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Editorial

Original Articles

Editorial

Addiction of Non-Smoking Tobacco and Vapes in Youngs

Mohsin Masud Jan
Editor

Pakistanis suffering from drug addiction nor about the effectiveness of the treatment offered by these facilities. However, there is no doubting the fact that drug addiction is a significant problem among our youth.

The introduction of vape has made nicotine intake easier. It can be carried in a pocket or a bag.

The drug landscape in Pakistan changed during the 1980s. The jihad against the then Union of Soviet Socialist Republics (USSR) in Afghanistan facilitated the availability of heroin and Kalashnikov in Pakistan. The USSR disintegrated in the end but the use of Pakistan as a route to smuggle heroin from Afghanistan to the rest of the world continued for at least another decade. Hard drugs are still available in Pakistan. Some of these are produced in Afghanistan.

According to a recent study, increased availability of drugs, peer pressure, and performance in examinations (grades pressure) are some of the major factors contributing to the prevalence of drugs among the youth in Pakistan.

In 2018, the statement from a cabinet minister that 75 percent of students in Islamabad's educational institutes were taking drugs raised much concern. The educational institutes were quick to deny that claim. That statement aside, Pakistan Social Sciences Review recently published a study on the causes of drug abuse among university students in Pakistan. It estimated that 7.6 million people in Pakistan were drug addicts. According to this study, 78 percent of these were male and 22 percent female. It is estimated that the number is increasing at approximately 40,000 a year. That study, too, has been challenged and many have said that the number of drug addicts was over-reported.

The recent discussion about Covid-19 in Pakistan ignores a potential link between socio-economic and societal stresses induced during these unusual times and the use of drugs. The year 2021 report issued by the United Nations Office on Drugs and Crime (UNODC) explains the Covid impact and drug trafficking on the global level.

The global sale of drugs has increased almost fourfold since 2017, from $80 million to $315 million. The report also says the impact of Covid resulted in an expansion of the drug economy through larger shipments, use of private jets, use of sea cargo and contactless delivery of drugs to the end-users. The report says that if the patterns continue, 43 percent of the population of low-income countries could be at the risk of drug use by 2030.

Numbers aside, the mere fact that the general prevalence of drugs has increased in countries like Pakistan is worrisome. It seems like checks starting from the family, societal and institutional levels are missing. As a nation we have entered a self-denial mode, not accepting that our youth are being lured to narcotics.

Drug abuse is now taking a heavy toll on the youth in all socio-economic backgrounds. They are leaving old-fashioned heroin and hashish for the new substances, such as ice and some liquid narcotics that they may mix in their vapes. "The use of vapes among the youth is considered a status symbol.

Teachers (of all grades) can play an effective role in keeping their campuses drug-free by arranging awareness campaigns and weekend camps with certified public and private health experts to inform the young about the hazards of drugs. Moreover, parents should give their consent for their children be randomly tested to check whether they have been taking drugs. This can be done through hair follicle screening or urine tests for drugs.

However, one cannot leave this entirely to the teachers; parents and family members too must play their role. They need to support their children in a way that they don't resort to drugs to escape from their worries and tensions. Moreover, parents should keep in mind that not all behavioural changes are associated with puberty.

As parents, we should talk with the child instead of shaming them over any mental and physical inability to perform. As a society, we try to avoid talking about depression and stress that our children face. This makes them vulnerable to the use of drugs that are common among their peers and now available through home delivery.

Instead of giving correct answers to the wrong questions, we need to ask the right questions and find their answers. Identifying the root cause of anxiety, depression and tension among youth is necessary. Parents should be vigilant, and the behaviour of the children should be discussed at parent-teacher meetings.

Finally, the sale and availability of non-smoking tobacco and vapes, etc., should be regulated just like the sheesha centres in Pakistan. Moreover, trained psychologists/ psychiatrists should be appointed at all colleges and universities. They can provide informed and reliable support to the youth to get rid of drugs.

Original Article

Evaluation of Surface Topography of A Brand of Stainless Steel K Files; An In-Vitro Study

Maryam Saeedullah[1], Syed Wilayat Husain[2] and Nausheen Ashraf[1]

ABSTRACT

Objective: This study was aimed at evaluating and comparing the surface topography of a brand of stainless steel K files (Mani, Inc. Japan), acquired from local markets in Rawalpindi, Pakistan and the United Kingdom.
Study Design: Comparative study
Place and Duration of Study: This study was conducted at the Institute of Space & Technology, Karachi from November 2021 to March 2022.
Materials and Methods: 20 Mani K-Files (Mani, Inc. Japan), (ISO#25), were acquired from Rawalpindi, Pakistan and were designated as Group A, while the same were purchased from London, UK and designated as the control Group B. Both the groups were evaluated and compared in terms of surface topography using scanning electron microscope and energy dispersive X-ray spectroscopy.
Results: Qualitative analysis of the tips and flutes of the files showed substantial mechanical defects in Group A as compared to the control Group B. EDX analysis confirmed the presence of machining debris and salt deposits on the surfaces of Group A files.
Conclusion: Surface topographical features of Group A files in our study were distorted. A close monitoring of the packaging conditions and machining efficacy of the locally available stainless steel K files is required to avoid untoward clinical occurrences during the course of clinical use.

Key Words: Manual K-files, scanning electron microscopy, surface profile

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INTRODUCTION

In modern- day dentistry, the role of surface finish and wear on the efficacy of endodontic files cannot be over emphasized [(1)] . It is extremely important to assess the quality of files before putting them to clinical use, as files are frequently removed from the packs and utilized without being inspected for the presence of mechanical flaws and debris [(2, 3)] Machining defects such as milling grooves, pits and areas of metal roll over have been documented in several studies in the past.

Qualitative evaluation of the surface topography of four different rotary systems by Yamazaki-Arasaki and Ricardo Julio revealed roughness on tips and cervical regions of the as received K3 files.[(4)]

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Likewise, Giovani Chianello and Vivayne Leal found manufacturing defects and debris on cutting edges of all brands of K files used in their study.[(5)] Arantes and Da Silva confirmed the presence of micro cavities, grooves and irregular edges on tips of Twisted files used in their study.[(6)] In addition, Roth and Scott Whitney confirmed the presence of viable microorganisms on unused files in their study.[(7)] Furthermore, Linsuwanont and Parashos determined significant biological contamination in fresh files under observation.[(8)]

The availability of forged and poorly machined files in local markets has been serving as a nuisance to clinicians since long.[(9)] A varied range of instruments has been reported to fracture during the course of clinical use, including Gates-Glidden burs, carbon steel or stainless steel (SS) endodontic files (K-files, Hedstrom files, barbed broaches, and reamers). It was postulated that once a micro crack originated in an instrument; it can propagate rapidly, causing cataclysmic failure. Uneven surfaces characterized by grooves, pits, notches and metal rollover increase the incidence of such failure. These surface irregularities may act as stress raisers, initiating crack formation during clinical practice. In general, surface defects influence the ultimate strength of the material and have a major bearing on the fatigue resistance of the instrument. Moreover, manufacturing process itself leads to work hardening, creating brittle regions within the alloy. Therefore, manufacturers have strived to

improve the mechanical properties of the instruments by altering the surface or alloy microstructure.

Furthermore, complications like post op pain and flare ups, owing to apical extrusion of instrumental and intra canal debris, have been reported in several studies. Cell mediated or humoral immunological responses may arise due to foreign bodies being introduced into the periradicular connective tissue at the time of instrumentation. Presence of viable microorganisms on unused files may further aggravate these complications. Basically, all kinds of physical or chemical irritants, that may disrupt the integrity and stability of periradicular tissues, may predispose to peri apical response.

In view of an increasing incidence of instrument fractures and endodontic complications reported in clinical practices in recent years, close monitoring of machining efficacy and improvement in the quality of endodontic files is need of the hour.[10] There is a general paucity of information in our local markets regarding the manufacturing processes involved in the fabrication of endodontic files. Widespread availability of counterfeit files makes it difficult to differentiate between the forged and original ones. This calls attentions towards close assessment of machining errors in these files before putting them to clinical use. Therefore, this study was aimed at evaluating and comparing the surface topography of a brand of stainless steel K files (Mani, Inc. Japan), acquired from local markets in Rawalpindi, Pakistan. Files of the same brand, acquired from the United Kingdom, were used as the control group.

MATERIALS AND METHODS

Samples included a total of 40 stainless-steel K files (Mani, Inc. 8-3 Kiyohara Industrial Park Utsunomiya, Tochigi, Japan) of identical sizes, (ISO#25, 21mm). Of these, 20 K files, were acquired from Pakistan and were designated as Group A (Lot# R151412100), while 20 K files were purchased from London, UK and designated as Group B (Lot# R110868200).

