie	08	(1.8%)
Precious pregnancy	07	(1.6%)
Failed induction of labour	06	(1.3%)
Obstructed labour	06	(1.3%)
Placenta Previa	06	(1.3%)
Bed obstetric history	06	(1.3%)
PPROM	04	(10%)
Tender scar	02	(0.4%)

Table No.2: The reasons as women liked or did not like the either mode of delivery and their preference (n = 180)

Mode of Delivery	Reasons	Total (n=180, %)
Liked:		
Cesarean Section (n = 71, 39.4%)	- Delivery easy, no labor pains.	53 (12)
	- No other option.	11 (2.5)
	- want good fetal outcome	09 (2.0)
Not liked		
(n =109, 60.4%)	- Expensive, long hospital stay	38 (8.6)
	- NVD is natural.	20(4.5)
Preferred:	- Post operative pain dependent on others cannot do heavy work	19 (4.2)
Vaginal Delivery (n = 109, 60.4%)	- Afraid of complications	11 (2.5)
	- More life risk, mental stress.	10 (2.2)
	- Long hospital stay wound infection	05 (1.1)
	- No idea of NVD.	04 (0.9)

The reasons given for this category were a lengthy and expensive stay in a hospital; in 38 (8.6%) C / S expenses; in 20=4.5% normal vaginal deliveries are natural; fear of complications; further risk of life of mental stress in 21=4.7%; postoperatory discomfort, dependency on others; cannot carry out a heavy duty after C / S in 19% (60.4%)

Operating delivery may involve electro C/S during the next pregnancy as illustrated in Table 2 if the preferences for future delivery are observed.

DISCUSSION

The Caesarean section is becoming more and more common as a delivery method. According to the American College of Obstetricians and Gynecologists, the largest rise in caesarean section rates is among first-time mothers with term singleton deliveries, cephalic presentation, and prior caesarean section. 10 Women who have a vaginal birth after a C/S are deemed suitable for the category of women who have already had one caesarean section.[5] Those who give birth by C/S were found to be less pleased with their experience, to harbour anger against the physician, to be deeply disappointed with the treatment expectations, and to have missed out on the joys of natural birth7. Previous birth experiences have been shown to have an important effect on women's well-being and future decisions.[11] A traumatic birth experience can have an effect on a woman's wellbeing and the growth of her children, and it's linked to a lower quality of life, self-rated health, and a persistent memory of pain[11].

A total of 180 women with at least one C/S were enrolled in this report. Fetal distress (38%) was the most common symptom, followed by CPD (Cephalopelvic disproportion) (31%), and hypertensive disorders (22%). (5.0 percent). In a study from Peshawar, Pakistan, the C/S rate was 104 (24.1%) in primigarvidas, followed by multigravidas, and the most common indication was obstructed labour 101. (23.6 percent). The most common signs in our sample were foetal distress 38 (8.5 percent) and CPD 31 (7 percent), while hypertensive disorders were seen in 22 percent of the women (5.0 percent). [12]

In a Nigerian report, the most common signs were prolonged labour (25.4%) and preeclampsia (55%). (15.9 percent). Contrary to popular belief, foetal distress was observed in 38 (8.5%) of the women in this sample, and CPD in 31 (7%). The main signs and hypertensive disorders were identified in 22 (5.0%) of the cases, which may be attributed to the limited sample size. [13]

When women were asked about their experiences after the operative birth, 71 (39.4%) said they had a nice time and would choose C/S for their next pregnancy. A survey in Canada found that 53.8 percent of women had a positive birth experience.[11]

Sixty percent (60.4 percent) of the 109 women in this study disliked C/S delivery and favoured vaginal delivery for their next pregnancy. They claimed that they wanted a natural birth experience, a fast recovery, and a lower risk of complications. Another Australian study found that women prefer vaginal delivery after C/S because it increases the health and well-being of both mother and infant. [5] In a Nigerian report, women who hated the C/S cited the same sociocultural reasons. 13 According to Aziken's research, only 6.1 percent of women would choose C/S as a mode of delivery, while 81 percent would consider C/S if it was necessary to save their lives and the lives of their infants. 12.1 percent of women refused to consider C/S under any circumstances. [14] Edmundkeog and his colleagues discovered psychosocial factors influencing women's C/S experiences. During the procedure, the mother's fear levels fluctuated, according to the researchers. It was at its peak during the C/S nerve block. They also found that the women had lost their happy normal birth movements, which led to postpartum depression and psychosocial effects on their families[15].

