ISSN 2523 - 1316 (Online), ISSN 2409 - 7381 (Print)

AJSMU

Volume 7 Issue 2 July - December 2021

ANNALS of JINNAH SINDH MEDICAL UNIVERSITY

Recognized by the Higher Education Commission, Pakistan in 'Y' category
Indexed and abstracted in Pak Medinet, CAB Abstracts, Global Health UK, and Pakistan Science Abstracts

A J S M U

Volume 7, Issue 2 **July - December 2021**

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A J S M U

Volume 7, Issue 2 July - December 2021

EDITORIAL

Covid-19 pandemic and E-learning in Nursing Education: A Blessing in Disguise

Sumaira Khowaja-Punjwani

How to cite this article: Punjwani SK. Covid-19 pandemic and e-learning in nursing education: a blessing in disguise. Ann Jinnah Sindh Med Uni. 2021; 7(2):48-49

DOI: https://doi.org/10.46663/ajsmu.v7i2.48-49

In 1665, University of Cambridge was closed due to the bubonic plague. While it was closed, Sir Issac Newton developed the theories in calculus, optics, and gravity. It was known as the "Year of Wonders" for Newton because he was unable to attend university and still went on to make incredible discoveries. Therefore, it is said that "Within crises are the seeds of opportunity" and I would say that the Covid-19 pandemic can also be viewed as one of the opportunities for the blooming of e-learning not only in nursing education, rather in every field.

The Covid-19 Pandemic has presented unprecedented challenges concerning education and academia as the students and faculty members were asked to remain at home for their safety. However, the prime concern for academicians during the pandemic was to identify the ways that can be opted for continuing teaching and learning while being off-campus, as there was great uncertainty about the reopening of the educational institutes.

In February 2020, the first case of Covid-19 was reported in Pakistan which immediately led to three weeks of complete lockdown in March 2020. There was a very short time for institutional, faculty, and student readiness for online learning. Planning, execution and implementation of the faculty development programme for shifting from complete face to face learning to e-learning, and the technological and infrastructural supplies were some of the biggest challenges to making a shift from traditional to online learning.

Although, e-learning is well-recognized and documented as a promising and effective mode for teaching undergraduate medical and nursing students, especially blended learning[1]. However, the situation was different in Covid-19 as the approach that was required to be opted by almost all nursing educational institutions was fully online. Nursing students are required to be taught theoretically as well as have a clinical component, with the integration of theory into practice, as the ultimate goal of nursing education is to equip nursing students with the knowledge as well as skills to be able to perform as professional nurses[2]. Additionally, internet accessibility of outstation students emerged as one of the greatest concerns for making cross-national online nursing education more challenging.

Despite the challenges of using e-learning in many academic institutions in especially low and middle-income countries, such as lack of infrastructure, insufficient resources for public access and lack of specialists to implement e-learning platforms, the Covid-19 pandemic has provided opportunities to promote e-learning in the nursing profession[3]. Initiatives were taken by the administrators and faculty members to continue provision of education online by taking multiple inventive strategies including, availability of equipment/resources, development of learning management system, arrangement for faculty capacity development short courses online in collaboration with Coursera through HEC regarding e-learning, student orientation to e-learning methodologies, and constant feedback. The importance of e-learning was overlooked until before the Covid-19 pandemic, however, these experiences of conducting online learning in the nursing profession can be useful for students and faculty members[4]. Before the pandemic, there were only limited institutes that were using blended learning in nursing education. However, now a vast variety of educational institutes have developed institutional capacity by arranging resources required for e-learning i.e. development of learning management system, virtual classroom, and by building their faculty members' capacity to conduct online teaching and learning in nursing education.

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The gains of introducing online learning in Covid-19 for students include access to educational content, like PowerPoint presentations and audio-visual content, at the convenience of students providing them flexibility and self-control, which eventually improved their learning and attitude towards e-learning, feeling of being connected with the educational environment, documentation and monitoring education, and increased perceived usefulness[5].

Ongoing student feedback that was obtained during the pandemic also supports that students feel more connected with peers and faculty members during off-campus hours. On the other hand, the exposure of e-learning during pandemic provided an opportunity to faculty members to update their educational content and modify teaching and learning methodologies appropriate to the generation Z.

Even though, there was initial resistance from the faculty members to the use of e-learning tools for lack of familiarity and comfort, however, over a period of time, faculty members have developed competencies in e-learning by acquiring new skills for teaching online[5].

The feedback of faculty members also depicts increased comfort levels and increased confidence in using e-learning tools. Over all, as an administrator and policymaker, I believe that online learning has positively impacted the nursing profession by introducing and incorporating various e-learning resources with the right educational policies. It is essentially important to continue using e-learning in nursing education to empower faculty and student.

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ORIGINAL ARTICLE

Functional Outcome of Bipolar Hemiarthroplasty by Using Hip Harris Score (HHS) in Fractures of Neck of Femur

Muhammad Tahir Lakho[1], Muhammad Azfar Khanzada[2], Zulfiqar Ali Memon[3], Bashir Ahmed[4], Syed Alam Zeb[2] and Rajesh Kumar[5]

ABSTRACT

Objective: To determine the functional outcome of bipolar hemiarthroplasty by using Hip Harris score (HHS) in femoral neck fractures

Methodology: Thiscross-sectional study was done at the Orthopaedics department of Dr. Ruth K. M. Pfau, Civil Hospital Karachi, Pakistan between March 2019 to March 2020. All patients who were scheduled to have bipolar hemiarthroplasty for femoral neck fractures were included in the study. Cannulated screws fixation was applied in un-displaced femoral neck fractures percutaneously with minimal invasive procedure means through small incision with the help of guide pin, image intensifier. Post OP check x-ray was taken to see reduction and screws fixation, neck fracture and placement of implant. Functional outcome was assessed using Hip Harris Score (HHS) by checking the degree of movement of the hip in addition to the radiological assessment of union by the 8th week postoperatively. Data was analyzed using Statistical Package for Social Sciences (SPSS, IBM, version 26).

Results: A total of 259 patients were included in the study with a mean age of 68.7±7.2years. The mean ± SD of pre and postoperative Hip Harris Score was noted as (89.3±9.2 v/s 97.7±9.6; P<0.01). Out of 259 patients, 69 (26.65%) were male. Poor functional outcome was noted in 22 (8.5%) patients, while fair, good, and excellent functional outcome was noted in 51 (19.7%), 60 (23.2%) and 126 (48.6%) patients respectively. Satisfactory functional outcome was noted in 186 (71.8%) patients.

Conclusion: The findings of this study indicate that highly significant difference was noted between pre and postoperative Hip Harris Score. So, findings of this study support the idea that bipolar hemiarthroplasty is an effective treatment modality for the management of elderly patients with displaced femoral neck fractures.

Key Words: Bipolar hemiarthroplasty, Fracture neck of femur, Functional outcome, Hip harris score

How to cite this article: Lakho MT, Khanzada MA, Memon ZA, Ahmed B, Zeb SA, Kumar R. Functional outcome of bipolar hemiarthroplasty by using hip harris score (HHS) in fractures of neck of femur. Ann Jinnah Sindh Med Uni. 2021;7(2):50-54

DOI: https://doi.org/10.46663/ajsmu.v7i2.50-54

INTRODUCTION

Neck of the femur is a common site of fracture in geriatric patients[1]. The most common cause of femoral fracture is falling directly on the hip joint. These fractures are correlated with high mortality and morbidity rates[1,2]. The management of fractures of the femur neck is quite challenging for the orthopaedic surgeons as there is no single definite technique to manage these fractures[1]. The majority of surgeons are in favour of closed reduction and internal fixation hence, the treatment of choice. However, closed reduction and internal fixation with pinning may not be the optimum management for the elderly population[3,4]. Internal fixation, hemiarthroplasty, or total hip replacement are management options for the femur neck fractures depending on the stability of the fracture[4,5]. In stable fractures, fixation is often possible while preserving the femoral head, but in unstable fractures it may be necessary to use total or partial hip arthroplasty[6,7].

Individuals with unstable femoral neck fractures are at increased risk of developing osteonecrosis and non-union, postoperatively[8]. Increasing age, degree of displacement, and delay in presentation are some of the risk factors that may affect the functional outcome. In the elderly population, hemiarthroplasty is a preferred technique for the management of femoral neck fractures. Nevertheless, there is still debate on the choice of

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management used in individuals with femur neck fractures[8].

Early mobilization, acceptable functional results, low implant relaxation rates, shorter surgical time, less bleeding are some of the objectives of the surgery[8]. Hence, use of bipolar hemiarthroplasty in the management of displaced fractures of the neck of femur in the elderly is preferred over other techniques. Previous researchers remarked that hemiarthroplasty is less aggressive, more cost effective, and it is associated with improved functional outcome[9,10].

The treatment of femoral fractures in the elderly is still a contentious issue due to the high failure rates in the internal fixation. Hemiarthroplasty is one of the preferred treatment options in elderly patients. Cementless hemiarthroplasty for the treatment of femoral fractures in elderly patients is a reliable treatment option with early mobilization, acceptable functional results, low implant relaxation rates, shorter surgical time, and less bleeding. Hence, use of bipolar hemiarthoplasty in the management of displaced femoral neck fractures in the elderly will be interrelated to provide superior results based on Hip Harris Score (HHS).

METHODOLOGY

This prospective cross-sectional study was done at the Orthopaedics department of Dr. Ruth K. M. Pfau, Civil Hospital Karachi, Pakistan between March 2019 to March 2020. The samples of 259 patients were included in the study after taking written informed consent. Sample size was estimated through W.H.O. sample size calculator using frequency of satisfactory functional outcome (78.57%) with 5% absolute precision and 95% confidence level[11]. All patients between the age group 61 to 85 years irrespective of gender, presenting with displaced fractured neck of femur of Type III and IV as per Garden Classification, were included in the study through non-probability consecutive sampling technique. Patients with associated fracture-dislocations determined on X-ray, bilateral fractures, multiple injuries, and head-split fractures, presenting after 72 hours of fracture were excluded from the study. Diagnosis of fractured neck of femur was made when fracture line was visible radiologically or with Hip X-ray showing shortening and angulation of the femoral neck. Patients whose x-ray findings were unclear were confirmed through MRI within 12 hours of injury. Cannulated screws fixation was applied in un-displaced femoral neck fractures percutaneously with minimal invasive procedure means through small incision with the help of guide pin, image intensifier. Post OP check x-ray was taken to see reduction and screws fixation for neck fracture and placement of implant. Functional outcomes were assessed by checking the range of movement of hip, radiological assessment of union, no pain on full weight bearing and Hip Harris Score. The interpretation of Hip Harris Score was based on 100 points. Functional outcomes were measured according to their Hip Harris Scoring system (HHS). The Hip Harris Score consists of four domains which were evaluated as; 1-item with 44 points for pain, 7-item with 47 points for function, 1-item with 4 points for deformity, 1-item with 5 points for range of motion. Hip Harris Score (HHS)varies between 0-100 with score <70 was classified as poor hip status, 70 to 79 as fair, 80 to 89 as good, and 90 to 100 as excellent hip status[21].

After eight weeks of surgery, satisfactory outcome was assessed on the basis of good to excellent Hip Harris Score. Data was entered into SPSS version 26 (IBM, Chicago, IL) to perform statistical analysis. Mean±SD were calculated for age of the patient, duration of surgery (in min), pre and post-HHS, length of hospital stay. Frequency and percentage were calculated for gender, Garden Classification of fractures, type of anaesthesia, mode of injury, site of fracture, and functional outcomes. Paired sample t-test was applied to compare pre and postoperative Hip Harris Score and P=0.05 was considered statistically significant.

RESULTS

This prospective cross-sectional study includes a total of 259 patients. The mean age of the patients was 68.7±7.2 years. Among them, 69 (26.65%) were males and 190 (73.35%) were females. Mean duration of procedures was noted as 60.5±17.1 minutes, length of hospitalization was 6.8±3.5 days while blood loss during procedure was noted as 287.3±22.4 ml. Type III class of Garden classification was observed in 110 (42.48%) patients while Type IV in 149 (57.52%) as mentioned in Table 1.

The mean ± SD of pre and postoperative Hip Harris Score was noted as (89.3±9.2 v/s 97.7±9.6; P<0.01). See table 2.

Out of 259 patients, poor and fair functional outcome was noted in 22 (8.5%) and 51 (19.7%) patients while satisfactory outcome was achieved in 186 (71.8%) patients (Figure 1).