In order to prepare samples for viewing, files belonging to each group were individually mounted on stubs with conducting carbon tape.

Files were analyzed for surface imperfections and presence of debris using scanning electron microscope (TESCAN Mira-3; Field emission scanning electron microscope) at a magnification of 500x at 20 kV. [4, 11] Following qualitative assesment, elemental composition of surface deposits was determined using energy dispersive X-ray spectroscopy.

Afterwards, files were carefully sealed in sterilization pouches. They were then subjected to a single sterilization cycle reaching 134◦c, at a pressure of 30psi for 10 minutes. (Lisa, W&H Sterilization S.r.l Italy). The sterilized files were then re-examined, using scanning electron microscope, to detect any changes in surface finish.

RESULTS

Qualitative analysis of the two sets of files showed substantial machining defects in Group A while Group B files had minimal defects. On SEM examination, Group A files exhibited ill defined tips in 20% of the samples, as shown in Fig. 1A and 1C.

On the other hand, tips oberved in all of the specimens of Group B were well defined as can be seen in Fig. 1B and 1D. Moreover, the flutes of Group A files exhibited poorly machined cutting edges in 12% of the samples, as can be seen in Fig. 1E. While in Group B samples, the flutes had well defined cutting edges, as shown in Fig. 1F. Also, mechanical defects including grooves, notches and porosities were found in 44% of samples in Group A, as can be seen in Fig. 1G, 1H, 1I and 1J. On the other hand ,in Group B files, grooves were seen on the tip surfaces of only 2 (5%) of the samples in Fig. 1B and 1D. Surface notches and porosities were not found in any of the samples in Group B.

Apart from these machining defects, surface deposits were also observed in the as received Group A files. Fig. 2A denotes the contaminated area of a specimen belonging to Group A which was selected for EDX analysis. Composition derived from the enrgy peaks of the electromegnatic emission spectrum, shown in Fig. 2B, confirmed that the depostits were of metallic nature, with an Fe content of 69.56% by weight. Moreover, polishing fragments were found in Group A files, as shown in one of the specimens in Fig. 2C. EDX analysis of the contaminated area of the specimen exhibited distinctive peaks of alumium (82.8% by weight), as seen in Fig. 2D. The presence of salt deposists was also confirmed on the surfaces of as received Group A files. Fig 1E denotes the area of a specimen from which the energy spectrum shown in Fig. 2F was acquired. The composition obtained from the energy peaks of the marked area of the specimen confirmed the presence of Na to be 33.49% and Cl to be 17.05% by weight.

The examination of file surfaces after a single cycle of steam sterilization revealed substantial improvement in surface finish of the Group A files. The amount of debris present on the surfaces of the as received files, as shown in two of the specimens in Fig. 3A and 3B was markedly decreased after autoclaving, as can be seen in Fig. 3C and 3D.

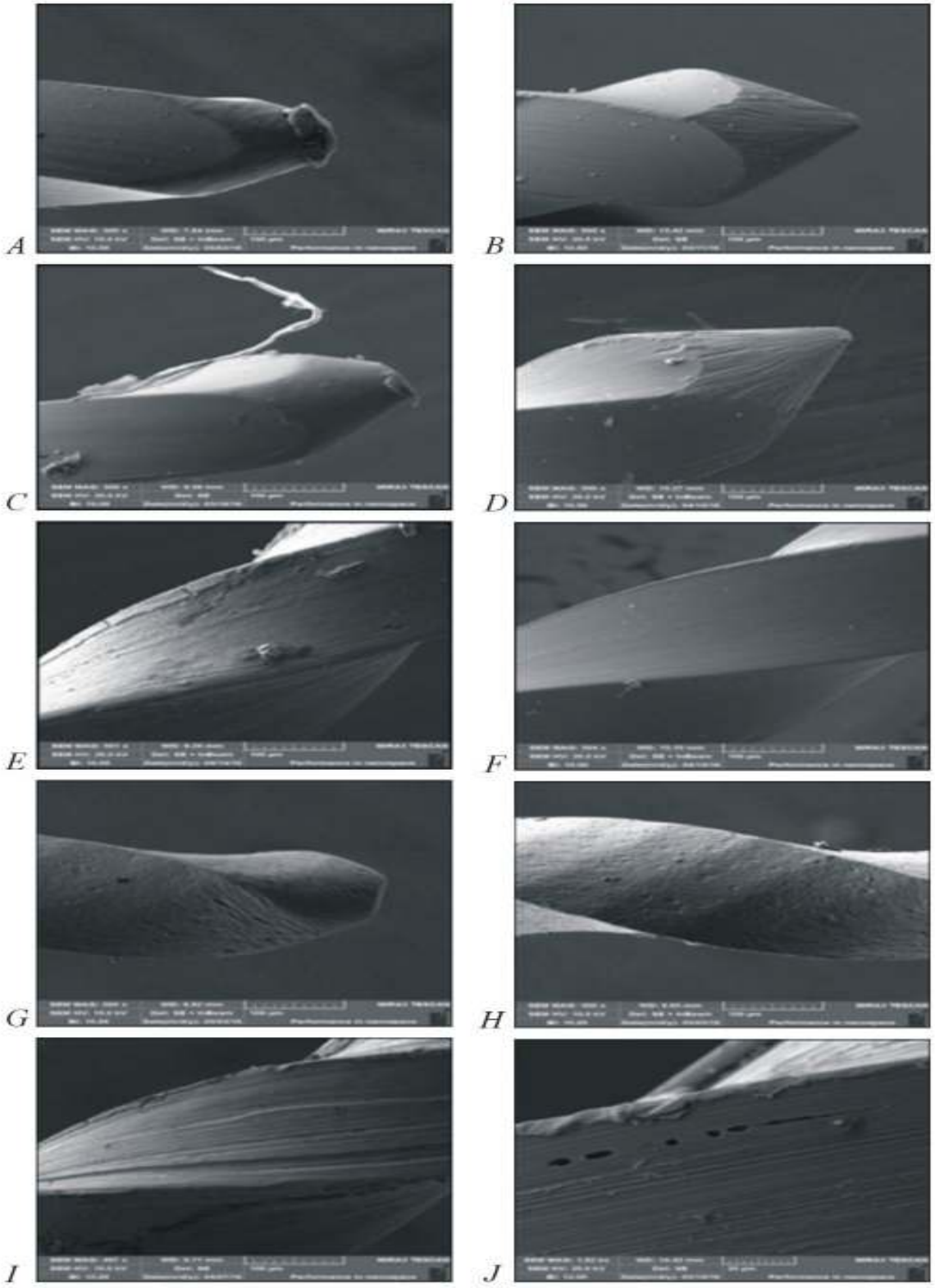

Figure No.1: Poorly defined tips in Group A files (A and C). Well defined tips in Group B files having grooves on their surfaces (B and D). Poorly machined cutting edges in Group A (E). Well defined cutting edges in Group B (F). Notches on the tips and flute surfaces in Group A (G and H). Grooves on a file surface in Group A (I). Porosities in a Group A file (J).