CONCLUSION

Women's conventional choice for the mode of delivery has remained vaginal delivery for decades. Similarly, the current research found that vaginal delivery is still the preferred mode of delivery and is at the highest stage.

This study may support women based on their first caesarean section experience by providing them with some information to help them decide on the mode of delivery for their next pregnancy.

Acknowledgement: I acknowledge the Director of Sigma Research Solutions & Development Consultancy for technical and statistical help in the article

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

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Original Article

Frequency of Sources of Referral of Child Psychiatric Cases at Hyderabad

Hina Shaikh, Jamil Junejo, Lal Chand Dhingra, Inayatullaha Awan, Zuhaib Ahmed and Bharat Kumar

ABSTRACT

Objective: This study is designed to determine the frequency of sources of referral of child psychiatric cases.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the Sir Cowasji Jehangir Institute of Psychiatry (CJIP) and Liaquat University Hospital (LUH), Hyderabad from June 2018 to Feb 2019.
Materials and Methods: 175 children with psychiatric problems were included in this study. History was taken for the duration of symptoms and the source of referrals was inquired. All information was noted in the proforma.
Results: 67.43% (118/175) sources of referral were parents**,** schoolteachers were responsible for 10.29% (18/175), and doctors for 22.29% (39/175).
Conclusion: Mental disorders are among the most burdensome of all classes of disease because of their high prevalence, chronicity, early age of onset, and resulting in serious impairment and disability.

Key Words: Childhood psychosocial problems, sources of referral, attention deficit hyperactivity disorder, Epilepsy

Citation of article: Shaikh H, Junejo J, Dhingra LC, Awan I, Ahmed Z, Kumar B. Frequency of Sources of Referral of Child Psychiatric Cases at Hyderabad. Med Forum 2021;32(5):155-159.

INTRODUCTION

Psychosocial problems during childhood can have profound effects on growth, functioning, and long-term mental health.[1]In the pediatric outpatient department (OPD) mental disorder is an important issue reported in children.[2]In 2008, WHO global epidemiological data reported disabling mental illness in up to 20% of children and adolescents.[3] Children usually reported primary care physicians or pediatricians and they are having the responsibility to identify and refer them to mental health professionals.[4,5,6,7]Worldwide, there are multiple other sources of referral like family members (80.9%)[7],parents (56%)[8]**,** school teachers (20.2%)[7], (9%)[8] pediatricians, general practitioners, adult psychiatrists (35.2%)[7],(14%)[8], social services (7.9%)[7], (8%)[8] and legal agencies (12%)[8].The children's mental health services and diagnostic approach of psychiatrists have been changed in the last 2 decades.[9-12]

In the west, there are various patterns of child psychiatric morbidities like depression(44%), behavior disorder (22%), suicide(15%), anxiety disorder(4%)[8], attention deficit hyperactivity disorder(ADHD) (13.6%)[1] and high rate of overlap of behavioral, emotional and educational deficits reported among school-age children.[13] In regional countries, the prevalence rate of child psychiatric morbidity was 12.5%[14], 15%[15], 15.7%[16]and most common diagnoses were mental retardation, expressive language disorder, hyperkinetic disorder[14], obsessive-compulsive disorder[15], anxiety disorder(9.3%), behavioral disorder(7.1%)[16]and specific learning disability.[17] In Pakistan, there are no countrywide studies available in literature so the roughly estimated prevalence of childhood mental health disabilities by previous studies was around 17% (mental retardation eight percent and behavioral, emotional, and pervasive developmental disturbances account for 9 percent of total).[18]
In Pakistan the number of trained child psychiatrists is scarce, so most pediatricians and adult psychiatrists are consulted in such cases but often they are not able to detect and treat them.[20] Despite an intensive search, unable to find any research/study which could identify sources and patterns of referral of child psychiatric morbidity in our population. In this study, we will determine those potential sources of referral, and will provide the level of awareness to them.