Table 1: Sociodemographic and clinical parameters of study population

Age (years)	68.7±7.2; 95%C.I. (67.81----69.58)
Duration of surgery (hours)	59.9 ± 16.8; 95%C.I. (57.84----61.95)
Gender	
- Male	69 (26.65%)
- Female	190 (73.35%)
Length of hospital stay (days)	6.7 ± 3.3 ; 95%C. I (6.29----7.10)
Duration of injury (days)	2.5 ± 1.3 ; 95%C. I (2.34----2.65)
Blood loss (ml)	285.3 ± 23.4 ; 95%C. I (282.43----288.16)
Type of Garden Classification	
Garden Type III	110 (42.48%)
Garden Type IV	149 (57.52%)
Distribution of side of fractures	
Right	135 (52.12%)
Left	124 (47.88%)
Type of anaesthesia	
General	171 (66.02%)
Spinal	88 (33.98%)
Distribution for mode of injury	
Fall	157 (60.62%)
RTA	102 (39.38%)

Table 2: Mean Hip Harris Score (HHS) (Preoperative versus Postoperative)

HHS Score	mean ± SD	p-value	95%C. I
Pre-operative HHS	89.3 ± 9.2	0.0001	88.17----90.42
Post-operative HHS	97.7 ± 9.6		96.52----98.87

Applied Paired sample t-test

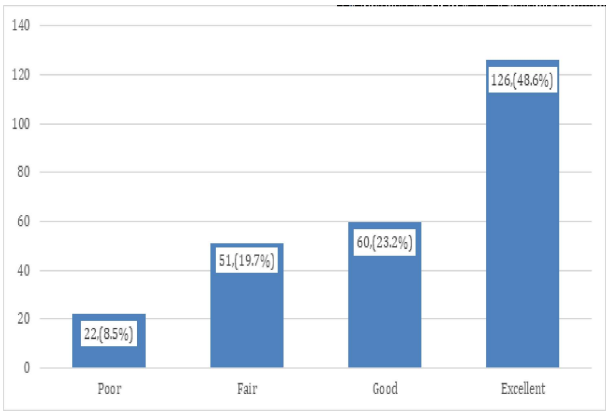

Figure 1: Postoperative Functional Outcome of Patients

DISCUSSION

Femoral neck fractures are managed via various techniques including internal fixation, arthroplasty or total hip replacement. Each technique has its benefits and disadvantages[10]. Therefore, the optimum management for femoral fractures is still controversial. The current study evaluated the functional outcome in patients with fractures of the femur who were managed with bipolar hemiarthroplasty. Hip Harris Score (HHS) which is a validated tool for the evaluation of the functional outcome for hip movements was used in the present study[13].

We reported satisfactory outcomes in 71.8% patients who were managed via bipolar hemiarthroplasty in our setup. The efficacy of bipolar hemiarthroplasty for the management of femur neck fractures was further supported by the findings in the study by Liang et al[14]. Kim et al. revealed that displaced neck fractures of the femur managed with internal fixation and pinning technique lead to an incredibly high failure rate[15]. A 2015 meta analysis conducted by Wang et al. concluded that bipolar hemiarthroplasty led to better Hip Harris Scores compared to total hip replacement in the elderly with fractures of the neck of femur[16].

In the present study, bipolar hemiarthroplasty was preferred over standard management options for displaced femur neck fractures in patients aged over 55. Previous published data has shown that patients who are managed with hemiarthroplasty ambulate quicker than patients who undergo total hip replacement, thereby avoiding the several complications associated with prolonged immobilization[16]. This technique

provides more stability to the hip joint and permits assisted ambulation within a few days of the surgery. Another meta-analysis by Lewis DP et al. compared the effectiveness of hemiarthroplasty with total hip replacement. In contrast to our findings, they found that total hip replacement was a superior alternative in terms of risk of failure, Hip Harris Score, and quality of life of patients, postoperatively[17].

Bipolar hemiarthroplasty has shown satisfactory functional outcome and is considered a safe management option for the elderly population with femur neck fractures. In a study by Keating et al. it was found that hemiarthroplasty was a more effective option with the least rate of secondary surgeries, (5 percent in the bipolar hemiarthroplasty group as compared to 9 percent in total hip replacement group and 39% in fixation group)[18]. A study by Ponraj et al., determined the functional outcome of bipolar hemiarthroplasty for the management of femoral neck fractures in 30 patients over the age of 50 years. They reported excellent functional outcomes in 23.3% patients and good results in 17 (56.6%) patients[11].

In the present study, 71.8% of the patients had good to excellent functional outcomes after bipolar hemiarthroplasty. In contrast to the current findings, Rawate P et al. reported that only 25% patients were graded as excellent while only 31.25% patients had good functional outcomes[19]. Siraj M et al. further reported that 6.3% was graded as excellent while 31.3% patients were documented as good functional outcome[20].

The strength of our study was the use of consecutive sampling best suited for our study design and sample selection, as our inclusion and exclusion criteria were stringent. The use of objective definitions for predictor and outcome variable also minimized the source of bias in our study. The main limitations of our study were small sample size which was collected from only one unit in a single hospital which further confines its generalization. More large-scale multicenter studies are recommended with more parameters to validate the findings of this study.

CONCLUSION

The findings of this study indicate that highly significant difference was noted between pre and post-operative Hip Harris Score. So, findings of this study support the idea that bipolar hemiarthroplasty is an effective treatment modality for the management of elderly patients with displaced femoral neck fractures.

Authors' contribution: MTL cocived the idea Designed and approved manuescript. MZK and BA darfting the article, Revised Critically, ZAM and SAZ analyzed data and interpretated the results. RK Collected Data and heled in drafting.

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ORIGINAL ARTICLE

ABO Blood Group System and Covid-19 Susceptibility in Different Ethnic Groups of Medical Students in Karachi

Noorulain Thebo[1], Shah Jabeen[2], Asma Shahid[1], Muhammad Athar Khan[3], Sassi Kanwal[4] and Shahida Kashif[5]

ABSTRACT

Objectives: To determine the frequency of blood groups in different ethnicities among medical students of Karachi and the association of blood groups with Covid-19 susceptibility

Methodology: A cross sectional study was conducted among medical and dental students of Liaquat College of Medicine and Dentistry from January 1st to October 30th, 2019 after taking Institutional Review Board's approval. Data was collected from students of different ethnicities. Blood group was determined by mixing the blood with antisera and observing the agglutination by antigen and antibody reaction. Screening for Covid 19 was carried out by reverse transcription polymerase chain reaction real-time (RT-PCR)

Result: In our study, data was collected from 220 medical students, out of whom 89 (40.5%) were male. Their ages ranged from 17-22 years with mean age of 19.5±2.39 years. Among 220 students, group B was the most common blood group, accounting for 77 (35%) participants. Screening, the most susceptible blood group for Covid 19 virus was found to be blood group B (61%).

Conclusion: According to ethnicity, blood group B was the most common group in Punjabi and Urdu speaking populations while among Sindhis, A and O were the prevalent groups. The Rh positive group was found to be more susceptible to Covid-19 virus and blood type B^+ was revealed to be in higher association with it.

Key Words: ABO blood group, Blood group, Covid-19, Ethnicity, Medical students

How to cite this article: Thebo N, Jabeen S, Shahid A, Khan MA, Kanwal S, Kashif S. ABO blood group system and covid-19 susceptibility in different ethnic groups of medical students in Karachi. Ann Jinnah Sindh Med Uni. 2021;7(2):55-59

DOI: https://doi.org/10.46663/ajsmu.v7i2.55-59

INTRODUCTION

Covid-19 emerged in the Wuhan city of China in December 2019. The World Health Organization (WHO) declared it a pandemic on March 11, 2020 when millions of people were afflicted all over the world[1]. On February 26, 2020, Pakistan documented its first case. As of January 28th, 2021, there were 539,387 confirmed cases along with 11, 5142 deaths.

The ABO blood grouping system was the first defined genetic polymorphism in humans. These agglutinogens are hereditary characters that have been found very helpful in genetic studies and researching disease pattern after population migrations[3]. The distribution of ABO and RhD blood groups differs all over the world[4,5]. Out of 300 blood group antigens, ABO system and Rh is the most common in the world. In 1900, Karl Landsteiner introduced the system, based on the presence of agglutinogens on red blood cells surface and presence of reciprocal agglutinins in the plasma. In spite of the discovery of a large number of red cell antigens, no blood antigen group could gain more importance than ABO and Rh system[6].

This blood group system is the most significant for blood transfusion, organ transplantation, and medico-legal purposes[7]. As the blood group antigens represent polymorphic traits that are inherited by individuals, various studies have revealed the contribution of ABO blood groups in distribution of many acute and chronic pathologies, such as cardiovascular diseases, oncological presentations, or even some infectious diseases[8]. It has been found that, AB antigens and their antibodies can play a pivotal role as acting receptors or co receptors for different viruses, bacteria, and parasites.[9]

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The ABO and Rh blood groups differ distinctly in various ethnicities and races of the world[10]. Several studies have revealed that the prevalence of the ABO/Rh blood group type's allelic distribution among variable ethnic populations and different geographical areas of the world, is mainly due to ABO/Rh genes' genetic polymorphism characters[11].

Although significant research has been done in the field of individualization of risk and several acquired and congenital factors have already been documented, however, less weightage is given to the certain more influential demographic variables like age, gender, and ethnicity[12].

Expression of blood type antigens can alter any individual's susceptibility to various diseases by facilitating intracellular uptake, adhesion to membrane micro domains, or simply by signal transduction. Elnady et al. found that gastroenteritis by rotavirus was more common among blood type A individuals and similarly, blood group O was found to lower the hepatitis B viral infection risk[13]. Another study revealed that malarial patients with blood type A had a greater probability of being anaemic than patients with O and non-A phenotypes, just due to modification in the inborn or innate immune reaction to any disease by blood group antigens[14].

All these researches reveal that there is a strong connection between infectious diseases pathology and blood groups antigens and their antibodies.

The purpose of ABO/Rh blood type distribution among any variable ethnic population would be an optimum approach for healthcare system planning and further future counseling. The trend of blood types and its ethnic distributions in the city of Karachi, which is the main hub of different ethnicities is still unknown. As SARS-CoV-2 also known as Covid-19 is a novel virus with multiple strains, the ABO blood group and its linkage with Covid-19 susceptibility is still not documented and yet to be deciphered. This study will add to the international pool of data on association of ABO-Rh blood types and Covid-19. The results of the study would help in risk stratification and in prioritizing vaccination for the most vulnerable group for Covid-19 according to the prevalent blood group.

METHODOLOGY

A cross sectional study was conducted among medical and dental students of Liaquat College of Medicine and Dentistry from January 1 to October 30, 2019 after taking Institutional Review Board's approval**.** The sample size was calculated with Raosoft using 95% confidence level, margin of error 6.5%, and 40.4% frequency of blood group B[15]. The minimum sample size was 217. We enrolled a total of 220 young and healthy students. Data was collected from students of different ethnicities i.e. Urdu speaking, Sindhi, and Punjabi. Questionnaire consisted of name, age, caste, and area of residence. From each participant, 4 ml of blood was taken in EDTA tubes. Tube method with commercially prepared anti seras, (anti-A, anti-B, anti-AB, and anti-D) was used to analyze ABO and Rh types. Using the first 5%, suspensions of red blood cells in normal saline were prepared and four tubes were made and labelled with respective ID numbers. Then one drop of each suspension and antisera A, B, AB and D were added and agglutination was observed macroscopically. Screening for Covid-19 was carried out by collecting specimens from nasal swab and considered as Covid-19 nuclear acid test positive for viral nucleic acid by reverse transcription polymerase chain reaction real-time (RT-PCR). SPSS version 20 was used for analyzing data. Data were expressed as percentages for categorical variables such as ABO blood types, ethnicity, gender etc. For the association between blood group and gender, Covid-19 and ethnic origin, the Chi square test was utilized and p value of ≤ 0.05 was considered as the level of statistical significance.

RESULTS

In our study, data was collected from 220 medical and dental students, out of whom 89 (40.5%) were male and 131 (59.5%) were female participants. Their ages ranged from 17-22 years with the mean age of 19.5± 2.39 years. Among 220 students, group B was the most common blood group, accounting for 77 (35%), followed by groups A 65 (29.6%) and O with 67 (30.4%), and the least common group was AB 11 (5%).

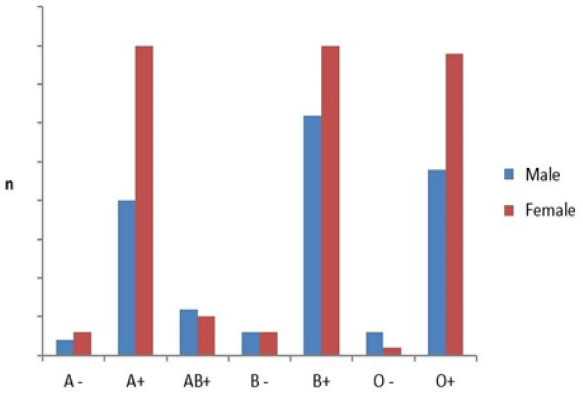

Figure:1 Distribution of Blood Types among Males and Females
(p=0.749)

Figure 1 shows blood type B^+ was the most prevalent in males 31 (34.8%) while in females, A^+ and B^+ 40 (30.5%) was trailed by O^+ 24 (27%) in males and 39 (29.8%) in females. The least common blood groups

in males were AB^+ 6 (6.7%), O^- 3 (3.4%), B^- 3 (3.4%), and A^- 2 (2.3%) respectively, while in females, these were AB^+ 5 (3.8%), A^- and B^- 3 (2.3%) and O^- 1 (0.8%). In this study, the prevalence of the distribution of Rh positive and Rh negative were 205 (93.2%) and 15 (6.8%) respectively. Gender difference showed 124 (94.7%) Rh positivity in females and 81 (91%) in males, and Rh negative 8 (9%) in males and 7 (5.3%) in females. According to ethnicity, the most prevalent blood group in Others was B^+ 8 (38.1%), A^+ 6 (28.6%) and O^+ 7 (33.3%) while in Sindhis, A^+ 26 (31.7%), O^+ 25 (30.5%), and B^+ 19 (23.2%) were the most prevalent.

The most common blood group in Mohajirs was B^+ with 36 (36.4%) as shown in Table1.