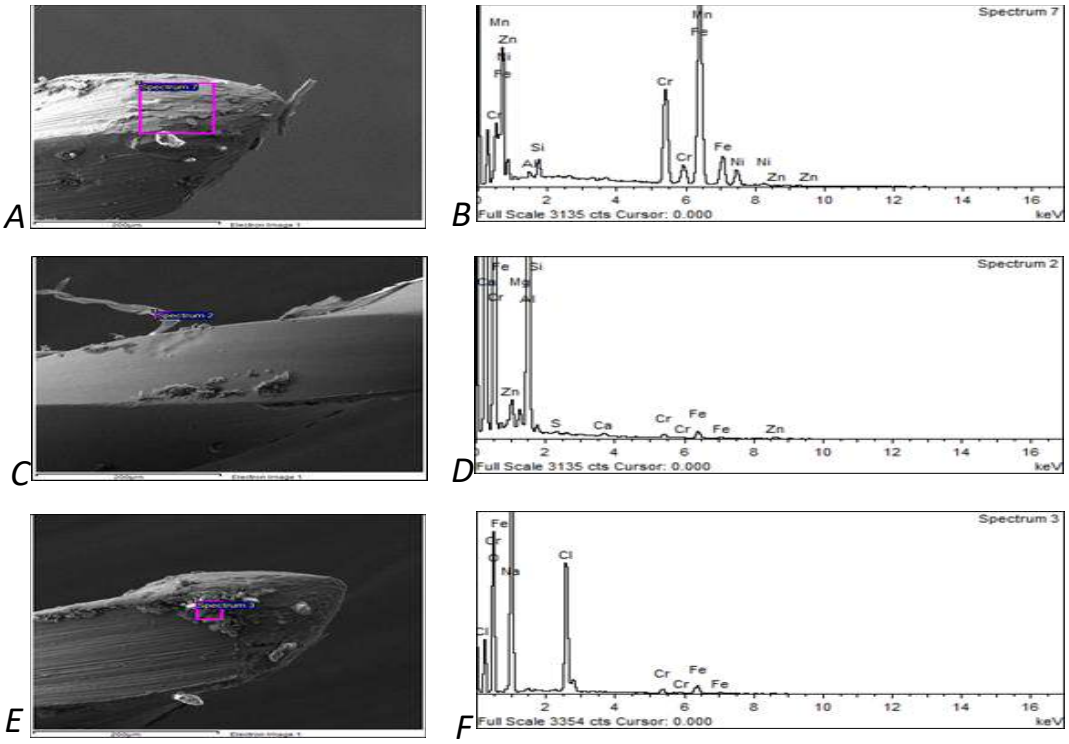

Figure No.2: Metallic deposits on a Group A file confirmed by the peaks of Fe on its elctromegnatic emssion spectrum (A and B). Polishing debris on a Group A file confirmed by the peaks of aluminium on its electromegnatic emission spectrum (C and D). Salt deposits on a Group A file confirmed by the peaks of Na and Cl on its elctromegnatic emission spectrum (E and F).

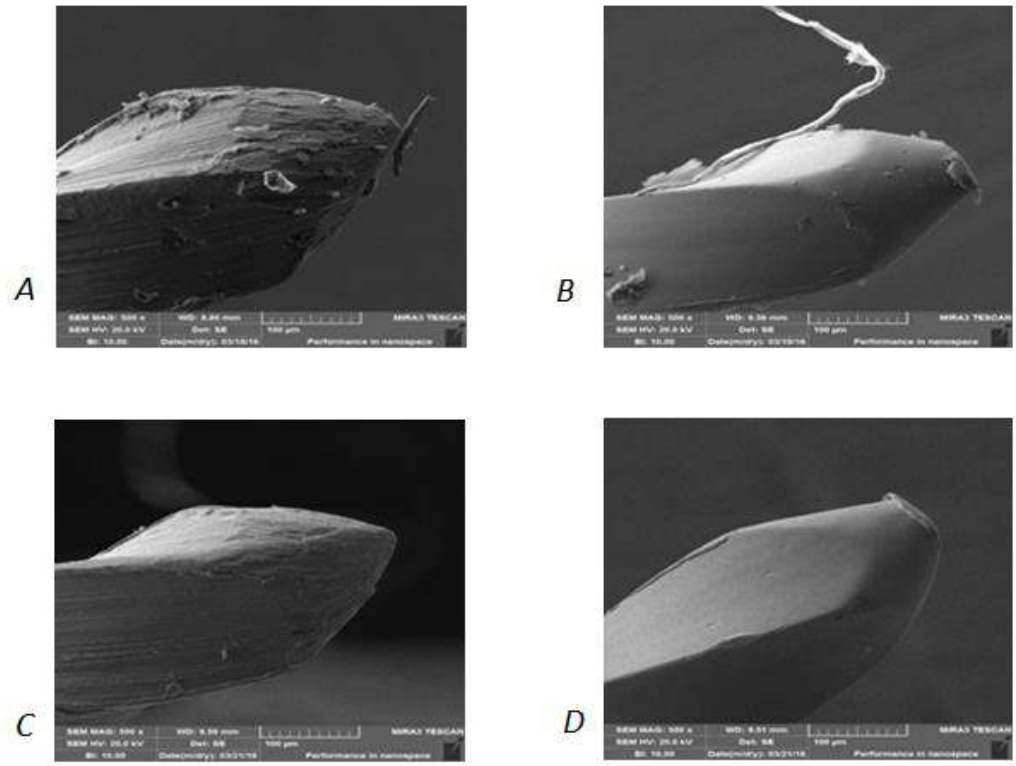

Figure No.3: Debris on the surfaces of as received Group A files (A and B). Group A files after steam sterilization showing marked decrease in surface debris (C and D).

DISCUSSION

SEM images of the tips and flutes of Group A files in our study revealed poorly machined tips and cutting edges which corroborated other researchers' evidences.[6, 12] It is a well-established fact that expensive alloying elements raise the overall prices of stainless steel alloys. However, machining elevates the expenditure of finished parts more than that of the material itself.[13] The time invested in machining each type of material is governed by the surface cutting speed in feet per minute of a processor.[14] This cutting speed variance is relatively because of the material's sulfur composition. Increased sulfur content in an alloy makes it more machinable.[14] For example, AISI 1212 carbon steel has 0.16% to 0.23% sulfur, and is deemed rather effortless to cut. On the other hand, annealed 304 stainless steels with only 0.03% sulfur have 55% lesser surface cutting speed than the carbon steel. One way to reduce the machine time and hence to save up the cost is by avoiding fine details in shapes. Fine detailing, particularly in narrow areas, requires smaller cutting tools which work slowly and hence are more expensive.[15] Poorly machined files observed in Group A in this study indicated towards compromised instrument quality on the manufacturers' part, essentially to reduce the machining cost.

The tip shape and symmetry of an endodontic file has a significant effect on its cutting efficiency.[16] Efficiency of a file is expressed in terms of the ratio of the work done to the input energy delivered to the file. An efficient file, with enhanced cutting ability requires lesser amount of time, torque, and/or pressure to achieve canal enlargement. Reduced amount of pressure, torque and time necessitates the prevention of file failure.[16] Ceyhanli and Turkun indicated that a pointed tip keeps a file pivoted within the canal enabling it to cut more uniformly with lesser abrasion, thus reducing the incidence of ledgings, zipping and transportations.[17] Hence, the likelihood of instrument failure is reduced by requiring less pressure and time for canal shaping.[17] Likewise, the importance of sharpness of flutes in file design, as seen in our control group, cannot be over emphasized. The maximum cutting force of sharp edged instruments minimizes the risk of breakage by significantly reducing the amount of stress required during canal shaping.[18]

Furthermore, surfaces of Group A files in our study exhibited mechanical defects like grooves, notches, and porosities, as well as debris, similar to a study performed by Arantes and Da Silva.[6] Mechanical defects on the instrument surface could act as local stress raisers and expedite the stress concentration process, ultimately leading to instrument failure due to coalescence of micro cavities.[19] Local entrenchment of dentinal debris in the machining grooves may also cause single overload clinical breakage of the files due to cumulative localized stresses.[19] The grooves and micro voids formed as a result of machining errors may also serve as potential sites for condensation of dentinal debris. On the contrary, smooth surfaces are less liable to the origination and growth of cracks.[20]

Moreover, metallic spikes and debris on the surfaces of unused endodontic instruments may be channeled to the root canal during chemo mechanical preparation, with a subsequent loss in working length.[21] During instrumentation, debris may also be extruded through the apical foramen, resulting in peri apical inflammation.[22]

In our study, marked decrease in surface deposits on Group A files, after being subjected to a single cycle of steam sterilization, highlights the importance of cleaning the files prior to use in dental practice. Since, file sterility cannot be guaranteed; a quick disinfection practice may be of remarkable benefit, as evidenced by Roth and Whitney. Common availability of counterfeit files in particular, makes it imperative to carefully monitor manufacturing defects and packaging conditions of the instruments before putting them to clinical use. However, the current study involved only one type of several files systems available on the market and therefore, the results obtained cannot be generalized. Hence, to draw a more decisive inference on this matter, further research is required with several brands of files in multiple sizes.

Within the limitations of this study, physical impacts of manufacturing defects, such as their effect on the flexural and torsional limits of the instruments could not be explored. Furthermore, investigations which may supplement valuable evidence to the significance of surface treatment and polishing techniques, in an effort to reduce manifestation of imperfections identified in this study are required.

CONCLUSION

The surface topographical features of Group A files in our study were distorted. While files of the same brand in control group showed very little or no distortions in comparison. Within the limitations of this study, it can be concluded that substandard counterfeit files are frequently being vended in our local markets. This may serve as a great nuisance to clinicians, as these files are hard to distinguish, unless tested and analysed.

Therefore, it is crucial to identify and curb the trade of such forged files. A close monitoring of the machining efficacy and packaging conditions of these files is required to avoid untoward clinical occurrences during the course of clinical use.