MATERIALS AND METHODS

This cross-sectional study was conducted at Sir Cowasji Jehangir Institute of Psychiatry (CJIP) and Liaquat University Hospital (LUH), Hyderabad from June 2018 to Feb 2019 after ethical review. Sample size was

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Received: November, 2020
Accepted: February, 2021
Printed: May, 2021

calculated using the online monkey survey calculator, with 95% Cl, 4% bond on the error, and based on least proportion of sources of referral is reported 7.9%[7]; our sample size came out to be approximately 175. Children between ages 5 to 12 years, of either gender, with symptoms for than 4 weeks were included in study after consent by parents via non-probability consecutive convenient sampling.

History was taken for the duration of symptoms and the source of referrals was inquired. Children were diagnosed as per ICD-10 (International Classification of Diseases-10 version) guidelines. Source of referrals and psychiatric morbidity along with age, gender, duration of symptoms were noted in the proforma.

All the data was entered and analyzed in SPSS version-22.

Data was subjected to descriptive analysis as required. Continuous variables were presented as mean ± SD, whereas, categorical variables were presented as frequencies and percentages. Stratification was done to see the effect of these on the outcome. P-value <0.05 was considered significant.

RESULTS

Out of 175 children, 68(38.86%) were not going to school, 65.14% were living in urban area and 44.57% of children parents had married their first cousin. The most common source of referral of child psychiatric problems was parents in 67.43% (118/175) cases, (Table 1).

The rate of attention deficit hyperactivity disorder (ADHD) and Epilepsy was the commonest psychiatric problem in children (figure 1)

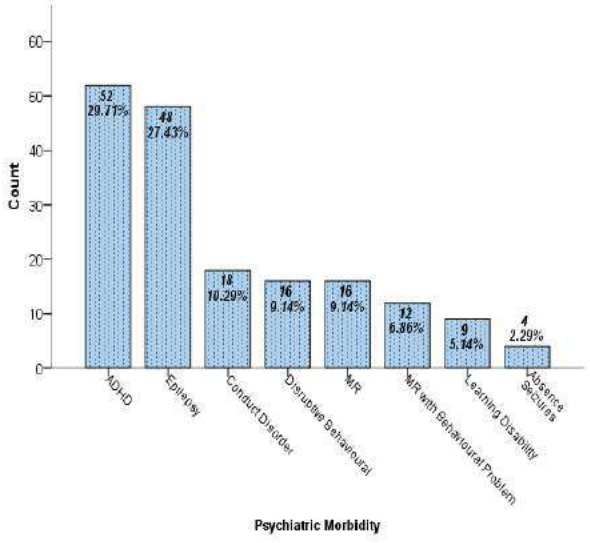

Figure No.1: Psychiatric Morbidity

Referral to psychiatrists from doctors happened earlier in disease (p value: 0.01) compared to parents and teachers (Table 2).

Table No.1: Demographics of Participants

Age Group (Years)	
5 to 7	63 (36.0%)
8 to 10	79 (45.1%)
> 10	33 (18.9%)
Level of Education	
No Schooling	68 (38.9%)
KG/Nursery	24 (13.7%)
Class 1 to Class 5	69 (39.4%)
Class 5 and above	15 (8.0%)
Type of School of Children (n=107)	
Madarsah	14 (11.5%)
Government School	52 (43.0%)
Private School	55 (42.4%)
Catchment Area	
Ruler	61 (34.9%)
Urban	114 (65.1%)
Type of Parental Marriage	
1st Cousin Marriage	78 (44.6%)
Community System Marriage	52 (29.7%)
Nonrelative Marriage	36 (20.6%)
Reciprocal Marriage	9 (5.1%)
Parental Marriage Status	
Living Together	157 (89.7%)
Separated	5 (2.9%)
Divorced	8 (4.6)%
Single Parent	5 (2.9%)
Source of Referral	
Parents	118 (67.5%)
School Teachers	18 (10.3%)
Doctors	39 (22.3%)

Table No.2: Comparison for frequency of sources of referral of child psychiatric cases between duration of disease

Type of Referral	Duration of Disease		Total	P-Value
	6 to 10 Weeks n=99	>10 Weeks n=76		
Parents/ Family	57(57.6%)	61(80.3%)	118	0.002
School Teacher	13(13.1%)	5(6.6%)	18	0.15
Doctors	29(29.3%)	10(13.2%)	39	0.011