Table 1: Frequency of Blood Group Types in Different Ethnicities

Ethnicity	A+	B+	O+	Others**	Total
Mohajir	26	36	26	11	99
Sindhi	26	19	25	12	82
Punjabi	2	8	5	3	18
Others*	6	8	7	0	21
Total	60	71	63	26	220

$x^2 = 11.82$, df = 9, p-value = 0.224 *Others (Baloch, Memon, Pushtoon, Saraiki) **Others (A-, AB+, B-, O-)

Table 2 shows the association of Covid-19 with all the blood groups. Among 220 students, 18 (8.2%) screened out to be Covid-19 positive. Rh positive blood type showed more susceptibility than the negative Rh blood group type.

Table 2: Association of Blood Group Types with Susceptibility to Covid-19

	Blood Group Types					
Covid 19	**A+**	**B+**	**O+**	**Others****	**Total**	**p-value***
Positive	04	11	02	01	18	
Negative	56	60	61	25	202	0.046
Total	60	71	63	26	220	

**Chi Square Test*
*** A-, B-, O-, AB+*

In Covid positive cases, B^+ blood group was associated significantly (p=0.006) with Covid-19 at 11 (61%), followed by A^+ 4 (22%), and O^+ 2 (11%); while AB^+ was the least afflicted with only 1 (6%) case as shown in figure 2.

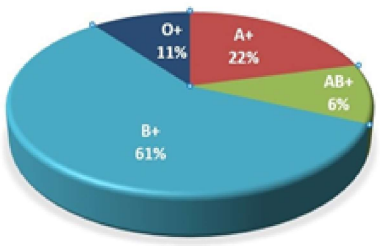

Figure 2: Susceptibility of Covid-19 positive cases in different blood groups (n=18)

DISCUSSION

Blood grouping is considered to be an important field of medical research due to its association with various pathologies like hypertension, diabetes, cardiovascular disorders, and carcinomas. The inheritance of agglutinogens A, B, both or neither on the surface of erythrocytes constitutes the ABO blood group system[16,17].

In our study, 40.5% participants were male and 59.5 % were female. In this study, 'B' was found to be the most frequent blood group at 35%. Ilyas et al from Punjab also found the same results, showing B with 35.6% being the most frequent blood group[18]. Another study conducted in Nowshera showed blood group B (32%) as the most prevalent group among all[19]. In contrast, the study conducted in Karachi by Naila Parveen[20] showed O blood type as the most prevalent. In male and female prevalence of blood groups, blood type B was highly prevalent, followed by O, A, and AB. Comparable results were found in a study done in Punjab[18] with most prevalent blood group as B followed by O, A, and AB. This is unlike the study conducted by Zahra et al[16] which showed blood type O was the commonest blood group in females followed by A and B and in males, A followed by blood types O, B, and AB.

Exploration of blood group distribution in Pakistani population reveals that the frequency of different blood types is B 36%, O 33%, A 21%, and AB 9%[20,21]. A study done in Khyberpakhtunkhuwa[20] shows frequency of different blood groups to be A>O>B>AB, whereas a study done in Punjab shows O>B>A>AB[6]. Among all studies, AB Blood group is found to be the least frequent blood group[6,7,16,18,20].

In our study, Rh positive and Rh negative frequency was found as 93.2% Rh positive and 6.8% Rh negative and similar results were found in studies conducted in Pakistan and India[22,23].

In our study, according to ethnicity, blood group B was found to be common in Mohajirs and Punjabis. Another study conducted in Karachi showed similar results for these ethinicities[24]. In Sindhi population, O blood type was found to be the most prevalent blood group at approximately 13 %. A study conducted in Pakistan by Ali N found B to be the frequent group in Arains and blood group O as prevalent (36.5 %) in Sindhi population[6].

Regarding Covid-19 susceptibility, our study revealed that positive Rhesus blood groups possess greater risk of infection rates compared to Rh negative blood groups. This is in contrast to the study conducted by Fawad et al but in line with the study by Zietz and

Tatnonetti who mentioned the association of Covid-19 with Rh positive blood significantly[25,26].

Our study also shows that blood group that is more prone to catch Covid-19 is blood group B. This is in contrast to the study conducted in China by Qian et al and Li et al, which showed blood type A was likely to get it more, with a low percentage of carriers of O blood groups[1,27]. Our study is in line with Latz et al. and Zietz et al., who reported that carriers of blood type O are protected from SARS CoV-2 infections while individuals with blood group A are more vulnerable to this disease. It was revealed that individuals with blood type B and O and Anti A agglutinins, had less probability to be afflicted with Covid-19[26,28]. Our study also revealed that blood type O is the least likely to catch Covid-19 virus. Another study by Fawad et al from Peshawar also showed a significant greater percentage of individuals in Covid-19 group, who carried blood type-B than in the control group (35.9% and 31.9%, respectively; p=0.009)[25]. Our study is in line with the research study done by Zietz et al. and Fawad et al probably due to the representation of Asian population. Gerard et al. concluded the same for Anti-A antibody. It has been postulated that these antibodies have protective behaviour. This can clear the concept of less number of cases found in individuals with blood type O that contains both A and B antibodies. Same is the case for the persons with blood group-B, they also have Anti-A agglutinins[29].

Another possible reason is the involvement of the trans membranal spike (S) protein of SARS-CoV-2, which when coalesced with another protein ACE2, acts as cellular receptor for the virus. Depending upon phenotypes of ABO blood groups, our gastrointestinal and respiratory epithelium synthesize A, B agglutinogens, where SARS-CoV-2 also replicates. So the individuals having A, B antigens along with S proteins would be having reciprocal antibodies in them, it might be possible that the reciprocal antibodies in these individuals can prevent the S protein and ACE2 receptor combination and hence provide defense against Covid-19 viral infection[30]. Thus, the linkage between ABO types and Covid-19 infection can be predicted. For instance if the virus afflicted a person carrying blood type B with the respective antigen will be a greater risk factor with high chance of infectivity for an individual also carrying the blood type B or AB, other than the persons with blood type O or A. This can be the explanation of the finding in our study as B is the most abundant group in our study so is the highest number of Covid positive cases in the same blood group carrying persons. It is a single center study, comprising all major ethnicities as students in a private medical college belongs to different cities and ethnicities in our population, making the study strong. On the other hand, small sample size is considered as a limitation and hence further research is recommended.

CONCLUSION

Our study concluded that blood groups are different among ethnic population of Karachi. With consideration to Rh system, Rh +ve is dominant than Rh -ve in all ethnic groups. Individuals carrying Blood type B have a greater chance to be inflicted with the Covid-19 viral infection as compared to the individuals with blood groups A, O, and AB. O blood group is least likely to be infected due to anti B and anti-Agglutinins or antibodies protective behaviour.

The results of the study would help in categorization, management and vaccine prioritization for higher risk groups for Covid-19 infection according to the prevalent blood groups in different ethnicities. We suggest that there should be registration of every individual infected with Covid-19, for linkage of ABO blood group types with prevalence and mortality that could be beneficial in comprehension of pathophysiology of this novel virus. Another major implication is the option of convalescent plasma therapy for Covid-19 patient's treatment regime.

Informed consent: Informed consent was obtained from all the participants before the collection of demographical data, taking history, and physical examination.

Conflict of interest: The authors declare that they have no conflict of interest.

Authors' contribution: NT, SJ, SH worked on introduction, methodology and proofreading. SJ, NT, AS, SK worked on Data collection, interpretation and write-up of manuscript. SJ, NT conceived the idea, worked on discussion and proofreading. AS, AK worked on statistical measures using SPSS, worked on results and proofreading.

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ORIGINAL ARTICLE

Patients' Satisfaction Regarding Outpatients Department Services in a Private Clinic of Karachi

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ABSTRACT

Objective: To evaluate patients' satisfaction with Out Patient Department (OPD) services at a private clinic in Karachi, Pakistan

Methodology: A prospective cross-sectional study was conducted in a private clinic from January 2018 to June 2018. A sample size of 103 was calculated with an expected score of patients' satisfactions as 85% and 5% level of significance. Patients were aged from 15 to 95 years. Informed verbal consent was obtained. Data was collected on a purposely developed pro forma and analyzed with SPSS Version 22. Patients were requested to score all variables of questionnaire as Agree, Disagree, or Don't Know. Quantitative variables like age were presented as mean and standard deviation. Qualitative variables like gender and OPD satisfaction aspects were presented as frequency and percentage.

Results: In 103 patients, the mean age was 34.36 ±14.51 years. There were 70 (68%) patients ≤ 35 years of age and 33 (32%) patients >35 years. Females were 60.2%. Mean satisfaction score was 17.11 ±2.43 (min 9, max 20). There was non-significant difference in the satisfaction score of patients when compared with age (p-value 0.942), gender (p-value 0.920), marital status (p-value 0.767), and educational level (p-value 0.445). Satisfaction rate with the OPD services was relatively higher (n=66, 64.1%) than that of dissatisfaction rate (n=37, 35.9%).

Conclusion: Over all, patients were satisfied with doctors and the staff's co-operation in OPD. However, people were unhappy with facilities of adequate drinking water and clean toilet availability at clinics.

Key Words: Out patient department, Patients' satisfaction, Private clinic

How to cite this article: Huma Z, Naqvi SU, Ahmed Z, Sadiq M, Rahim M. Patients' satisfaction regarding outpatients department services ina private clinic of Karachi. Ann Jinnah Sindh Med Uni. 2021;7(2):60-64

DOI: https://doi.org/10.46663/ajsmu.v7i2.60-64

INTRODUCTION

Patient satisfaction is a measure of the success of the health system as it assures a healthy society. Clean and appropriate clinical facilities reduce undue stress to patients and attendants. Outpatient Department (OPD) is the first place of contact of a patient with a hospital. OPD care acts as the backbone for healthcare services provided to the community and is reflected in patient satisfaction.[1]

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Patient satisfaction is defined as the difference between patient's expectations and what he/she received while seeking healthcare[2]. Patient satisfaction is an important indicator of the quality and efficiency of the healthcare system.[3]

Studies have shown that it is easier for healthcare personnel to build rapport with satisfied patients who follow the doctors' recommendations about medicine, precautions regarding illness, and retain of information provided by the healthcare provider more seriously than dissatisfied patients[4,5].

Therefore, taking maximum measures for providing efficient health care services to ensure patient satisfaction is recommended[6].

Organization managers and policy makers benefit by gaining a better understanding of patient views and perceptions, and hence improve the quality of care and services[7]. It has been seen that individuals with severe illnesses avoided consulting healthcare centers because of low quality OPD services[8]. Patients living in developing countries are deprived of even essential healthcare[9,10]. Extended waiting time, high treatment

costs, crowded waiting area, and lack of privacy discourage patients from following up. However, patient feedback is important for improvement in services[11].

It is advisable to do surveys periodically in OPDs[12]. Therefore, we designed this study to evaluate how much our patients were satisfied with our OPD services. It could also compare our system with others during audit.

METHODOLOGY

A cross-sectional study was conducted in the Out Patient Department of a private clinic from January 2018 to June 2018. Approval from the healthcare centre was taken prior to the conducting of the study. Moreover, signed Informed Consent was also obtained from study participants after explaining the pros and cons of the study, and that their confidentiality and privacy will be maintained. Assurance was given to the patients that their opinion will not affect their treatment rather it will help to improve the system. Interviews of patients were done by the physician when they were leaving OPD.

All patients aged more than 15 years of either gender attending the OPD irrespective of the presenting complaint were consecutively included. While those patients who were in severe illness or pain or unwilling were excluded. A sample size of 103 was calculated with an expected score of patient's satisfactions as 85% and 5% level of significance.

The questionnaire was designed in English. Translation in Urdu also was available to those who have any difficulty in understanding. Questionnaire was developed with the help of internet and previous related studies[1-5]. The questionnaire was further validated by estimating Cronbach's Alpha co-efficient for internal consistency, which was found to be 0.96, thus indicating high reliability of the study instrument[13]. This questionnaire was developed for data collection, containing questions regarding patient's socio-demographic history, satisfaction, opinion on all aspects including reception, waiting areas, waiting time, staff behaviour, and consultations. Patients were requested to score all variables as Agree, Disagree, or Don't Know.

Data were collected on a proforma and analyzed by SPSS Version 22. Quantitative variables like Age were presented as mean and standard deviation. Qualitative variables like Gender and OPD satisfaction aspects were presented as frequency and percentages. Stratified was done with respect of age, gender, and education standards to see the effect of these variables on the outcome, i.e. satisfaction regarding OPD services. Inferential statistics were explored using chi-square test. P-value<0.05 was taken as significant.

RESULTS

Of 103 patients, mean age of the patients was 34.36 ±14.51 years. There were 70 (68%) patients with ≤ 35 years of age and 33 (32%) patients with >35 years of age. The frequency of females was higher as compared to males, 62 (60.2%) and 41 (39.8%) respectively. Marital status of most of the patients was married, i.e. 72 (69.9%). There were 16 (15.5%) patients with uneducated status, 44 (42.7%), less than secondary education and 43 (41.7%) with more than secondary education.