Author's Contribution:

Concept & Design of Study:	Maryam Saeedullah
Drafting:	Syed Wilayat Husain
Data Analysis:	Nausheen Ashraf
Revisiting Critically:	Maryam Saeedullah,

	Syed Wilayat Husain
Final Approval of version:	Maryam Saeedullah

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

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Original Article

Uterine Artery Embolization for Single Fibroid

Uterine Artery Embolization

Wajid Ali[1], Bushra Haq[2], Awais Ahmad[4], Tabeer Malik[3], Rabia Akram[5] and Shahid Malik[6]

ABSTRACT

Objective: Efficacy of uterine Artery Embolization for Single Fibroid
Study Design: Descriptive cross sectional study
Place and Duration of Study: This study was conducted at the Mayo Hospital, Lahore and Services Hospital, Lahore from May, 2019 to November, 2020.
Materials and Methods: A total of 37 patients with single fibroid of less than 10cm in size underwent UAE by Sildenger` s Technique. Both uterine fibroids were thrombosed with embosphere 500 micron and were followed for six months.
Results: In 4 patients procedure could not be completed. In one of these patients procedure was abandoned due to extreme anxiety and non-cooperation while 3 had arterial spasm resulting in cancellation of procedure. In 25 patients there was complete necrosis of fibroid and 3 out of these 25 patients conceived during follow up period. In 6 patients procedure resulted in partial necrosis of fibroid and in 2 patients there was complete failure of procedure. These 8 patients had to undergo myomectomy.
Conclusion: UAE is minimal invasive uterus sparing procedure for management of uterine fibroid with short hospital stay.
Key Words: Uterine fibroid, menorrhagia, pelvic pain, UAE (Uterine artery embolization)

Citation of article: Ali W, Haq B, Ahmad A, Malik T, Akram R, Malik S. Uterine Artery Embolization for Single Fibroid. Med Forum 2022;33(6):8-11.

INTRODUCTION

Uterine fibroids are the most common benign tumor of female reproductive system which arises from smooth muscle of uterus. 20 to 25 % of all women have uterine fibroid. 40% of menstruating female older than 50 years also have fibroids.[1] Black women have high incidence of uterine fibroids compared to Asian and white women.[2] Uterine fibroids can occur at any age between menarche and menopause. However incidence is most common between 35 to 49 years of age.

Uterine fibroids are classified by their location as submucosal, intramural and subserosal fibroids. Submucosal fibroids are least common. These are usually associated with heavy and prolonged menstrual flow as well as increased rate of miscarriage.

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Intramural fibroids usually present with pressure and mass related symptoms for example abdominal pain, distention and increased frequency of micturition due to compression of urinary bladder. Subserosal fibroids may present with pressure symptoms and the may be pedunculated.[3]

Common presentation of uterine fibroid is with menorrhagia, mass abdomen, pain, pelvic pressure symptoms, and infertility.[4-7] In case of pregnancy, there is increased probability of cesarean section.[8]

There are different treatment options for the management of fibroids. These include conservative management, medical management, surgery and UAE. Uterine artery embolization is the upcoming promising treatment option for management of fibroids. It saves the patient from surgical incision and comorbidities.[9]

UAE can be used as palliative treatment for managing tumor related symptoms by reducing the size of tumor. It also decreases the tumor vascularity hence addresses the volume loss of abnormal uterine bleeding. UAE treats fibroid related menorrhagia, pelvic pain, abdominal distention and urinary pressure symptoms.[10]

Contraindication for UAE is current pregnancy, pelvic inflammatory disease, very large size of uterus, pedunculated fibroids and other gynecological pathologies for example adenomyosis and neoplastic conditions. Considering the above mentioned conditions close cooperation between gynecologist and interventional radiologist is recommended.[11]

Pre-embolozation assessment of uterine size, number, location and size of fibroid is done followed by post-embolozation assessment. This is done by pre-embolisation cross sectional imaging either with ultrasound or magnetic resonance imaging (MRI).[9] Location and vascularity of fibroid have prognostic importance for UAE procedure.

MRI is the preferred but costly cross sectional imaging modality to demonstrate presence, number, size, location, internal character and vascularity of fibroid. It has better inter / intra observer reproducibility and multi echo, multi-planner capabilities.[12]

Cross sectional imaging with MRI also gives information regarding internal character and vascularity of fibroids due to signal variability on different MR sequences. It also determined other uterine pathology causing abnormal uterine bleeding for example adenomyosis Jha et al described the prognostic importance of location and vascularity of fibroid for UAE. Mizukami et al demonstrated that intermediate / high signals within fibroid on T2W sequence on MR imaging have better prognosis after embolization [13,14].

MATERIALS AND METHODS

This descriptive cross sectional study was conducted at Interventional Radiology suit Radiology Department Surgical Tower Mayo Hospital Lahore and Gynaecology department, Services Hospital, Lahore. Patients were referred for UAE from constituent Gynae hospitals of KEMU and Services Hospital Lahore. The study was conducted from 15-05-2019 to 14-11-2020.

Inclusion Criteria:

1. Single fibroid ≤ 10 cm
2. Normal complete blood count
3. Normal renal profile

Exclusion Criteria:

1Multiple fibroids
2. Adenomyosis
3. Uterine pathology other than fibroid

Data Collection: Patients were selected after fulfilling the inclusion criteria. Written informed consent was obtained from the patients after explaining them the whole procedure, complications and expected out-come. Patients were recruited for the study from constituent Gynae hospitals of KEMU and Services Hospital Lahore and were referred to Interventional Radiology suit Radiology Department Surgical Tower Mayo Hospital Lahore. Pre procedure abdominopelvic ultrasound and MRI was done for all patients to assess size, number, location, vascularity of fibroid, overall uterine size and to rule out any other gynecological pathologiy (adenomyosis, neoplasia) who are contraindicative for procedure. Data was collected on a predesigned performa. Patients with multiple fibroids, gynecological malignancies, adenomyosis were excluded from the study. 37 patients who fulfilled the inclusion criteria were included in the study. Patients were briefed about the procedure. This procedure was performed on GE bi planner angiography machine. Material required for the procedure included 5F sheath, 4/5 Fr catheter, micro catheter, 0.035, 0.018, 0.014 guid wire, embosphere 500 micron, percutaneous closing material. By Seldinger `s technique arterial access was obtained through right femoral artery. A non-selective pelvic angiogram was performed to map out pelvic arteries including bothuterine, ovarian, lumbar and collateral arteries supplying uterine fibroid and to find out arterial variants. The spiral arteries arising from both uterine arteries anastomose across midline and supplies fibroid, therefore both uterine arteries were thrombosed. First left uterine artery was catheterized by transaorta approach and thrombosed with embosphere 500 micrometer. Afterward same procedure was repeated in order to thrombose right uterine artery. Embolic agent (embosphere 500 micron) was diluted appropriately during procedure and catheter was flushed to minimize the risk of catheter occlusion. A complete pelvic angiogram was performed after both uterine arteries were thrombosed to confirm the complete thrombosis of uterine arteries. Patients experienced pelvic pain, cramping, nausea, vomiting for 2 to 5 days after the procedure..

RESULTS

UAE procedure was performed on 37 patients. Average age of patients was 34.9years while average pre procedure fibroid size was 6.4 cm. Table :1

Out of 37 patients UAE procedure could not be completed in 4 patients. In one of these patients procedure was abandoned due to extreme anxiety and non-cooperation while 3 had arterial spasm resulting in cancellation of procedure. Remaining 33 patients were followed for a period of one year by ultrasound and MRI. There was complete necrosis of fibroids in 25 patients and 3 patients conceived during this follow up period. In 6 patients symptoms were relieved but there was partial necrosis of fibroids.4 of these patients had calcified fibroids and in 2 patients size of fibroid was more than 8 cm. In 2 patients there was failure of the procedure. Table: 2

These 8 patients had to undergo myomectomy within 6 months of the procedure. Table :3.

The average hospital stay after UAE was 24 hours and after myomectomy was 72 hours.