DISCUSSION

Mental wellbeing during childhood is defined by the accomplishment of advancement and enthusiastic breakthroughs, solid social improvement, and viable adapting abilities, such that rationally sound children have a good quality of life and perform well at domestic, school, and community level[21]. It is a common belief that children do not have psychiatric illnesses. In any case, childhood psychiatric disorders have been observed to be more common than anticipated within the general population. Pediatric

mental wellbeing issues expanded amid the 1990s, where every 1 in 10 children and adolescents was diagnosed with a mental illness that resulted in serious impairment of function.[22] When distinguished, out of five only one child with a mental disorder receives treatment for their mental illness.[23,24] Among children mental disorders are an important public health issue because of their prevalence, early age of onset, and the resulting influence on the patient, as well as their family and community. Child psychiatry is a subspecialty that has begun picking up impressive acknowledgment in Pakistan, but accessible facilities for children are constrained to big cities, which accounts for only 30% of the general population.[25] In the present study, the most affected age group observed was 8-10 years. The reason could be the child's exposure to a different environment at school and any resultant undesired altered behavior perceived as unusual by the mother. The male gender was significantly more affected than the female gender. Comparative results were found in a few studies.[26,27] Even though no clear-cut reason has been built up, however it is believed that male dominance may be due to psychological or biological factors. Furthermore, male children are given more attention and the parents note slightly unusual conduct earlier leading to timely reporting.[28] A study reporting statistics expressed the prevalence rate of impairing mental illnesses between 20-30% in children and adolescence going to urban health care centers whereas 13-18% reported cases in rural areas.[29] There were 65.14% children from urban and 34.86% were from rural areas. The literature proposes numerous risk factors in children for functional disability and psychiatric morbidity[30]. The unfavorable family condition has a foremost negative influence on children's mental wellbeing [31]. In our study 89.71% of the parents were living together, 2.86 isolated, 4.57% separated, 2.86 single parents and 75.43% were living in a joint family system. A few authors reported no significant difference in the prevalence rate by the sort of family[32,33] while in one study[27] nuclear families were found to have more cases. Psychopathological issues among children have a strong relation with maternal illiteracy, predominance being most elevated in offsprings of uneducated mothers. Education and awareness increase her understanding of any abnormality in the development or behavior of the child at an earlier stage when it is still manageable rather than at a later stage of established disease. In children, the rate of attention deficit hyperactivity disorder (ADHD) and Epilepsy was the commonest psychiatric problem found in our study. Our data is in accordance with other studies.[18,34] In the psychiatry clinics, one of the leading conditions reported is ADHD. In a study conducted in Pakistan, 34% of children were found to be diagnosed with ADHD whereas data f reported that 6- 9% of children are affected by this disease in India.[35] Regarding sources of referral of child psychiatric issues in our study there were 10.29 % of children alluded by school instructors. In Pakistan rarely schools refer the children for evaluation directly, rather they ask parents to get the child assessed in case of any difficulties. It may be that most of the children are moreover not being referred because of lack of training of teachers in screening for child mental health difficulties. We have found 22.29% children were referred by doctors which is additionally low. Improvement of dynamic contact between the family physicians in general with child psychologists in specific as well as steps to promote awareness of psychological factors in the management of children and high psychiatric comorbidity with physical illnesses ailments are required. The same approach has been suggested in other studies from the country.[2] We have found that the foremost vital referral source is the parents (67.43%). This result is consistent with previous studies[36,37] and this indicates that children are devoid of necessary mental health services which cause parental psychological distress. Uncommon consideration ought to be given to parents. Particular programs may offer assistance to them and help alleviate parental psychological distress. The results of the study have to be seen in the context of various limitations. It was based in a hospital setting and data is from one hospital only thus results cannot be generalized. Furthermore, this data was collected on the primary visit and included the foremost likely diagnosis after team assessment. In some cases, diagnosis may have been reviewed when further information from numerous sources became available.

CONCLUSION

Among the burdensome classes of diseases, Mental disorders are one of them. The reason being high prevalence, early-onset, long duration of disease, and serious impairing outcome. In children, the rate of attention deficit hyperactivity disorder (ADHD) and Epilepsy was the commonest psychiatric problem. To determine a better picture of childhood psychiatric problems community-based surveys are required. Training of parents, teachers, and family physicians is essential, so they can facilitate and play their role in timely recognition. Which can help in the earliest possible psychiatric consultation before deviance is developed.

Author's Contribution:

Concept & Design of Study:	Hina Shaikh
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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