Table 1: Patients' Satisfaction Regarding OPD Services (n=103)

Variables	Satisfied	
	n	%
Information received	93	90.3
Timings and availability of consultants	91	88.3
Queue system	93	90.3
Courteousness of staff	94	91.3
Registration time	81	78.6
Waiting area	88	85.4
Seating facility	84	81.6
Drinking water	56	54.4
Toilet facility	59	57.3
Courteousness of paramedical staff	91	88.3
Time taken for checking vitals	94	91.3
Proper time delivery	93	90.3
BP examination	97	94.2
Availability of previous medical record	94	91.3
Timing between arrival in OPD and consultation	87	84.5
Number of doctors	100	97.0
Explanation of sickness and counseling of doctors	96	93.2
Dignity and privacy	96	93.2

n=number

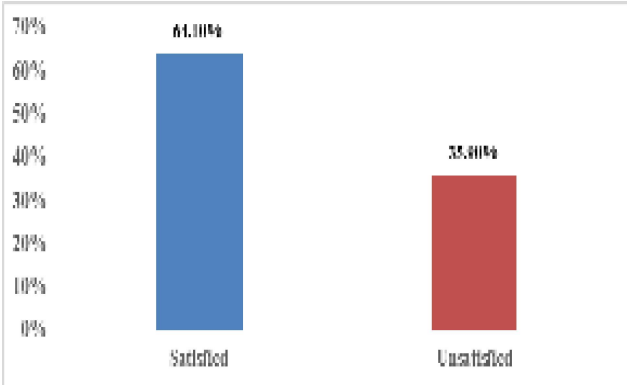

Figure 1: OPD Satisfaction Rate of Patients (n=103)

Drinking water (n=56, 54.4%) and toilet facility (n=59, 57.3%) were the only aspects that were declared

unsatisfactory otherwise all the factors had satisfactory opinion by visitors (Table 1). The mean satisfaction score was found to be 17.11 ±2.43 (min 9, max 20). The satisfaction rate with the OPD services was relatively higher (n=66, 64.1%) than that of dissatisfaction rate (n=37, 35.9%) (Figure 1).

There was non-significant difference in the satisfaction score of patients when compared with age (p-value 0.942), gender (p-value 0.920), marital status (p-value 0.767), and educational level (p-value 0.445).

DISCUSSION

Patient satisfaction is described as whether expectations of patients from an experience of consultation were fulfilled or not. Patient satisfaction is used to help doctors and hospital to improve facilities provided to patients[14].

Patients are the main focus of any hospital[15]. In our country, patients are facing problems in relation to waiting time and consultation[16]. Sun et al have noted that waiting time has impact on patient satisfaction[17]. In another study, Javed et al found that registration services and increased waiting time has negative impact on patients[18]. A study conducted by Hafeez M et al revealed that the waiting room environment and comfort of seats also contributed to satisfaction[19]. There is a very strong relationship between doctors and patients[20]. In Pakistan, patients have issues in this doctor patient relationship due to lack of time, physical examination, and discussion provided by the doctor[21].

In the present study, the over all satisfaction rate of patients with OPD was 64.1% whereas in other studies this figure was 63.2%, 72%, 73%, 80%, 81.6%, 84%[9,22-,26]. A study done in Rawalpindi showed that 92% patients were satisfied with availability of previous medical record which is almost similar to our study i.e. 91%[27]. Almost 90% of patients were satisfied with the queue system. Sonali K et alreported that 92% patients were satisfied with registration time while in our study satisfaction level is 78.6%[28]. In the present study, most of the respondents i,e. more than 90% were satisfied with the time taken to check vitals.

Regarding seating facility, 81.6% patients were satisfied while other studies show 63%, 70.5%, 82%[5,28,29]. Most of our patients i.e. 90.3% were of the opinion that they were provided with full information whatever they enquired from hospital staff, while in a local study conducted by Khan OA et al this figure went up to 96%[27].

In the present study, it was found that 57.3% patients were satisfied with toilet facilities but in other studies 32%,46.54%,70.9% patients were satisfied with this facility[26,28,29].

Jadhav sb et al had reported 68.41% patients were satisfied with drinking water availability, Sonali et al found it to be 44% while here it is 54%[28,29].

The current study found that 84% respondents were satisfied with the time spent between arrival in OPD and consultation which is very similar i.e. 80% to a study done in Maharashtra and 92% in Gujrat[26,28].

In the context of doctor-patient relationship, most of the respondents (97.1%) agreed that a number of doctors are accessible enough. Satisfaction level about doctors' behaviour was 93.2% in present study which is the same as observed by Nitin Kumar et al, Tasneem A et al, Anchal Jain et al at 92%, 95.5% and 97% respectively but higher than Qadri SS et al and Solani K et al which are 66.8% and 78% respectively[23,26,28,30,,31]. It is observed that 88.3% respondents were satisfied with timings and availability of doctors. Perception of OPD patients regarding explanation and counseling by doctors is 93% but others have found it to be 62%, 78.8%, 79%, 97%[23,26,28,32].

Majority of patients, 93.2% found that the doctors maintained their dignity and privacy which is in accordance with other studies where 85% of patients were treated with dignity and privacy while in another study conducted in Karachi by Jawaid et al, 62.4% of patients were satisfied[33,34]. Majority of patients (88.3%) were satisfied with the behaviour of the paramedical staff. While in a study done by Soomro et al in Pakistan, this figure is 81%[32].

The study has certain limitations. Firstly, the study was a descriptive cross-sectional study. Secondly, certain important predictor variables like socioeconomic status, residence, duration of treatment, were not included in this study. Lastly, the sample size of the study was relatively small. However, despite these limitations, this study is the first step in reporting satisfaction survey regarding OPD services in a private clinic of Karachi, Pakistan. Further large scale multi-centre comparative studies are recommended that can validate the findings of this study.

CONCLUSION

Over all, the patients were highly satisfied with doctors and their staff's co-operation in the OPD. However, people were unhappy with facilities of adequate drinking water and clean toilets at clinics. We suggest further studies should be carried out to get feedback of patient's satisfaction from rural health centers regarding health facilities they seek. It will also identify regions to be improved in other healthcare departments.

Conflict of Interest: Authors have none to declare.

Authors' contribution: ZH worked on Conception, study design, data collection, Manuscript writing, data interpretation. UN worked on Study design, Manuscript writing, Data Analysis. ZA worked on Drafting of article and critical revision of article. MS worked on collection and assembly of data. MR worked on Data interpretation.

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ORIGINAL ARTICLE

Knowledge of Nurses Regarding Glasgow Coma Scale in Tertiary Care Hospitals in Karachi

Arshad Hussain[1] and Abdur Rasheed[2]

ABSTRACT

Objective: To assess the knowledge of Glasgow Coma Scale (GCS) among nurses working in tertiary care hospitals, Karachi

Methodology: An observational cross-sectional study was carried out among 193 nurses from two public sector hospitals in Karachi, who had at least one year of nursing experience. Data was collected through a self-administered questionnaire by non-probability purposive sampling technique. To assess knowledge about GCS, a structured questionnaire was used. Pearson Chi-square test was used to identify association between knowledge of GCS and nursing demographic characteristics. P-value = 0.05 was considered significant.

Results: This study shows that 41.5% of study participants had adequate knowledge about GCS. Only 38.3% had good knowledge about functions, indicators, and monitoring skills, while 20.2% participants had poor knowledge. Female nurses scored slightly higher in good knowledge as compared to male nurses. There was no association of knowledge level with the nurses' professional education levels. Chi-square test confirmed that hospital was the only variable that showed significant association with GCS knowledge (p-value 0.008 <0.05).

Conclusion: The majority of participants had adequate level of knowledge regarding GCS. In terms of gender, slightly higher knowledge was found in female nurses who fell in the 'good' knowledge category, whereas male nurses falling in the 'adequate' level had higher knowledge. Graduate nurses had higher adequate and good levels of knowledge about GCS.

Key Words: Conscious level, Glasgow coma scale, knowledge, nurse

How to cite this article: Hussain A, Rasheed A. Knowledge of nurses regarding glasgow coma scale in tertiary care hospitals in Karachi. Ann Jinnah Sindh Med Uni. 2021;7(2):65-70

DOI: https://doi.org/10.46663/ajsmu.v7i2.65-70

INTRODUCTION

The Glasgow Coma Scale (GCS) was established decades ago and it is globally accepted for the assessment of the conscious level of a patient. Assessment of the neurological state of a patient is very important for early detection of patient's warning score. In an Emergency department, GCS influences medical intervention provided by health professionals. Initially, the GCS was developed for conscious level assessment tool as a standard in head trauma fatalities. At present, GCS is in practice widely as a basic tool to evaluate the level of consciousness in a patient whatever may be the main cause of disorientation[1]. The GCS was introduced the very first time by Teasdale and Jennet in 1974. Before the introduction of the GCS tool, terms like stupor, comatose, and decerebrate were used to explain a patient's level of consciousness. These terms were not well defined and not clear to healthcare providers[2].

The GCS is an essential assessment tool to monitor conscious level of patient across the world. It also has a facilitating role in assessing the level of consciousness after head trauma, severity, and prognosis. A number of tools have been developed for assessment of conscious level of a patient but GCS has been recognized as the gold standard over last 40 years.

The Glasgow Coma Scale (Figure 1) has three indicators: eye response (E), best verbal response (V) and best motor response (M). The intensity of responses in the indicator of the Glasgow Coma Scale are graded from 1 to 4 for the Eye-opening response, 1 to 5 for best Verbal response and 1 to 6 for best Motor response. The sum of all three parameters of Coma Score falls between 3 to 15, low score shows the worst and high score represents the best conscious level[5-7].

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Skilled nurses can play an important role in improving the assessment and monitoring of the patient's level of consciousness. Knowledge regarding GCS tool can be improved with educational sessions[8]. Evaluation of conscious level is a vital and necessary part of neurological assessment in clinical settings.

A study conducted in Bulgaria in 2016 revealed that although the Glasgow Coma Scale is utilized across the world in the field of Nursing for neurological assessment of patients, however participants of the study who were nurses, did not have sufficient knowledge about it[10]. A study conducted in 2019 revealed that nurses have good knowledge about the purpose and significance of GCS but there is a difference between the skills and knowledge with regard to GCS application[11]. Training sessions regarding assessment can effectively increase the knowledge and performance of nurses[12]. Various studies have recommended educational sessions and instructions for enhancing knowledge regarding GCS and also for performing GCS accurately. Monitoring with GCS is a fundamental skill for nurses. Lacking in GCS knowledge leads to inappropriate diagnosis and also delay in treatment. There is no local study available which provides data about the GCS knowledge of nurses. This study was conducted to find out gaps in the concepts and knowledge of nurses regarding GCS in the local context. Therefore, the aim of this study was to assess the knowledge of the Glasgow Coma Scale among nurses working in two public sector hospitals in Karachi.

METHODOLOGY

This was an observational cross-sectional study conducted in two public sector tertiary care hospitals of Karachi, Pakistan. The duration of study was six months from July to December 2019. The study participants were registered nurses of different departments. All registered nurses were included without restriction of gender, age, and qualification. Nursing students and those nursing staff were excluded who were not willing to participate in the study.

To assess knowledge about GCS, a validated structured questionnaire was used. The study instrument consisted of two parts: 1) Demographic data and 2) Structured questionnaire about GCS knowledge. The questionnaire used in present study has 12 multiple-choice questions. These questions are related to functions, purposes, and indications of GCS. In questions, best response for eye-opening, verbal command, and motor response of patient is assessed. This questionnaire also asked for the assessing method, the worst, and the best possible score on GCS. Each correct answer carried one mark. Total score less than 4 was considered poor knowledge while 5 to 8 was adequate and more than 9 score was considered to be good knowledge.

Sample size calculation was performed through WHO online software Open Epi. By using the percentage of satisfactory knowledge of GCS as 41.4%, confidence interval as 95% and 5% level of significance, the calculated sample size was 193. Sampling technique for this research study was non-probability purposive. For ethical considerations, permission was taken from the Institutional Review Board (IRB-DUHS). In addition, institutional permissions from the hospitals were also obtained and consent was taken from the participants. Data was collected by primary investigator only. Collected data was entered and analyzed through SPSS v.21.0. Descriptive statistics such as frequencies and percentages were obtained for categorical variables. Pearson Chi-square test was used to identify association between knowledge of GCS and nursing demographic characteristics. P-value = 0.05 was considered as significant.

RESULTS

The mean age of the study participants was 32.82 with SD of 7.01, whereas mean total nursing experience in the year and total experience in current unit were 10.19 and 6.08, respectively. Two-thirds (66.8%) of study participants were Nursing graduates, either Post RN BSN or generic BSN while one-third (33.2%) were Nursing diploma holders. In terms of academic levels, 25.4% of participants had done Matriculation, 55.4% had Intermediate level education, and 19.2% were graduates.

Figure 2 shows the distribution of study participants in different departments. The most prominent was ER followed by medical and surgery departments, whereas nearly 36% participants were from other departments.

Table 1 depicts the percentages of correct and wrong answers to each question asked about GCS. More than 80% participants correctly answered the questions regarding the functions of GCS and the best score of the scale. A total of 63.2% participants correctly answered the questions about the indicators of GCS and most sufficient response of patient while using conscious level assessment tool.