Table No.1: Pre-Procedure fibroid size and ages of patients

Statistics	Age years	Pre-procedure fibroid size (cm)
n	37	37
Mean	34.97	6.489
SD	6.256	1.64
Minimum	21.00	4.00
Maximum	47.00	10.00

Table No.2: Post-procedure fibroid outcome

Outcome	Frequency		Percentage (%)
Partial Necrosis	> 8.0 cm	2	18.18
	Calcified Fibroid	4	
Complete necrosis	25		75.75
Failure of procedure	2		6.06
Total	33		100

Table No.3: Follow-up of post procedure patients

		Frequency (n)	%age
Follow up	Myomectomy	8	24.24
	Uneventful recovery	25	75.75
	Total	33	100.0

DISCUSSION

In 1995 Ravina et al reported first use of embolization to reduce intra operative blood loss during myomectomy and approximately 13000 to 14000 UAE are performed per year is USA.[15,16]

Initial studies showed that after successful UAE for menorrhagia the reduction in menstrual loss is 90 to 92% and relief in symptoms is 88 to 96% after one year of follow up.[17,18]

Two randomized studies compared UAE and surgical outcome. EMbolization versus hysterectoMY (EMMY) and the Randomized Trial of Embolization versus Surgical Treatment for Fibroids (REST) trial.[19,20,21,22]

The EMMY trial was multi centric randomized control trial that compared UAE and hysterectomy in 177 patients. The REST trial was multi centric randomized trial in which 149 patients underwent surgery hysterectomy/ myomectomy or UAE. In the REST trial patient who underwent UAE had quick recovery but more chances of redo of UAE [13% at 12 months, 32% after 6 months] due to incomplete infarction of fibroid resulting in recurrence of symptoms however both REST and EMMY trials provided similar results for example relief from symptoms, quality of life and patient satisfaction. Same thing happened in our study. 8 of the patient had to undergo myomectomy as there was complete failure of procedure in 2 patients and partial necrosis of fibroid in 6 patients. Similar results were shown by Manyonda IT et al, who concluded the study by stating that chances of re intervention are there after UAE but in those patients UAE is successful, the hospital stay is short with lesser comorbidities.[23] In EMMY and REST trials average hospital stay was 2 days for UAE and 6 days for surgery, indicative of quick recovery. In our study the average hospital stay after UAE was 24 hours and after myomectomy was 72 hours.

CONCLUSION

UAE is first line management option for uterine fibroid as it is safe , effective with short hospital stay and few major complications as compared to surgical procedure. It is minimal invasive uterine sparing radiological interventional procedure.

Author's Contribution:

Concept & Design of Study:	Wajid Ali
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Original Article

Incidence of Thyroid Cancer in Thyroid Swellings

Thyroid Cancer in Thyroid Swellings

Muhammad Aamir Jameel, Muhammad Muaaz Akram, Muhammad Imran Anwar, Haroon Javeid Majid and Muhammad Tayyab Naeem

ABSTRACT

Objective: To reduce the incidence of thyroid cancer among thyroid swelling, underwent thyroidectomies and to compare FNAC and histopathology reports.

Study Design: Retrospective case series study.

Place and Duration of Study: This study was conducted at the Department of General Surgery, Shaikh Zayed Hospital, Lahore from January 2018 to January 2021.

Materials and Methods: One hundred and fifty cases were included of thyroid swelling. Histopathological and FNAC reports were considered to get incidence of benign and malignant cases among thyroid swellings.

Results: Thyroid swelling patients were from 10-80 years and mean age was 39.3 years. 118 (78.66%) were females and 32 (21.33%) were males with 3.68:1 female to male ratio. Among 150 cases 142 cases were cytologically benign and 8 were malignant on FNAC based Bathesda category. On histopathology same results were observed as 142 cases benign and 8 cases were malignant (6 were female and 2 were males). However among benign lesions 95.77% were MNG on histopathological examination and 91.54% on FNAC and among malignant 75% (6 out of 8) were papillary thyroid CA.

Conclusion: In this study no difference is observed between FNAC and histopathological examination, but histopathology of the specimen gives incidence of thyroid malignancy. Incidence of thyroid malignancy is 5.33% among thyroid swellings.

Key Words: Thyroid cancer, FNAC, Histopathology

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INTRODUCTION

Thyroid malignancies reported rate is approximately 1%.[1] Thyroid cancer is second most common malignancy after breast cancer in Saudi Arabia[2], while third one in UAE[3] and 4th in Filipino women.[4] During the past three years dramatically incidence of thyroid has been increased with highest incidence in women.[5] Pakistan Punjab especially the southern belt is and endemic zone for iodine deficiency and most common etiology of thyroid CA is iodine deficiency. Follicular cancer is more common in iodine deficient areas.[6] Age standardization variations are present among different regions of the world like 0.8-0.5 for males and 1.9-19.4 for females per 100000 population.

In US the risk of developing thyroid CA is 1:120 for females while death rate is approximately 1 in 1700.

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Most common presentation is of neck swelling, moving on deglutination. TSH levels, USG neck and FNAC are routine investigations for thyroid swelling. Histopathological examination is mandatory tool for final diagnosis.[7] Rugu and Joham Vent showed that surgical biopsy are the essential tools in 1870.[1] Leyden in 1883 laid the foundation of FNAC method for thyroid swelling[2], but first diagnostic value of FNAC reported by Martin and Ellis in 1930.[3] Limitations of FNAC in detecting different etiologies of thyroid swelling are ranging from inadequate sample, faulty sampling techniques, less knowledge regarding the pathology and overlapping of cytological features of benign and malignant ones.[4] For thyroid malignancies the sensitivity and specificity and accuracy of FNAC is 52.6%, 86.6% and 79.1% respectively. Due to lack of cancer registry and population-based studies in Pakistan it is difficult to determine the incidence of thyroid CA but thyroid cancers are in rising trends.[6] It is all due to awareness about the disease and its treatment.[7]

To generate epidemiological hypothesis and for etiology of cancer geographical distribution of cancer is of great value. Information like this is much more valuable for global comparisons to be made. To find incidence of benign and malignant lesions in thyroid swelling on histopathology after thyroidectomy.

MATERIALS AND METHODS

This descriptive retrospective cross-sectional study was conducted in Shaikh Zayed Hospital Lahore Punjab from January 2018 to January 2021. Patients were selected through non purposes sampling technique. Patients were selected while considering inclusion and exclusion criteria. Patients of all ages with thyroid swelling and having normal thyroid function tests undergoing thyroidectomies were include and patients who refused to surgery, hyperthyroid or hypothyroid and have in-operable thyroid swellings and weren't fit for surgery were excluded from this study. Those who fulfill the inclusion criteria were thoroughly examined, investigated through USG, FNAC thyroid scan and CT scan where needed along with routine baseline investigations. Samples after thyroidectomies done by senior consultants were sent for histopathology which were too examined there by senior histopathologists. Data was fed and analyzed by using SPSS v23.

RESULTS

Patients of 10 to 80 years with mean age of 39.3 years are in this study. Female to male ratio is 3.68:1 which shows thyroid lesions were more common among females. Out of 150 cases on FNAC 142 cases were benign and 08 cases were malignant and among benign lesions multinodular goiter (130) was more common and among malignant papillary cancer is 4% and follicular is 1.33%.

Table No.1: Sex distribution of patients (n=150)

Sex	No.	%
Male	32	21.33%
Female	118	78.66%
Female to male ratio	3.68:1	

Table No.2: Incidence of benign to malignant lesion

Benign	142	94.66%
Malignant	08	5.33%
Ratio	1:0.05	

Table No.3: Classification of FNAC lesion

Classification	FNAC lesions (n=150)	
	Category	n=150
Benign (n=142)	Multinodular/ Colloid goiter	130 (86.66%)
	Benign colloid cystic lesion	10 (6.66%)
	Thyroiditis	2 (1.33%)
Malignant (n=8)	Carcinoma	08 (5.33%)
	Papillary	06
	Follicular	02

After histopathological examination of thyroidectomies specimen it is concluded that multinodular goiter were 136 cases, 05 cases of colloid cyst and one case of thyroiditis and malignant were 08 cases. Among malignant cases 75% was papillary cancer and follicular CA is 25%. The incidence of benign to malignant cases was 1:0.05 as benign cases are 142 and malignant cases are 08.

Table No.4: Histopathological diagnosis

Histopathological diagnosis	No. (n=150)
Benign	142
Multi-Nodular/Colloid goiter	136(90.66%)
Hashimoto's thyroiditis	00
Benign follicular adenoma	01(0.66%)
Colloid cyst	5(3.33%)
Malignant	08
Papillary	06(4%)
Follicular	02(1.33%)

DISCUSSION

In endocrine malignancies thyroid cancers are the most common ones. Lymphomas of thyroid are uncommon and other rare malignancies are the non-epithelial ones.[8] Over 30 years incidence of thyroid cancer increased remarkedly in United States[9] and it is believed that this is true incidence but with the advent of new diagnostic tools such as fine needle aspiration with biopsy and ultrasonography increased the diagnostic incidence of this disease.[10,11] Males were 21.33% (32 patients) and females were 78.66% (118 patients). Female to male ratio calculated were 3.68:1.

Frequencies of thyroid cancer varied in different regions of the world, in our region papillary canceris common (75%) malignant lesion. From USA Meir[12] and Hay et al showed a frequency of 90% of papillary CA, some other studies done in Iran[13], Yemen and Lahore[14] reported a frequency of 69.9%, 93.8% and 57.9% respectively. 39.3 years is the mean age of our patients presented slightly comparable with Shah et al[15] showing 36.8 years. 118 (78.66%) were predominancy is observed in females 75% as compared to 25% male, with ratio of 3.68:1 which is strengthen by other several studies[13,14,16] showing same results 2.4:1, 4:1, 3:1. Mostly patients are in third and fourth decade of life with quite similar results by Ahmad et al[14] Follicular cancer in our study is of 25% (2 cases) quite higher as compared to other studies showing 21.5%, 10% and 4.5% due to inter-observer variations and of small number of cases of follicular CA by Abdullah et al[17], Hundahl et al[18] and Abu Eshy et al respectively.

Increase in thyroid especially papillary cancer of about 15 fold is observed in South Korea in a study done from 1993 to 2011.[19] Limitation of FNAC observed are false negative and false positive results, its accuracy observed by Skider 90% and sensitivity of 68.75%[20] in another study done by Bloch on comparison of FNAC and Histopathology showed accuracy of 91.6%.[21]

CONCLUSION

Our study observed that 5.33% thyroid swellings present as malignant ones. So histopathological

examination of all the thyroidectomies sample should be done in spite of relying on pre op FNAC and ultrasonographic evidence of suspicious swellings.

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Original Article

Efficacy of Platelet Rich Plasma in Stretch Marks

Rich Plasma in Stretch Marks

Sabah Ibad, Seemab Khan, Shaista Umbreen and Sumeera Zulfiqar

ABSTRACT

Objective: Striae distansae are stretch marks with associated dermis atrophy. The objective of the present study was to check the efficacy of PRP as one of the treatment modality currently being used for improving SD lesions.

Study Design: A cross sectional study

Place and Duration of Study: This study was conducted at the Dermatology Department of Combined Military Hospital Multan from 28th July 2020 to 28th Dec 2020.

Materials and Methods: A total of 20 patients: 03 males and 17 females with SD were enrolled in the study. All patients were treated with PRP injections administered intra-dermally. Clinical improvement was graded based on the examination by dermatologists and by comparing the photographs taken before and after the treatment. In addition a fellow up was done to report any side effects associated with the therapy. The overall evaluation of the therapy was done by including patient's satisfaction rating.

Results: Twenty patients were included: 03(15%) were males and 17(85%) were females. Most of the patients included in study had Type IV skin, 05(25%) had Type III and 03(15%) had Type V skin. Excellent improvement following treatment was achieved in 6(30%) of the patients treated with PRP. Marked improvement was seen in 10(50%) of the participants. There was mild improvement in 3(15%) while in 1(5%) no improvement was observed. According to patient's evaluation 5(25%) of the patients graded the treatment as Excellent. 12(60%) was satisfied and 3 (15%) were unsatisfied with the treatment results. Overall the results showed that the platelet rich plasma is effective enough in treating stretch marks.

Conclusion: PRP is a safe and effective treatment for stretch marks.

Key Words: Platelet rich plasma, Stretch marks, Striae distansae, dermal scarring.

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INTRODUCTION

Stretch marks or striae distansae (SD) are well acknowledged common skin condition. It is rarely associated with medical complications but causes distress to the effected individuals[1]. It affects both genders, but it is likely to be more prevalent in females[2]. The etiology of the SD is still not clearly understood[3]. SD are linear dermal scars accompanied by epidermal atrophy[4]. There are a number of different hypothesis in literature that outline the underlying mechanisms that result in stretch marks.

These mechanisms include both physiological and pathological processes. For example the infections that are associated with release of striatoxin can result in tissue damage[5]. It can also occur in patients with chronic liver disease [6].

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Moreover increase in the levels of body steroid hormones like in Cushing's syndrome can be one of the underlying causes[3]. The local or systemic steroid therapy also has a catabolic effect on fibroblasts[7].

Regarding physiological processes mechanical effect of stretching that happens in adolescent growth, pregnancy, obesity has been proposed to rupture connective tissue framework[4]. Marfan syndrome is another condition associated with striae formation in pregnancy; it comes in context of genetic factors[8]. Decreased expression of collagen and fibronectin genes has also been associated with striae. Other causes include immunosuppression states like in HIV, Tuberculosis, Typhoid and pregnancy-induced hypertension medications[9].

Based on histology the stria is a scar[3]. The development of stretch marks is linked to wound healing[10]. In the initial stages, inflammatory changes may be prominent, however the epidermis is thin and flattened later on [11]. There is also deep and superficial lymphocytic infiltration around the vanules. The Collagen bands in reticular dermis get stretched and are aligned parallel to the surface of the skin[12]. Following early stages, with gradual loss of collagen and elastin there is thinning of the epidermis[13]. The frequency of SD is that it affects two and a half times more women. Among affected individuals 90% are pregnant females[14]. The sites that are commonly affected

include the thighs, upper arms, buttocks, and breasts in girls while outer aspects of the thighs and the lumbosacral region in boys [15].

There are number of treatment modalities being used for treatment of SD, however the results have been disappointing[16]. Only minor improvements were seen following most treatment regimes. These regimes include chemical peels, ultrasound therapy, microdermabrasion and tropical retinoid therapy. Some therapies have been reported to give better results e.g. fractional photothermolysis, pulsed dye laser, radiofrequency and fractional photothermolysis [17].

Platelets are known for their high concentration of growth factors[18]. The use of platelets started as a facial and quickly turned into O-shots, breast lifts, and lip augmentations. Recently platelet rich plasma is being used in rejuvenation of stretch marks[18]. It is a great non-invasive treatment for SD. It helps in generating new connective tissue for example collagen & elastin[19].The injection of platelet rich plasma (PRP) release platelets that stimulate collagen and helps skin to heal and look firm and younger. Autologous platelet rich plasma is also being explored and utilized for treatment of SD.[20]

As there is stigma associated with SD and patients are considering getting PRP treatment. In this study we evaluated the efficacy of PRP in treatment of stretch marks.

MATERIALS AND METHODS

The cross sectional study design was carried out at the Dermatology department, CMH, Multan from 28 July 2020 to 28 Dec 2020. Patients of ages in the range of 18 to 45 which presented with bilateral symmetrical SD (as inclusion criteria) were enrolled in the study. The patients with diabetes mellitus, Liver cirrhosis, malignancy, systemic infections, anemia or low platelet count were excluded. The patients which were on treatment with corticosteroids, aspirin or anticoagulants were also excluded. Following inclusion and exclusion criteria 20 patients were selected for further study. Complete history of the patients was taken and SD was assessed dermatologically for the type of skin and the site of the lesion present. Additionally some laboratory investigations including blood complete picture, prothrombin time and partial thromboplastin time were also taken into consideration.

Patients were injected with PRP every month for 3 sessions. PRP was injected intra-dermally in the quantity equals to 0.1Ml per injection. Antibiotics were topically used for 3 days following each session. The SD of each patient was examined for comparative analysis before therapy, for successive session and after 2 months after the last session. Following examination digital photographs were taken of the lesion using 16.2 megapixels camera (Sony cyber shot DSC-TX10; Sony Electronics Inc. Tokyo Japan). The request for dermatologist opinion was made to two specialists. On the basis of their opinion the % improvement in each patient was recorded. The before and after photographs of the session was used for this purpose. The quartile grading scale was determined as 1- worsening of the SD, 2- No improvement, 3- Mild improvement and 4- Marked improvement and 5- Excellent improvement. The patients were requested to grade the treatment efficacy as Excellent, Satisfactory/un satisfactory at final visit.

Data Analysis: All data was analyzed using Statistical Package for the Social Sciences (SPSS). Data was expressed as mean ± Standard Deviation and range. The outcome of the treatment was graded according to the degree of improvement and the percentage efficacy was calculated.

RESULTS

Twenty patients with symmetrical and bilateral SD were included in the present study. The demographic and clinical data is presented in the Table 1. Among 20 patients 03(15%) were males and 17(85%) were females. Most of the patients included in study had Type IV skin, 05(25%) had Type III and 03(15%) had Type V skin. Alba type SD was more prevalent in the study group as compared to the rubra type. The lesion sites of the patients included arms, abdomen, knees & thighs. Based on the assessment made on the comparative analysis of the photographs taken along with the dermatologist opinion the results showed that excellent improvement was achieved in 6 (30%) of the patients treated with PRP.