Approximately three-fourths of participants replied correctly while answering the question about the worst score of the scale and the best verbal response health professionals are supposed to initiate with. When study participants were inquired about GCS grading which points out critical status for the patient and is necessary

Table 1: Item-wise Distribution of the Answers of GCS

		Frequency (%)	
		Correct Answer	Wrong Answer
1	What is the function of GCS?	169 (87.6)	24 (12.4)
2	Three indicators of GCS are:	122 (63.2)	71 (36.8)
3	Best score for the Scale is:	167 (86.5)	26 (13.5)
4	Worst score for the Scale is:	138 (71.5)	55 (28.5)
5	GCS score that indicates critical situation and that examiner should be alert to:	127 (65.8)	66 (34.2)
6	To obtain accurate GCS results, the following criteria should be observed, expected:	129 (66.8)	64 (33.2)
7	GCS interval that indicates moderate severity is between:	96 (49.7)	97 (50.3)
8	During the use of GCS, the most adequate response for score is:	122 (63.2)	71 (36.8)
9	To assess eye opening, examiner should begin with:	6 (3.1)	187 (96.9)
10	To assess best verbal response, examiner should begin with:	142 (73.6)	51 (26.4)
11	To assess best motor response, examiner should begin with:	87 (45.1)	106 (54.9)
12	In GCS, take notes for:	83 (43)	110 (57)

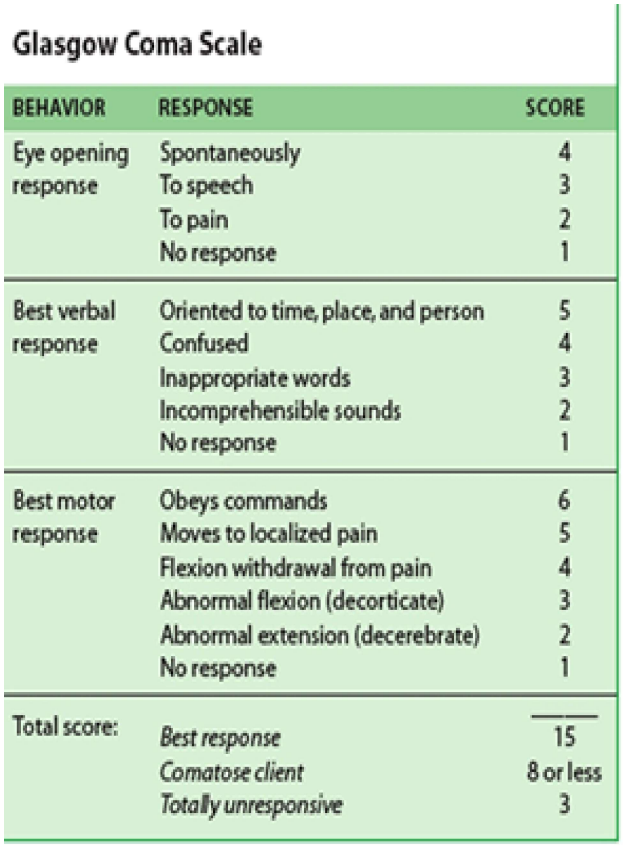
Table 2: Association of Nurses' Characteristics with the Knowledge of GCS

		Poor (<=4)	Adequate (5--8)	Good (>=9)	P-values (chi-square)
Gender	Male	18 (18.9)	41 (43.2)	36 (37.9)	0.866
	Female	21 (21.4)	39 (39.8)	38 (38.8)	
Hospital	Hospital 1	12 (12.2)	49 (50)	37 (37.8)	0.008*
	Hospital 2	27 (28.4)	31 (32.6)	37 (38.9)	
Nursing education	Graduation	27 (20.9)	51 (39.5)	51 (39.5)	0.745
	Diploma	12 (18.8)	29 (45.3)	23 (35.9)	

p-value = 0.05 was considered significant

to be considered as a frightening signal for the examiner, 65.8% correctly replied and that grading was =8. It was observed that 66.8% of the study participants recognized respiratory and haemodynamic stability as the correct answer for the aspect that influenced GCS and must be considered at the time of consciousness level assessment.

Present assessment tool has been categorized as per severity, 49.7% of nurses had the right answer that this interval lies between 12 and 9 for moderate severity. When asked about assessment of eye opening, 97% of participants answered incorrectly. When nurses were asked for how health professionals start to assess the best verbal response of a patient, 73.6% checked the



Glasgow Coma Scale

BEHAVIOR	RESPONSE	SCORE
Eye opening response	Spontaneously	4
	To speech	3
	To pain	2
	No response	1
Best verbal response	Oriented to time, place, and person	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No response	1
Best motor response	Obeys commands	6
	Moves to localized pain	5
	Flexion withdrawal from pain	4
	Abnormal flexion (decorticate)	3
	Abnormal extension (decerebrate)	2
	No response	1
Total score:	*Best response*	15
	Comatose client	8 or less
	Totally unresponsive	3

Figure 1: Glasgow Coma Scale

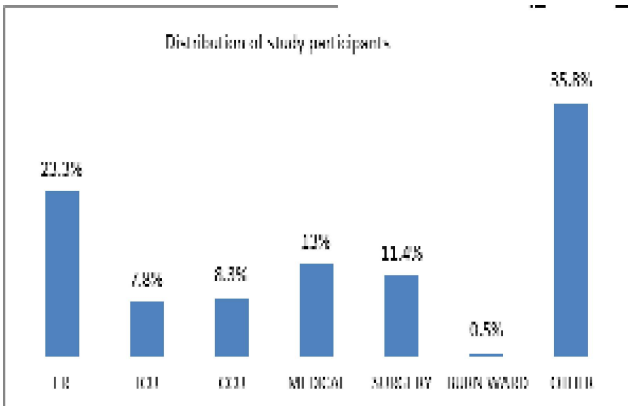


Figure 2: Distribution of study participants

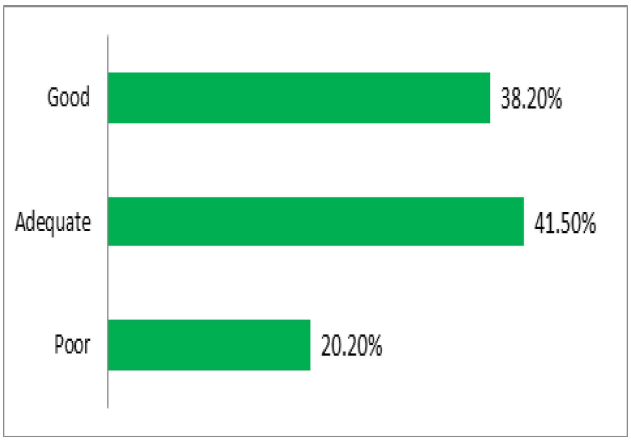


Figure 3: Over all Knowledge of GCS

right option which was, asking simple questions about self-awareness, time, and space. Furthermore, 45.1% of nurses responded correctly that verbal command is the best way to start assessing best motor response. Less than half of the participants (43%) checked the correct option that each component of GCS should be monitored separately and also assessed the sum of all the three components when documenting notes for GCS.

Figure 3 shows that 41.5% of study participants had adequate knowledge about GCS and only 38.3% had good knowledge and 20.2% had poor knowledge about functions, indicators, and monitoring skills of GCS.

Table 2 reveals association of nurses' characteristics with GCS knowledge. Results showed that 18.9% male nurses had poor GCS knowledge, whereas 43.2% and 37.9% male nurses had adequate and good GCS knowledge. Female nurses had slightly higher GCS good knowledge as compared to males. Chi-square test confirmed that the variable 'hospital' showed significant association with GCS knowledge (p-value 0.008 <0.05).

DISCUSSION

Current study revealed no association between knowledge and academic levels of the participants. This may be attributed to the fact that the concept of neurological assessment is not taught on graduate level and students are not familiar with any neurological assessment tool. The results of this study agree with another study that also shows the same association between knowledge regarding GCS and education levels[16].

The gender of healthcare providers does not appear to matter in utilization of neurological assessment tool as in the present study, female nurses had slightly higher (38.8%) good knowledge as compared to the males' knowledge of GCS but this finding of current study is contradicted by a study which showed no significant relationship between the knowledge of nurses and their genders[17].

GCS tool is one of the basic skills which must be learnt by every nurse to assess patient's conscious level effectively. More than 80% of current study participants correctly answered the questions regarding the function of GCS. This finding is in agreement with a recently conducted study which showed that 75% of study participants checked the right answer for the function of the GCS[17].

When study participants were asked about how to start the measurement of score for best verbal response, 73.6 % of participants chose the right answer. As far as the inquired question is concerned, staff nurses are used to ask this question from every patient while doing head to toe physical assessment. Therefore, it may be slightly easier for nurses to answer this question correctly. Similarly, a study has shown that 89% participants had replied correctly[11].

In this study, approximately three-fourths (71.5%) of participants replied correctly while answering the question about the worst score of the Scale, because nurses know theoretically more about GCS tool, so they can give the right answer for worst score of GCS whereas 79.2% were aware of the least point that can be measured for a patient in critical condition[19].

When present study participants were inquired about assessing the best motor response of the patient that the examiner should begin with, only 45.1% of study participants replied correctly. As GCS is a skill-based tool so this finding revealed that nurse need more expertise in assessing motor response. Another study also supported the present result by reporting 21.5% of their participants had selected the right answer for the same question[15].

The majority of current study participants (86.5%) responded correctly to questions regarding the best possible score for GCS. This may be because theoretically nurses are taught about the maximum score. Almost all participants (97.9%) of another study had mentioned the right answer when they were asked the same question[19].

A total of 63.2% of participants responded correctly to the question about the most sufficient response for grading while using GCS, whereas the majority of another study's participants (92.9%) had replied correctly to the same question[11]. This difference of responses by nurses showed that in local government hospitals, healthcare providers do not use GCS in practice regularly. They must be persuaded to keep GCS assessment tool in practice and also need to attain training sessions in this regard.

Learning of neurological assessment tool is the one of primary responsibilities of nurses, therefore, most nurses have knowledge about specific indicators of GCS assessment tool. Approximately two-thirds (63.2%) of the present study participants checked correctly for three specific indicators of GCS that are eye-opening, best verbal response, and best motor response. This result shows that the nurses' knowledge of GCS assessment tool must improve, which is in disagreement with a study that showed that almost all participants had replied correctly[20].

In the present study, 66.8% of study participants also replied correctly to the question that to attain the correct score of the Scale, all criteria ought to be monitored. The percentage of right answer revealed that nurses must enhance their critical thinking ability and technical skills for the utilization of GCS. Strengthening the current results, a study showed approximately the same percentage (66.1%) of participants replying correctly to the same question[11].

Concerning severity, approximately half (49.7%) of the study participants chose the correct answer selecting the option for moderate severity interval which indicates improper supervision and lack of evaluation from nursing management. Determining neurological severity level of patients is the primary part of knowing their current health status and also a key part of treatment in the right direction. In contrast, 63% participants of a study conducted in 2019 had chosen the right option for the same question[21].

The least (3.1%) correctly answered question by this study's participants was how examiner should begin an assessment of eye-opening. In contradiction to this result, another study showed 39.4% of study participants choosing the correct answer[11]. As an important part of patient's neurological assessment, the result revealed an area of high improvement for nurses and needs proper training.

For an important part of GCS monitoring i.e. taking notes, less than half (43%) of the study participants replied correctly that the score of each component would be monitored. Work overload in medical field is a worldwide problem. In developed countries, nurse-patient ratio is acceptable, but in developing countries, nurses still face work overload so they may be unable to follow every single rule of the system. Similarly, to focus on every single component of an assessment tool may be difficult for nurses in this scenario. The hospital management must make sure that the nurse-patient ratio stays up to universal standard. In favour of the current results, a study carried out in 2016 revealed that only 46% participants of a study reported all three parameters for scoring the consciousness level of patient[22].

The over all result of this study is not as good as it should be. Less than half (41.5%) of the study participants had adequate knowledge about GCS. Only 38.3% had good knowledge about functions, indicators, and monitoring skills of GCS. Nursing colleges and hospital managements must arrange proper training sessions and classes for students and nursing staff. The current study contradicts the findings of another study which showed that (60%) participants had good knowledge of GCS[23]. A study conducted in Ghana revealed results that a bit more than half (50.4%) of the participants of study had low knowledge of GCS[19]. A study completed in 2108 revealed that 63% of participants had moderate knowledge, 36% had adequate while 1% had inadequate knowledge[24].

According to the present study results, there was no association of knowledge levels with nurses' professional education levels, i.e. graduation and diploma in nursing. One of the reasons behind this scenario may be that graduate nurses mostly prefer managerial posts to bedside nursing. Another reason may be that every nurse does not get the same opportunity to work in critical care departments like emergency, ICU, and CCU. Therefore, it is the responsibility of hospital management to train their staff and also provide equal opportunity to every staff to get experience of critical care departments. A similar result was shown in a study conducted in Malaysia that level of education does not affect the level of GCS knowledge while another study conducted in 2019 revealed that Nursing degree holders had more knowledge about GCS than Nursing diploma holders[15,25].

Recommendations:

GCS must be focused on as a basic nursing skill and made a part of training. Regular educational and hands-on sessions are recommended to enhance the skills for neurological assessment. It is recommended that in-service educational sessions will help nurses in enhancing their knowledge of GCS. Training of nurses for neurological assessment must be done in a standardized way to avoid variation in using GCS. A booklet about GCS should be developed and distributed to all nurses working in hospitals.

Limitation:

This study was carried out in two public sector hospitals only so results of this study cannot be generalized. For more generalized result, future studies may also be conducted.

Strength:

This was the first study conducted for nurses locally.

CONCLUSION

Our study concluded that the majority of participants possessed adequate level of GCS knowledge followed by good and poor levels of GCS knowledge. As per gender comparison, female nurses had a little higher good level of GCS knowledge while adequate level of knowledge was observed in the majority of male nurses.

As per education, graduate nurses showed higher adequate and good levels of knowledge in relation to GCS.

Authors' contribution: AH worked on introduction, literature review, Methodology, data collection, discussion, limitations, strength, and recommendations. AR worked on statistical analysis and proofreading.

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ORIGINAL ARTICLE

Conservative Management of Blunt Abdominal Trauma in Paediatric Population – An Experience in Interior Sindh

Ishart Mahtam[1], Noor Ahmed Shaikh[2], Nabi Bux Napar[3], Zulfiqar Bhatti[4] and Siraj uddin Somroo[2]

ABSTRACT

Objective: To evaluate the management of blunt intra-abdominal trauma in the paediatric population
Methodology: Between May 2019 and May 2020, a 12-month prospective observational study was conducted in the departments of Paediatric Surgery at Ghulam Muhammad Mahar Medical College, Sukkur and Shaheed Mohtarma Benazir Bhutto Medical University, Larkana. All children under the age of 18 years presenting with blunt abdominal trauma at our set up, irrespective of the cause of injury, were included in the study. Those who presented with polytrauma, hollow viscus injury, and older than 18 years were not included in the study.
Results: A total of 1,459 patients with trauma presented out of whom 90 (6.1%) were diagnosed with abdominal trauma. The majority of the patients were male i.e. 70 (77.77%). The mortality rate was 10%. Spleen was the most frequently wounded organ in 50 (55.5%) patients followed by liver injury in 30 (33.3%) patients and trauma to the kidney in 10 cases (11.1%). It was found that the higher the grade or more severe the organ injury, the poorer the prognosis of the patient. Fluid resuscitation or blood transfusion were necessary in the majority of patients with grade IV and V organ damage. Similarly, mortality rate was higher in patients with grade III, IV, and V injuries.
Conclusion: Satisfactory results were achieved in the paediatric population managed conservatively for blunt abdominal trauma. Further studies need to be conducted in order to determine the management in Grade V injuries.

Key Words: Abdominal trauma, Blunt trauma, Paediatric population, Splenic injury

How to cite this article: Mahtam I, Shaikh NA, Napar NB, Bhatti Z, Somroo SU. Conservative management of blunt abdominal trauma in paediatric population – an experience in interior Sindh. Ann Jinnah Sindh Med Uni. 2021;7(2):71-74

DOI: https://doi.org/10.46663/ajsmu.v7i2.71-74

INTRODUCTION

Trauma is among the main causes of death among children aged one to eighteen. Every year, over 20,000 children die as a result of injuries, with another 120,000 becoming permanently crippled[1,2]. Ninety percent of childhood injuries are caused by blunt trauma, with falls and motor vehicle accidents being the most common mechanisms of harm[3]. Children are more likely to develop injuries to intra-abdominal organs after blunt abdominal trauma because of their body habit and undeveloped musculoskeletal system. The intra-abdominal organs of a child are proportionally larger than those of an adult patient and are located in close proximity to one another. Because of a child's small size, he or she is subjected to more force per unit of body surface area, which can cause serious injury to many organs[4]. Trauma has been a leading cause of death in both the developing and developed countries[1]. A study conducted in Japan reported a prevalence for 52% and 47% of all traumas in the <1 year and 1≤5 years age groups respectively[3].

Because these injuries can be life-threatening, they require a methodical strategy for identifying and treating them[5]. Abdominal trauma caused by motor vehicle collisions (MVCs), falls, sports-related injuries, or other causes can result in significant mortality due to solid organ or hollow viscus injury[5,6]. Despite the fact that abdominal trauma happens often in children, there

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is still debate on the best treatment technique. In most cases, blunt abdominal trauma in children is treated conservatively[7]. Perforation of the gastrointestinal tract as a result of acute abdominal trauma is rather infrequent. However, perforation can occur in some cases, and a delay in detection can increase morbidity and mortality. Early detection is challenging because clinical, biochemical, and radiographic indications of intestinal perforation in a polytrauma patient might be deceiving[8].

Previously, blunt trauma was followed by laparotomy however, with the use of advanced imaging techniques which confirm the exact location and severity of the abdominal injuries, the rate of exploratory laparotomy has been significantly reduced[9,10]. The aim of this study was to assess the local statistics of blunt abdominal trauma among paediatrics population. In addition, this study was also helpful in audit of conservative management in our setup among patients presenting with blunt abdominal trauma.

METHODOLOGY

Between May 2019 and May 2020, a 12-month prospective observational study was conducted in the departments of paediatric surgery at Ghulam Muhammad Mahar Medical College, Sukkur and Shaheed Mohtarma Benazir Bhutto Medical University, Larkana. All children under the age of 18 years presenting with blunt abdominal trauma at our set up, irrespective of the cause of injury were included in the study after taking informed consent from participants. Ethical approval was obtained from the Institutional Review Board (IRB No. PS/CMCH/42). Those who presented with polytrauma, hollow viscus injury, and were older than 18 years were excluded from the study. All patients who presented to the set up with suspected abdominal injury were examined properly. Short clinical history was obtained from the guardians. Cause of abdominal trauma was documented. Diagnosis of intra-abdominal injuries was based on the findings of CT scan which is considered as the gold standard. All vitally stable patients were managed conservatively. Patients were kept nil per oral till further orders. Laboratory investigations were immediately sent. Abdominal Ultrasounds and CT scans were advised for all patients. Patients who were vitally unstable i.e. had low systolic blood pressure, were immediately resuscitated with normal saline and blood transfusions. All patients were monitored for 48 hours and then, if vitally stable, were discharged. Follow-up with the patients was maintained in the outpatient's department. Data was analyzed using Statistical Software for Social Sciences (SPSS) software version 26. For continuous variables, mean with standard deviation (Mean±SD) was determined while categorical variables including the gender, mode of injury, organs injured, were presented using frequency and percentages.

RESULTS

A total of 1459 trauma patients were seen, with 90 (6.1%) of them being diagnosed with abdominal trauma. The majority of the patients were male i.e. 70 (77.77%) while only 20 (22.22%) were female patient. Out of the 90 patients with blunt abdominal trauma, 9 (10%) died. Patients ranged in age from 14 months to 15 years. The patients' mean age was 7.2 (4.63) years.

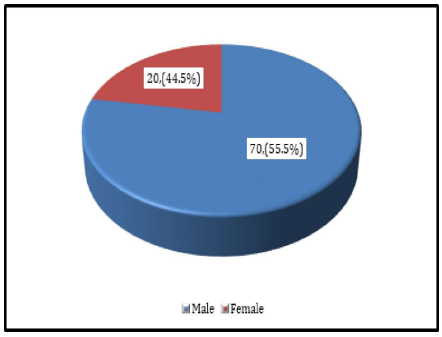

Figure 1: Gender disparity in Study Population (n=90)

The most frequently injured organ was the spleen in 50 (55.5%) patients followed by liver injury in 30 (33.3%) patients and trauma to the kidney in 10 cases (11.1%).

Upon assessing the mechanism of injuries, it was found that 65 (72.22%) children suffered the trauma from road traffic accident, 20 (22.22%) experienced a fall, while the remaining five children had a sports injuries. See Table 1.

Table 1. Demographic and Baseline Characteristics

Mean Age± SD (years)	7.2 ± 4.63
Body Mass Index (kg/m2)	25.32 ± 6.4
Mean Haemoglobin ± SD (g/dL)	12.9 ± 2.4 (4.1-15.7)
Mean Platelet Count (10^3/iL)	257.4 ± 85.6 (125-450)
Systolic Blood Pressure (mmHg)	94.2 ± 14.3
Diastolic Blood Pressure (mmHg)	67.3 ± 7.9
Mechanism of Injury	
Road Traffic Accident (RTA)	65 (72.22%)
Fall	20 (22.22%)
Sports injuries	5 (5.55%)
Injury localization	
Spleen	50 (55.5%)
Liver	30 (33.3%)
Kidney	10 (11.1%)

It was found that the higher the grade or more sever the organ injury, the poorer the prognosis of the patient. Fluid resuscitation or blood transfusion were necessary in the majority of patients with grade IV and V organ damage. Similarly, mortality rate was higher in patients with grade III, IV, and V injuries. See Table 2.

were the most commonly injured organs in the paediatric population. This finding was in accordance with the previously published data on the subject. Wan et al., reported that the most frequent organs injured as a result of sports injuries in the adolescent population were kidney, spleen, and liver[17].

Table 2. Treatment and Management with Final Outcomes of Patients According to Severity of The Solid Organ Injury

Injury Localization and Injury Severity/Grade	Blood transfusion or Fluid Resuscitation n (%)	Ventilator support n (%)	Conservative treatment n (%)	Surgical Management n (%)	ICU hospitalization n (%)	Mortality n (%)
Spleen	-	-				
Grade II			10 (100)	-	-	-
Grade III			25 (100)	-	-	1 (4)
Grade IV	15 (100)		-	-	5 (33.3)	4 (26.6)
Liver						
Grade III	-	-	20 (100)	-	-	-
Grade IV	10 (100)	-	-	3 (30)	3 (30)	2 (20)
Kidney						
Grade IV	5 (100)	-	-	3 (60)	3 (60)	1 (20)
Grade V	5 (100)	-	-	4 (80)	5 (100)	2 (40)

DISCUSSION

We reported 90 (6.1%) cases with blunt trauma injury in the paediatric population. The majority were male children. Road traffic accidents were the most common cause of injury, followed by falls. These findings were comparable to previously published literature[11,12]. Literature shows that the paediatric population is at higher risk of attaining intra-abdominal injuries because of lesser subcutaneous fat and around the viscera, smaller body sizes, and comparatively immature musculoskeletal system[6].

According to recent findings conducted by Valentino M, et al and Garvey EM, et al, physical examination and laboratory studies, in addition to computed tomography and focused assessment with sonography for trauma (FAST), remain the most valuable diagnostic modalities in patients presenting with abdominal trauma[13,14]. Raised liver enzymes aid in the evaluation of occult abdominal organ injuries in the paediatric population. It is recommended that patients with suspected abdominal trauma who are vitally stable at presentation should be admitted with subsequent abdominal imaging and examination[15,16]. In our study, patients with suspected injury to abdomen were monitored for 48 hours, their vitals were regularly monitored, and abdomen was comprehensively examined multiple times to look for tenderness and other signs of trauma. Furthermore, the current study found that the spleen followed by liver, and kidney

Sjoval and Hirsch have reported that conservative management in patients with suspected abdominal injury may lead to complications later on in the clinical course[18]. There is a risk of rebleeding or misdiagnosis in case of non-operative management. In our study, the majority of the patients were managed conservatively. Only Grade III and Grade IV required operative management in certain cases. Patient follow-up was uneventful in the present study.

In short, all patients with a history of blunt trauma must be comprehensively examined at regular intervals to detect any abdominal tenderness. Vital monitoring and laboratory investigations must be sent if concern is for internal injuries. Patients follow up should be vigilantly done to prevent worsening clinical course of trauma in the paediatric population.

CONCLUSION

Conservative therapy of solid organ damage in blunt abdominal trauma yielded satisfactory results. However, patient follow up must be thorough. Grade III and IV solid organ injuries secondary to blunt abdominal trauma can be managed conservatively and most common injured organ is the spleen. Lastly, relatively low number of sample population was involved taken from a single hospital, which can limit the conclusiveness of our results.

Authors' contribution: IM, NAS, NBN and SS worked on introduction, methodology, proof reading and data collection and statistical analysis. IM, ZB, and SS worked on discussion.

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CASE SERIES

Is Transmissibility of Novel Covid-19 Different in a Developing Country Like Pakistan? A Case Series Highlighting Family Cluster Spread of the First Covid-19 Patients

Nighat Shah[1], Faisal Mehmood[2], Zaeema Ahmer[3], Nusrat Shah[4] and Mariam Soomro[5]

ABSTRACT

Covid-19 is a huge global public health crisis. The world has not seen such an extensive health emergency for the last hundred years. We report the detailed symptomology, epidemiology, and demography of the first few cases reported in Pakistan. After review of medical records at a private hospital in Karachi, six patients (four men and two women) are included in the present case series. A twenty-six years old male, the first patient diagnosed in Karachi, on February 26th, 2020, had travelled from Iran. He developed fever and respiratory symptoms but was discharged after making a complete recovery. The next group of pilgrims tested positive on March 8th, 2020. One male among them, with a pre-existing medical condition, expired after three weeks. Rest of the patients made complete recovery. Our findings suggest that Pakistan might have a different strain of Covid-19 compared to the strains found elsewhere.

Key Words: Case series, Covid-19, Pakistan

How to cite this article: Shah N, Mehmood F, Ahmer Z, Shah N, Soomro M. Is transmissibility of novel Covid-19 different in a developing country like Pakistan? A case series highlighting family cluster spread of the first Covid-19 patients. Ann Jinnah Sindh Med Uni. 2021;7(2):75-78

DOI: https://doi.org/10.46663/ajsmu.v7i2.75-78

BACKGROUND

Epidemic of unknown acute respiratory tract infection broke out first in Wuhan, China in December 2019, subsequently declared a pandemic by the World Health Organization on March 11th, 2020. Several studies have suggested that bat may be the potential reservoir[1,2]. The protein sequence analysis shows similar residues of receptors in many species, like pangolins, snakes, turtles[2,3].

WHO has widely highlighted human to human contact.Viruses have many types, e.g. HPV has more than 100 strains, out of these 5 or 6 most virulent ones, cause cervical or genital tract cancer, the rest may be benign and silent. There are different genera of corona virus—alpha, beta, gamma, delta. This paper looks at the possibility of such mutation that some strains will behave differently in different circumstances.Some Corona Viruses (CoVs) are mild and others may lead to potentially fatal respiratory tract infections[4]. This paper compares family cluster spread in Pakistan and China and looks at the symptomology, demography, and epidemiology of initial patients in Pakistan.

INTRODUCTION

Witnessing a pandemic is the first experience for the three to four generations occupying the globe currently. The outbreak of 2019 novel coronavirus disease (Covid-19) was first reported on December 31, 2019, in Wuhan, China[3]. Within a few weeks, the virus had spread rapidly throughout China and to several other countries in a month, including Italy, the United States, and Germany[4,5].