Table No. I: Demographic and Clinical Data of the Patients

Clinical data	No.	%
Age	25 ± 5.5	
Sex Male Female	 3 17	 15 85
Type of Skin Type III Type IV Type V	 5 12 3	 25 60 15
Type of SD Alba Rubra	 13 07	 65 35
Duration of SD Per months	8-96 months. Mean ± SD (41.09 ± 31.4)	
Site of SD Arms Abdomen Knees Thighs	 08 03 02 07	 40 15 10 35

Table No.2: Classification of the groups based on the quartile grading results by dermatologists

Degree of Improvement	No. of Patients	% efficacy
Worse	0	-
No improvement	1	5
Mild improvement	3	15
Marked improvement	10	50
Excellent improvement	06	30

Table No.3: Classification of the groups based on the degree of clinical improvement based on patient's feedback

Improvement	No. of patients	% Efficacy
Excellent	5	25
Satisfactory	12	60
Un Satisfactory	3	15

Marked improvement was seen in 10 (50%) of the participants. There was mild improvement in 3 (15%) while in 1 (5%) no improvement was observed. According to patient's evaluation 5 (25%) of the patients graded the treatment as Excellent. 12 (60%) was satisfied and 3 (15%) were unsatisfied with the treatment results. Overall the results showed that the platelet rich plasma is effective enough in treating stretch marks.

Mild pain was the only complain recorded by the patients following treatment. None of the patient presented with bruises, hyperpigmentation or any kind of skin allergies within 3 months following treatment.

DISCUSSION

Striae distansae is a very common problem with which patients present in dermatology department. Because of the associated stigma it causes negative impact on the psychology of the patient. PRP are obtained by double spin method (centrifugation) of the whole blood[21]. The exact role of PRP in treatment of SD is still unclear. There is evidence that the growth factors are released from the granular component of PRP. These factors have ability to improve extracellular matrix by initiating cellular growth and causing proliferation[22]. Particularly TGF- β1 has shown to improve both synthesis and deposition of collagen on in vitro analysis [4]. In another study it was identified that PRP has a dose dependent response that causes proliferation of human mesenchymal stem cell & fibroblast and also enhances production of type I collagen[23]. Moreover PRP generates hyaluronic acid that hydrates the matrix and consequently not only creates volume but also lubricates tissues[11]. Furthermore hyaluronic acid accelerates cellular proliferation in the extracellular matrix along with enhancing diameter of collagen fibers. Hence PRP with generation of hyaluronic acid also improves skin elasticity [12].

According to some recent studies expression of matrix metalloproteinases (MMPs) is also increased by activated PRP[3]. The MMPs are involved in dermal remodeling as they are capable of removing damaged collaged fragments from matrix. In this way MMPs pave way for deposition of new collagen[24]. The dermal remodeling is a process required for improvement of SD[25]. Hence in the current study the obtained % efficacy of PRP in treating SD is in accordance with the literature. Among 20 participants there was marked improvement in SD lesions of 16 patients. Besides this SD lesions in 3 patients also showed mild improvement. There was only one patient with no considerable improvement in SD lesions following PRP treatment. The results obtained in the present study correlate with previous studies on effectiveness of PRP on stretch marks. In microdermabrasion. The results of the study revealed significant difference in both treatment modalities with PRP showing better results[26]. Similarly in another comparative study of the treatment of SD, the efficacy of PRP was determined vs. Tretinoin. The same study shows results in accordance to the current study with PRP showing significantly enhanced % efficacy[27].

It has been proven that PRP is involved in the healing process. It stimulates the requirement, proliferation and differentiation of the cells. Based on the results of the current study and previous literature we can say that the enthusiasm for the utilization of PRP in dermatology should be expanded.

CONCLUSION

PRP injections have high %efficacy in treating SD. There were no side effects reported following treatment. Therefore it is a novel, easily applicable therapy with promising results.

Author's Contribution:

Concept & Design of Study:	Sabah Ibad, Shaista Umbreen
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Original Article

Spectrum of Antibiotic Sensitivity in Urinary Tract Infection Caused By Klebsiella Phenomena

Antibiotic Sensitivity in UTI

Ahmad Zeb Khan[1], Shandana Altaf[1], Najmuddin[2], Sayed Anwar Hussain[3], Akbar Khan[3] and Falak Naz[1]

ABSTRACT

Objective: To add valuable data that can assist the scientific community in the development of rational use of antimicrobial agents in treatment of UTIs due to klebsiella pneumonia.

Study Design: Descriptive study

Place and Duration of Study: This study was conducted at the Department of Nephrology, Khyber Teaching Hospital, Peshawar from 01-01-2021 to 31-12-2021.

Materials and Methods: Urine sample of patients received in Outpatient department of Nephrology, with signs and symptoms of UTI were sent for culture and sensitivity in the above-mentioned period. The bacterial species identification was performed by standard biochemical methods.

Results: We isolated 125 patients of klebsiella pneumonia associated UTI. Out of 125 patients studied, 40 (32%) were male and 85 (68%) were female patients. According to age wise distribution of klebsiella pneumonia culture positive UTI 10/125 (8%) were less than 25 yrs of age, 30/125 (24%) were between 25-50 yrs age group and 85/125 (64%) were above 50 yrs of age. The sensitivity pattern of antibiotics against Klebsiella Pneumonia were as follows; Amikacin 110/125 (88%), Meropenum & Imipenum 100/125 (80%) each, Fosfomycin 95/125 (76%), Gentamycin 60/125(48%), Cephperazon sulbactum 55/125 (44%), Pipercillin –Tazobactum and Nitrofurantoin 50/125 (40%) each.

Conclusion: Over all Klebsiella pneumonia is becoming increasingly resistant to different antimicrobial agent and subsequently it may become more difficult to treat such infections. Therefore, continuous surveillance and monitoring of multi drugs resistance organism is needed.

Key Words: Spectrum, Antibiotic Sensitivity, Urinary Tract Infection, Klebsiella Phenomena

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INTRODUCTION

Urinary Tract Infection is among the most common type of bacterial infection worldwide [1] . Urinary Tract Infection is an inflammatory process caused by the invasion of pathogenic microorganism in the urinary tract, it has been estimated that in USA alone on average 10 million people visits outdoor departments for treatment of UTI, annually [2,3].

The incidence of UTI is more in women then man and it was reported that up to 60% of women will have one episode of UTI at some time during their life. The reported UTIs among pregnant ladies are also significant upto 18%[4,5]. As a common opportunistic pathogen, klebsiella pneumonia causes a wide range of infectious diseases including UTIs and soft tissue infections, bacteremia and pneumonia [6,7] .

As a result of the abuse and misuse of multiple antibiotics, we are now seeing lot of resistance to different antimicrobial agents and it is making difficult to treat such resistant cases [8,9,10] .

ESBLS in klebsiella pneumonia often causes resistance to majority of Cephalosporin which are responsible for the therapeutic failure of these agents[11]. In addition, ESBL associated plasmids often carry genes encoding and co-resistance to other antibiotics resulting in multi drug resistance phenotypes [12] that is why klebsiella pneumonia is mostly resistant to commonly prescribed drugs like, Ampicillin, Amoxicillin, Cephalosporin, Amino glycosides, B. lactam Antibiotics [13,14] .

Klebsiella pneumonia is the second most frequently isolated species from UTI after E.coli [15,16,17] . This gram negative organism is one of the most important cause of nosocomial infection in developed countries and one of eight most important cause of infection in developing countries [18,19,20] .

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Unlike most developed countries, we unfortunately do not yet have nationwide surveillance program for monitoring antimicrobial resistance. However surveillance studies of bacterial resistance are very important to control the spread of resistant bacteria species in our population. Therefore the objective of the local study was to add valuable data that can assist the scientific community in the development of rational use of antimicrobial agents in treatment of UTIs due to klebsiella pneumonia.

MATERIALS AND METHODS

This is a descriptive study conducted over a period of one year from 1-1-2021 to 31-12-2021 in the department of Nephrology Khyber Teaching Hospital Peshawar. The study was approved by the Institutional Ethical Committee.

Urine sample of patients received in Outpatient department of Nephrology, with signs and symptoms of UTI were send for culture and sensitivity in the above mentioned period. Urine sample received in the microbiology laboratory from these patients were plated by semi-quantitative culture method on blood agar and macconkey's agar and incubated at $37^{O}C$ overnight. The isolates obtained from the samples with significant bacteremia with the background of relevant supportive clinical features of UTI were processed further. The bacterial species identification was performed by standard biochemical methods[23]. Inclusion criteria used to define patients with UTI caused by klebsiella pneumonia was:-

1. Sign and symptoms of UTI (for example dysuria, urgency, suprapubic tenderness, fever and hematuria or pyuria).
2. Urine culture positive for Klebsiella Pneumonia >10s colony forming units/ml in a clean-catch, midstream.