Consequently, more than half of the globe was either in lockdown or in a state of curfew. Covid-19 was declared a pandemic on March 11, 2020 by the World Health Organization (WHO). Globally, the cases have caused more than 100,000 mortalities, mainly in the USA, the UK, Italy, Spain, China, and Iran. Not only is it causing health concerns (pneumonia), but social, psychological, and economic issues are impacting the very essence of humanity.

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The ways for human-to-human transmission and pathogenic means of the SARS-CoV-2 are under the microscope globally. Built around the present epidemiological evidence, the incubation period is 1-14 days and Covid-19 is infectious during the latency period[6]. It is highly transmissible in humans, especially in the elderly and people with underlying diseases. Recent evidence from the United States and the UK has shown it in younger population also. The median age of patients is 47-59 years, and less than 40 % of the patients were females[7]. The most prominent symptoms are fever, malaise, and cough[4]. Some patients rapidly progress to critical condition and develop acute respiratory distress syndrome, respiratory failure, multiple organ failure, even deaths[8].

Epidemiology in Pakistan

Pakistan and other underdeveloped countries have seen low transmission up till now. The reasons for this are unknown. In order to understand the root cause, it is important to study the cases. This is an account of early cases in Pakistan.

Patients and Method

The first patient "X" diagnosed with Covid-19, had travelled to Iran. This patient was PCR positive with chest and flu-like symptoms. All the flight passengers were subsequently traced and tested and were found to be PCR negative. Close family cluster was also negative. The next cases were reported on March 8, 2020 in a group that had travelled to Iraq and Syria for religious pilgrimage. Amongst these, a couple was found to be positive—Patient A and his wife B. Patient A was a 68 year old male with underlying diabetes (HbA1c-9), had fever, and chest lesions where as the wife, 63 years old female, had only bodyache, and no fever or cough symptoms. This couple stayed for five days with their son's family (son, his wife and child) after coming back from the pilgrimage. All tested negative on PCR, but were still put in quarantine.

In this same group, the Patient A's brother—Patient C for this narrative—was positive with severe symptoms and required respiratory support. His wife, who was

Table 1: Characteristics of the First Patients of Covid-19 in Pakistan

	Patient X	Patient A	Patient B	Patient C	Patient D	Patient E	Attendant F	Attendant G
Age	26	68	62	54	50	48	47	48
Sex	Male	Male	Female	Male	Male	Female	Female	Female
Relationship	-----	Brother of C & D and husband of B	Wife of B	Brother of A & D and husband of F	Brother of A & C and husband of E	Wife of D	Wife of Patient C	Sister of A, C & D
Primary destination	Iran	Iraq/Syria	Iraq/Syria	Iraq/Syria	Iraq/Syria	Iraq/Syria	Iraq/Syria	Iraq/Syria
Suspected source of exposure	Mass religious pilgrimage	Mass religious pilgrimage	Mass religious pilgrimage	Mass religious pilgrimage	Mass religious pilgrimage	Mass religious pilgrimage	Mass religious pilgrimage	Mass religious pilgrimage
Medical disorders	-----	Diabetes	----	Pre-diabetes	----	----	----	----
Exposure status	Full flight of passengers and family cluster	Full flight of passengers and close family cluster	Full flight of passengers and close family cluster	Full flight of passengers and close family in contact for 5 days alongwith unprotected medical personal	Full flight of passengers and close family cluster	Full flight of passengers and close family cluster	Wife who was on the trip but had negative results	Sister who was on the trip but had negative results
PCR test results	Positive	Positive	Positive	Positive	Positive	Positive	Negative	Negative
Interval between symptoms and diagnosis	5 days	8 days	8 days	8 days	8 days	8 days	-----	-----
Temp ^{O}C	38.5	39	37	39	38	37	-----	-----
Symptoms	Fever, cough	Fever, respiratory congestion	Body aches	Fever, chest pain	Fever, cough	Myalgia	Mild flu like symptoms	Mild flu like symptoms
Days of admission	20 days	15 days	15 days	Expired in 3 weeks	18 days	18 days	-----	-----
Treatment received	COVID protocol	COVID protocol along with treatment for other morbidity	COVID protocol	COVID protocol along with treatment for other morbidity	COVID protocol	COVID protocol	-----	-----

also with this group in the pilgrimage, was in contact with husband and other group/family members throughout but she tested negative. The Patient C, a 54 years old male with pre-diabetes, was admitted in a private hospital for a few days. In this cluster, Patient C unfortunately expired after three weeks of intensive treatment. The disease not only took a toll on his lungs but other systems like kidneys also failed and he expired of sepsis and multi organ failure.Many healthcare providers were exposed to this patient before the test was undertaken. All these personnel tested PCR negative.

As of today, all of these cases have recovered and have been discharged with one expiry (Table 1).

DISCUSSION

It is now well known that all the initial patients in Pakistan were travelers and pilgrims. This is seen in literature where initial patients had travelled from Wuhan or China[9].

We report here a familial cluster of Covid-19. These include five out of seven family members with PCR positive results and the first diagnosed case in Pakistan. Total members in this cluster of pilgrims were eight, which included four females and four males. Out of these two females, Attendant F and Attendant G were Covid negative, where as other two females had mild symptoms and were also admitted in hospital as shown in Table 1.

Three males had symptoms of fever, cough, and respiratory deterioration. The males of this group had comparatively more symptoms. All females had mild symptoms with two PCR negative results and two PCR positive results. Global Health 2050 tracks sex-disaggregated infection and mortality Covid-19 data from the 39 most-affected countries. Some countries, including the UK, the USA, Russia, and Brazil, have yet to report such data. From those that have, it is unclear whether women or men are more likely to become infected, but more men are dying from Covid-19[10].

Adverse outcomes of Covid-19 seem to be associated with comorbidities, including hypertension, cardiovascular disease, and lung disease. The over all Pakistani data, especially in Sindh, also shows that fewer females (30%) are affected as compared to males (70%). Moreover, females had milder symptoms in our study group as well, they showed no lung lesions, and their recovery was more rapid. There was no mortality in women in this group.

In this cluster, Patient C, brother of Patient A, and D had the most severe symptoms. He reported with high grade fever and respiratory deterioration. Patient A had fever and some oxygen desaturation, with oxygen levels as low as 87% and he required only oxygen support. Oxygen is the mainstay of treatment with proven efficacy and is shown as such in Literature[11].

The Patients A and B had stayed with their son's family for five days after returning from the pilgrimage. The son and his family were all PCR negative. This has not shown up till now in any evidence. Contemporary research shows that the close contacts may be non-symptomatic but still are positive[12].

The disease was seen in the most aggressive pattern in one patient C, but again highlighting the strange nature or yet to be explained contagious pattern of the disease, the wife and children of patient C stayed negative despite being in close contact until patient C developed respiratory symptoms. Also, even though he went to different hospitals with fever and chest congestion initially, all the medical personnel he came in contact with, including doctors and nurses (not in Personal Protective Equipment at that time), tested negative. This has not been seen internationally[13].

The purpose of highlighting this different nature of transmissibility is that as it is a novel virus, there are many gaps and evidence is currently inconsistent. There are many questions and few most important ones are related to transmissibility. Many scientists are surprised that South Asia has not yet seen the kind of growth in cases that is there in the USA, the UK, Spain, and Italy. This article was written in March 2021.

There are multiple possible answers. The many theories which are focusing on the lower transmissibility of Covid-19 are:

1. Our governments may have acted early on the WHO advice of Non pharmaceutical interventions (NPI) like lockdown and social distancing (although there are incidents of gross violation in Pakistan).

2. This virus may have many types and mutations. It is exhibiting different behaviours as per its genera, alpha, beta, delta and gamma. The various CoVs of animal origin undergo evolution and genetic recombination. Some of these may be less virulent than others. Its constant mutations will keep challenging scientists. CoVs that may be highly pathogenic and potentially more deadly to humans take time to mutate, therefore the first few weeks are slow.

3. As we are in an endemic region for Malaria, mostly the population has had malaria and taken chloroquine that may be causing some protection[14].

4. Tuberculosis vaccine may have some antibodies to protect against Covid-19[15].

5. Flu is more common due to pollution. Seasonal flu occurs five or six times in our part of the world and may have some role in reducing transmission for Covid-19.

6. Climate-specific cultural differences (living more outdoors than indoors), the effect of UV light on the survival of the virus on surfaces, immunological differences of the population (innate immunity), pre-exposure to coronaviruses, or the higher temperatures could all have contributed. To date, all identified cases of Covid-19 in Africa originated from Europe and not from China[16].

Strengths of the study: To our knowledge, this is the first case series looking at transmissibility of Covid-19 in Pakistan. It looks in detail on the presentations, comorbidities, course of illness, and low transmissibility of the virus in the initial cohort of patients.

Limitations of the study: It is a small study, covering limited patients and time. It may not reflect the entire epidemiology in Sindh or Pakistan. Additionally, since the study was conducted in the very initial months of the pandemic, the information on this pandemic has changed or is still evolving e.g. symptoms, mode of transmission, treatment, or management of cases.

CONCLUSION

The findings of this report show that the virus in Pakistan does not express the transmissibility that it had shown in China or in the Western World. The probability that Covid-19 may have a variety of strains, some not that lethal can be considered in the context of Pakistan and possibly other developing countries.

Authors' contribution: Nighat S Comephasized the study, FM helped in collecting Information, ZA wrote the first draft of the article, Nusrat S, Supervised and critically revised manuscript, MS helped in Liturer Searching and wrote the introduction.

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CASE REPORT

Anticonvulsant Hypersensitivity Syndrome associated with Carbamazepine Induced Toxic Epidermal Necrolysis A Rare Case Report in an Epileptic Child

Maria Zahoor

ABSTRACT

Reporting the case of a seven-year-old boy with complaints of painful exfoliation and blistering of skin involving around 40% of body's surface area alongwith high grade fever (102 F). Detailed history revealed that he was started on tablet Carbamazepine a month ago for Epilepsy, which was well tolerated for the first two weeks, however after the dose was increased, cutaneous and systemic symptoms began to appear. There are very few case reports of Toxic Epidermal Necrolysis in paediatric population related to the use of Carbamazepine. Hence, importance of cautious use and prompt recognition of side effects must be realized in children.

Key Words: Carbamazepine, Epilepsy, Exfoliation, Stevens johnson syndrome, Toxic epidermal necrolysis

How to cite this article: Zahoor M, Anticonvulsant hypersensitivity syndrome associated with carbamazepine Induced toxic epidermal necrolysis, a rare case report in an epileptic child. Ann Jinnah Sindh Med Uni. 2021;7(2):79-81

DOI: https://doi.org/10.46663/ajsmu.v7i2.79-81

INTRODUCTION

Toxic Epidermal Necrolysis (TEN) is a rare and life threatening condition with 30% mortality rate[1]. It is characterized by erythema, necrosis and extensive sloughing of epidermis, involvement of mucous membranes and systemic symptoms[2]. Etiological factors for TEN are several, however, the most common ones are adverse drug reactions[3]. In 3% of individuals treated with Carbamazepine, cutaneous reactions were seen which included diffuse erythema, exanthematous rash, urticaria, purpuric petechiae or a mucocutaneous syndrome, any of which can occur from day eight to day sixteen after the treatment has been started[4]. Nevertheless, the majority of data in this regard comprises adult cases. Therefore, keeping in mind the paucity of literature on this issue in paediatric age group, the case is being reported to emphasize the importance of careful use and anticipation of adverse effects related to Carbamazepine in children.

CASE:

A seven years old boy weighing 25 kg came to the Emergency department with presenting complaints of rashes and peeling of skin for the past seven days and fever for two days. Parents reported that the rashes first appeared on the child's hands and upper limbs, but later on progressed to the whole body. Initially, the mother applied coconut oil on the rashes but condition worsened and skin started to slough off painfully. At this point, the child developed high grade fever, and became unable to eat due to painful ulcers in the mouth, and thus, brought to the emergency room.

On further history taking, it was learned that the Child also had two episodes of fits in the past three months for which he was being investigated at a private hospital and one month ago, the final diagnosis of epilepsy was made. Tablet Carbamazepine (200 mg) was started as treatment. Initially, half a tablet was given twice daily for two weeks which was well tolerated. However, after two weeks, the dosage increased to one tablet twice daily and it was nearly at that time when the cutaneous symptoms began.

The child is the second issue of a consanguineous marriage and there is no history of any allergies or skin diseases in the patient or his family.

At the time of admission, the child was febrile (Temp 102 F). Other vitals were stable. Local examination showed Erythema and Exfoliation of skin on face and crusting and erosions of lips (Figure 1). Skin of eyelids was also involved and eye opinion was sought from

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Fig. 1


Fig. 2


Fig. 3


Fig. 4


Fig. 5

Note: All photographs of patient are being shared after obtaining consent from parents.

Ophthalmologist who documented no evidence of corneal ulceration, keratitis, or uveitis. On trunk and upper limbs, the maculopapular rashes progressed to bullous eruptions, alongwith extensive areas of epidermal necrosis (Figures 2 and 3). Around 40% of the body's surface area was affected. Nikolsky's Sign was positive (slight rubbing of skin results in Exfoliation of most outer layer).

Complete blood count, renal and liver function tests, and electrolytes were within normal range. ESR was raised (40mm/hr). Estimation of adverse drug reaction was done using Naranjo Scale[5] which turned out to be seven in this case, indicating probable adverse drug reaction.

The child was admitted to the ICU. Carbamazepine was stopped immediately. Fluid resuscitation was done initially with Ringer's Lactate and later with half strength Dextrose Saline. Samples taken from blood and skin swabs were sent for culture sensitivity. Injection Hydrocortisone (2mg/kg/dose) was given 12 hourly for five days. Broad spectrum parenteral antibiotics Piperacillin+ Tazobactum along with Linezolid were administered for five days. Injection Paracetamol for fever and injection Ketorolac for pain relief was given. Parenteral nutrition was ensured. Antibiotic ointments and saline soaked sterile pads were used for eyes. Magic mouthwash comprising normal saline, betnisol, nystatin, antacid, and diphenhydramine was dispensed. Potassium permanganate solution and saline wash was used for local cleaning of wounds on body after which Fusidic Acid was applied. Combined preparation containing liquid paraffin and white soft paraffin was applied all over the body. Posture of the child was changed frequently on sterile bed sheets. Child showed signs of improvement with these measures and was afebrile after four days of admission. Culture reports for blood and skin swab came negative. Peeling of skin stopped, pain and fever subsided. He was discharged on the 12th day. At his follow up visit after one week, skin lesions showed marked re-epithelialization, oral ulcers had healed and there were no signs of secondary infections (Figures 4 and 5).

DISCUSSION

Toxic Epidermal Necrolysis (TEN) and Stevens Johnson Syndrome (SJS) are two forms of the same life-threatening skin condition occurring as a result of an immune mediated hypersensitivity reaction[6]. In SJS, less than 10% of body surface area (BSA) is involved, whereas, it is more than 30% in TEN. If BSA involvement is between 10-30%, overlapping SJS/TEN is considered[7]. In our patient, around 40% of the body surface area got involved after two weeks of Carbamazepine initiation, at the time of dosage increase.

To predict the risk of death in a patient with TEN, Bastuji-Garin et al has described a SCORTEN scale, which takes different parameters into account at the time of hospital admission like age, malignancy, percentage of epidermal detachment, heart rate, blood urea, glucose, and bicarbonate levels. A score more than five is associated with 90% mortality rate[8]. In our patient, the score was one which coincided with 3.2% mortality rate and that explains the excellent progress which was seen in that child.

In literature review, about management of children with TEN, initial treatment comprising withdrawal of suspected drug, admission in an intensive care/burn unit, and supportive therapy with fluid resuscitation, nutritional support, and prevention of infections is recommended. Furthermore, systemic therapy such as systemic steroids, intravenous immunoglobulins, Cyclosporine, Plasmapheresis, and Tumour Necrosis Factor (alpha) inhibitors are the treatment options whose safety and efficacy still needs to be confirmed through studies[9]. In our patient, alongwith the supportive treatment, we administered systemic steroids and the outcome was better. However, it was clearly elaborated

by McPherson et al in a summary of British Association of Dermatologist's guidelines that for SJS/TEN in children, the best way to manage this potentially life threatening condition is still unknown, and need for data collection and standardization of treatment exists[10].

This case has been reported to highlight the association of TEN with Carbamazepine, as there is a paucity of literature on this issue in paediatric population. It is essential to prescribe Carbamazepine cautiously, and equally important to not use other aromatic anti-convulsants in a patient who already has an adverse skin reaction with Carbamazepine due to the phenomenon of cross reactivity. We started our patient on Levetiracetam and the child is doing fine with that. Also, it is of utmost importance to discuss the possible adverse drug reactions before the initiation of the treatment as in this case, parents did not seem to be aware of the condition and continued to give the medicine and deal the skin rashes with home remedies before seeking medical attention.

Conflict of interest: None

Acknowledgement: The author would like to thank the parents of the child for giving their consent to publish the photographs of their child in a medical journal for educational purpose.

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CLINICAL TECHNIQUE

Open Window Impression Technique for Maxillary Anterior Flabby Ridge

Ahsan Inayat[1] and Muneeb Ahmed Lone[2]

ABSTRACT

The open window technique is a special technique for making impression of the denture-bearing area with displaceable ridge. The procedure involves an accurate recording of the limiting and supporting structures by utilizing a two-step impression technique. This clinical technique will help clinicians to record tissue details without displacing the flabby tissue.

Key Words: Denture-bearing area, Flabby tissue, Impression

How to cite this article: Inayat A, Lone MA. Open window impression technique for maxillary anterior flabby ridge. Ann Jinnah Sindh Med Uni. 2021;7(2):82-84

DOI: https://doi.org/10.46663/ajsmu.v7i2.82-84

Clinical Relevance: Revisiting the steps of open window technique to help dental practitioners in fabrication of maxillary complete denture in patients with fibrous maxillary anterior ridge

INTRODUCTION

Fibrous replacement ridge, most commonly found in long term denture wearers, occurs when hyperplastic soft tissue replaces alveolar bone[1,2]. The hypermobile tissues can be easily displaced during impression making, that may later lead to tissue recoil and dislodgment of the overlying denture[2]. Wearing of ill-fitting dentures may cause continuous trauma to underlying tissues resulting in development of flabby ridges[3]. These flabby ridges consist of dense collagen and loose fibrous connective tissue and are most commonly found in the maxillary anterior region[4]. Mucosa of such patients is often highly mobile and loosely attached to the periosteum which can cause difficulty in impression making[5]. Furthermore, this can minimize the quality of prosthesis by affecting its stability and support.

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To overcome these problems, many impression techniques have been suggested and used by clinicians to reduce the complexity of this procedure. Among different impression techniques, the window technique is most commonly used in which two distinct impression materials are used[6]. Zinc oxide eugenol impression paste in a custom tray is used for recording the impression of "normal tissues", whereas a relatively mucostatic impression of the displaceable flabby ridge in anterior maxillary region is recorded with impression plaster or light bodied elastomeric material[2]. The purpose of this technique is to record the hypermobile tissues in resting form whereas the unaffected tissues are recorded in supporting form[7]. Therefore, the aim of this paper is to revisit the steps of open window technique that will help dental practitioners in fabrication of maxillary complete dentures in patients with fibrous maxillary anterior ridge.

Clinical Technique: A 64-year-old female patient presented to Department of Prosthodontics at Dr Ishrat-ul-Ebad Khan Institute of Oral Health Sciences, Karachi with a presenting complaint of fractured acrylic maxillary complete denture. Past dental history revealed that the patient had been wearing the denture for the last twelve years; till the time of its fracture. Her medical and family history were non-significant as she was not hypertensive or diabetic and neither was she taking any medicines for any medical problems. Intraoral examination revealed flabby hypermobile ridge in the anterior region of the maxillary arch (Fig. 1). The opposing arch was restored by a porcelain fused to metal full-arch prosthesis.

Fig. 1: Displaceable flabby tissue in anterior maxillary region

Fig. 2: Primary cast in dental stone after impression with irreversible hydrocolloid

Fig. 3: Custom tray border molded with green stick impression compound

Fig. 4: Secondary impression recorded with Zinc oxide eugenol impression paste

Fig. 5: Window created in custom tray over region of hypermobile ridge

Fig 6: The completed master impression

Treatment plan was discussed with the patient and she was given the option of both conventional complete denture and implant supported over denture for maxillary edentulous ridge. As the patient was non-affording and was satisfied with her previous denture, she opted to get a new conventional complete denture. Keeping the flabby ridge in mind, it was decided to construct the new maxillary denture employing the "Open Window Technique" during secondary impression.

Primary impression was recorded with a tissue friendly material i.e. irreversible hydrocolloid (Alginate). The impression was then poured with dental stone to obtain the initial cast (fig 2). A self-cure acrylic resin custom tray was fabricated on the maxillary cast with the tray handle in mid palatal region. The borders of the tray were kept 2-3 mm short from the buccal and labial vestibules. Border moulding was performed using green-stick impression compound (Havard, Germany) and secondary impression was carried out using zinc oxide eugenol impression paste (SS White Group,

England) (fig 3 and 4). Once set, the impression was removed from mouth and the flabby tissue in anterior region was marked intraorally with an indelible pencil. The maxillary custom tray was reinserted to transfer the mark to the impression surface. A window was then created around this mark in the custom tray by removing impression material and acrylic resin using scalpel and acrylic trimming burs (fig 5). The modified tray and impression were reinserted in the mouth and light bodied polyvinyI siloxane (I-SiL, Spident, Korea) was syringed on the hypermobile tissues through the window to record them in minimally displaced form. Once the impression-material was set, it was removed and inspected for errors (fig 6). It was then disinfected and dispatched to dental laboratory for further processing.

When special impression techniques are not utilized to record flabby tissues, there are increased chances that the dentures made will be unstable and non-retentive. Making multiple holes on the flabby tissue surface of custom tray, making a window or providing relief by adding wax to decrease the pressure of impression material on the flabby tissue, helps to minimize the displacement of hypermobile tissues[8]. Utilizing these alternatives while making secondary impression can be useful in recording flabby tissues in their anatomic form[9].

CONCLUSION

The presence of flabby ridges in edentulous patients may cause difficulty in achieving stability and support in complete dentures. Many techniques have been suggested to manage this condition. Open window technique is simple, cost effective, and requires no additional clinical visits. This technique can be easily implemented in dental clinics and requires impression materials that are readily available. Modification of the custom tray with window in anterior region avoids displacement of the flabby tissue and hence improves stability and support of maxillary complete denture.

Conflict of Interest: None declared

Informed Consent: Informed consent was obtained from the participant to be included in the paper.

Authors' contribution: AI, performed the clinical technique, searched for literature and drafted the manuscript. MAL supervised the clinical technique, reviewed the manuscript and made corrections.

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LETTER TO EDITOR

Two-Front War: Female Nursing Staff Combating Covid-19 Professionally and Personally in Pakistan

Zeeshan Asim[1], Rizwan Iqbal[2] and Muhammad Imran Majid[3]

How to cite this article: Asim Z, Iqbal R, Majid MI. Two-front war: female nursing staff combating covid-19 professionally and personally in Pakistan. Ann Jinnah Sindh Med Uni. 2021;7(2):85-86

DOI: https://doi.org/10.46663/ajsmu.v7i2.85-86

The public perception of Nursing as a profession is associated with sympathy, responsibility, cultural upbringing, ethical practices, quality of healthcare, and patient satisfaction[1]. One of the foremost challenges of the Nursing profession is to maintain its overall public perception, especially in low-income countries like Pakistan, during a health emergency.

Perception is the view that the common public has about an individual, profession, or serving organization[2]. In case of Nursing as a profession, a constructive public perception has a great impact on available psychosocial and emotional support to people associated with it. While negative public perception of Nursing induces frustration, low spirits, and disorientation about self-image that can produce a repressive psychosocial environment within the Nursing profession predominantly in countries with limited resources[3].

According to the National Command and Operation Center (NCOC) in Pakistan, the first case of Covid-19 was recorded in Karachi on February 26, 2020. Consequently, the virus spread across the nation while a pandemic was declared globally due to its contagious properties. Until September 13, 2021, the Pakistan tally had reached 1,207,508 active cases of Covid-19, with 10,90,176 recoveries, and 26,787 deaths[4].

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These figures increased the psychological fear among general public and frontline nursing staff. Such chaos always puts nursing staff at high risk due to excessive workload which leads them to having negative ideas which create negative image among general public[2].

Nurses are considered to be a significant part of society especially during emergencies and epidemics, because of their potential role towards their patients, contemporaries, and the society. Covid-19 can be considered a decent opportunity to tap their hidden capacities especially in countries with low income[5,6].

In Pakistan, females are a crucial part of the healthcare system as more than half of all nursing staff in public sector healthcare systems are females, in all the Covid-19 dedicated healthcare hospitals across the country[7]. A common observation is that the female nursing staff sacrifice their own needs for combating the pandemic to showcase their higher levels of commitment[1]. In the process, they confront sentimental and psychosocial stress because of social isolation with to high health risk[8].

The spread of Covid-19 in Pakistan carries harsh challenges for all the female nursing staff, because of their dual responsibilities at home as well as in the workplace. On the professional front, these challenges are: (1) increased chances of risking their families' health due to high exposure to Covid-19 patients, (2) lack of changing facilities for female nursing staff across public sector hospitals which leave them unable to sanitize properly once they have finished their shifts, and (3) inadequate security in general hospitals especially while dealing with the emotionally charged attendants of deceased patients in the late-night shifts.

On the other hand, on personal front, the female nurses face numerous psychological and emotional

challenges such as: (1) counselling difficulties to the attendants of deceased; (2) domestic help not advisable due to the risk of transmission; (3) transportation scarcity due to lockdown; and (4) females with newborns and babies faced additional challenges of maintaining family responsibilities. Such challenges produce a repressive psychosocial environment for female nursing staff because cultural expectations assign the primary role of home responsibilities to females. Unpleasant emotions and psychological distress experienced by female nursing staff professionally or personally, requires timely psychological intervention in the shape of motivational and mediation therapy. Facilities with incentives at the professional front shall allow them to work in difficult circumstances.

This letter offers an insight into the unpleasant emotions and psychological challenges due to the clashes between the personal and professional responsibilities faced by female nursing staff in Pakistan during the pandemic[8]. The inaccessibility of potential support for their families put lives in jeopardy. Insufficient post-duty isolation techniques put their mental health at risk. Therefore, social security with proper health insurance should be offered to female nursing staff with standard working hour policy at both public and private sector healthcare systems. Furthermore, massive health reforms are required at the grassroots level in order to prepare authorities to confront any other health emergencies.

Authors' contribution: ZA and RI worked on introduction, methodology, results and proofreading, ZA and MIM worked on Data collection, interpretation, and write-up of manuscript, ZA conceived the idea, worked on discussion and proofreading.

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INSTRUCTIONS TO AUTHORS

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