RESULTS

In the cohort of patient who underwent urine C/S testing for symptomatic UTI in the mentioned one year period, we isolated 125 patients of klebsiella pneumonia associated UTI.

Out of 125 patients studied, 40 (32%) were male and 85 (68%) were female patients, with male to female ration of 1:2 (table-1)

Patient ages were in the range of 14 years to 80 yrs with Mean of 52 years.

According to age wise distribution of klebsiella pneumonia culture positive UTI 10/125 (8%) were less than 25 yrs of age, 30/125 (24%) were between 25-50 yrs age group and 85/125 (64%) were above 50 yrs of age (table-2).

To see the spectrum of antibiotics sensitivity against Klebsiella Pneumonia we found that this pathogen was sensitivity to mostly injectible antibiotics and limited sensitivity to oral medication. The sensitivity pattern of antibiotics against Klebsiella Pneumonia were as follows; Amikacin 110/125 (88%), Meropenum & Imipenum 100/125 (80%) each, Fosfomycin 95/125 (76%), Gentamycin 60/125(48%), Pipercillin – Tazobactum and Nitrofurantoin 50/125 (40%) each, Cephperazon sulbactum 55/125 (44%), Ceftrixone 50/125 (40%), Trimethoprim – Sulphamethoxazole 35/125(28%), Tobramycin 30/125 (24%), Ciprofloxacin and Levofloxacin 20/125 (16%) each, and Norfloxacin 15/125 (12%) only (table-3).

Table No.1: Distribution of patients on gender basis.

Characteristics	Number	%age of total
All patients Male/ Female	125 40 85	100% 32% 68%

Table No.2: Distribution of patients according to age wise

No	Age Group	No of patients	% age
1	- Upto 25 yrs	10	8%
2	- 25-50 yrs	30	24%
3	- More than 50 yrs	85	68%

Table No.3: Sensitivity Pattern of Antibiotics against Klebsiella Phenomena

No.	Antibiotics	Number of Patients	% age of sensitivity
1	Amikacin	110	88%
2	Meropenum	100	80%
3	Imipenum	100	80%
4	Fosfomycin	95	76%
5	Gentamycin	60	48%
6	Cephperazon sulbactum	55	44%
7	Pipercillin Tazobactum	50	40%
8	Nitrofurantoin	50	40%
9	Ceftrixone	50	40%
10	Trimethoprim Sulphamethoxazole	35	28%
11	Tobramycin	30	24%
12	Ciprofloxacin	20	16%
13	Levofloxacin	20	16%
14	Norfloxacin	15	12%

DISCUSSION

E coli and Klebsiella pneumonia are two of the most common pathogens associated with high morbidity and mortality among Gram-negative bacilli, especially in UTI [22] . Klebsiella pneumonia was the second most common pathogen in Pylonephritis in females and upper UTI in males during various studies [23] .

This study was done to determine the antibiotics susceptibility pattern of Klebsiella pneumonia isolated

in urine sample. In our cohort of patients UTI in females were 68% as compared to 32% male patients, as shown in table-1. This is consistent with various studies reported earlier[24, 25, 26].

It has been documented that 50-60% of women develops UTI in their life time. Some of the common causes might be close proximity of urethra to anus, structurally short length of urethra, adherence of urethral epithelial mucosa with the mucopolysacrides lining , repeated UTIs with sexual intercourses and pregnancy related complications[27].

In our study regarding age distribution among these patients, it was shown that Klebsiella pneumonia positive UTI were 68% (85/125) in above 50 years of age group followed by 24% (30/125) in the age group of 25-50 years. Only 8% (10/125) were younger than 25 years of age.

To find out the sensitivity pattern of Klebsiella pneumonia related UTIs to various antimicrobial available, it was shown that up to 88% (110/125) had sensitivity to Amikacin, 80% (100/125) were sensitive to Meropenum & Imipenum each, while 76% (95/125) were sensitive to Fosfomycin only.

While the rest of antibiotics were showing low level of sensitivity to Klebsiella pneumonia associated UTIs. The rest of pattern in our study showed 48% (60/125) to Gentamycin, in 44% (55/125) to Cephperazon sulbactum, 40% (25/125) to Pipercillin Tazobactum, Ceftrixone & Nitrofurantoin each. Overall resistance to various generations of cephalosporin and Beta Lactam is very high on account of the production of Extended Spectrum Betalctamase (ESBL). Over the past 2 decades, there has been a wide use of extended broad spectrum antibiotics to treat these resistant forms of UTI. Our results were in keeping with a study from Iran by Jamshed Ayatullahi at el[28]. In this study susceptibility was 100% to Amikacin which was closely followed by Meropenum and imipenum 88% each. It is now well recognized that rates of uropathogen having resistance to multiple drugs have increase exponentially in recent years[13].

Regarding the more commonly used antibiotic in our community the susceptibility to Trimethoprim Sulphamethoxazole was 28% (35/125), Tobramycin was 24% (30/125) and Ciprofloxacin & Levofloxacin had only 16% (20/125) sensitivity to Klebsiella pneumonia. The lowest susceptibility was shown to Norfloxacin which was 12% (15/125) only.

The fluroquinolones and Cefixime are usually the two most commonly prescribed empirical antibiotics for UTI in OPDs but there overuse and misuse has led to the emergence of significant resistance to Klebsiella pneumonia against these antimicrobials as shown in our study.

Over all Klebsiella pneumonia are becoming increasingly resistant to different antimicrobial agent and subsequently it may become more difficult to treat such infections[29,30]. Therefore continuous surveillance and monitoring of multi drugs resistance organism is needed and highly recommended to reduce the prevalence of such difficult to treat infections.

CONCLUSION

E coli and Klebsiella pneumonia are two of the most common pathogens associated with high morbidity and mortality among Gram-negative bacilli, especially in UTI. Over all Klebsiella pneumonia is becoming increasingly resistant to different antimicrobial agent and subsequently it may become more difficult to treat such infections.

Therefore continuous surveillance and monitoring of multi drugs resistance organism is needed and highly recommended to reduce the prevalence of such difficult to treat infections.

Author's Contribution:

Concept & Design of Study:	Ahmad Zeb Khan
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Final Approval of version:	Shandana Altaf, Ahmad Zeb Khan

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

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Original Article

The Emotional Impact of Infertility on the Psychology of the Infertile Couple

Kaweeta Kumari[1], Sanower[2], Nand Lal Dhomeja[3], Nazia Hashim[4], Gulnaz Ayaz[1] and Shaheen Zafar[5]

ABSTRACT

Objective: To evaluate psychological effects on the male and female patients presenting with Infertility.
Study Design: Cross-Sectional study
Place and Duration of Study: This study was conducted at the Sindh Institute of Reproductive Medicine, Karachi from April 2021 to October 2021.
Materials and Methods: Data was collected by simple convenience sampling method after informed consent. All male and female patients presenting with complaint of Primary or Secondary Infertility were included. Patients with already diagnosed Psychological disorders were excluded. A total of 312 patients mostly couples were interviewed on DASS21 questionnaire.
Results: Total 312 patients; 186 (59.6%) were females & 126 (40.4%) were males. Mild depression in 43 (13.8%), 86 (28.5%) had moderate while 32 (10.3%) had severe depression with female predominance. The P value was<0.001. Mild anxiety in 52 (16.7%), moderate in 52 (16.7%) & severe in 45 (14.4%). P value was <0.001. Mild stress was seen in 37(11.9%), 30 (9.6%) had moderate & 21 patients (6.7%) had severe stress P value was 0. 026..
Conclusion: Infertility affects the quality of life &personality of the couple. It is a major life event that brings about social and psychological problems & is responsible for low self-esteem and fear for tomorrow.

Key Words: infertility, psychology, male, female, depression, anxiety, stress.

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INTRODUCTION

The World Health Organization defines infertility as the "the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse". It affects 9 % of couples of reproductive age throughout the world. [1]

Infertility affects the personal and marital life of couples exposing people to extreme psychological stresses which results in loss of self-confidence & self-respect.

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The couples blame each other for childlessness. As time passes, the stressed infertile couples are eventually a prey to depression and anxiety .[2]

Infertility is not only a social embarrassment but it has negative effects on treatment as well. Obstetricians should consider that reducing mental and social problems may lead to increased treatment satisfaction and fertility.[2]

Infertility is an important cause of social isolation amongst couples who avoid their family and friends. Infertile couples most commonly suffer from anxiety. [3]

Researchers have identified that infertility makes a woman dependent and more anxious than fertile women. They lose self-esteem and are very concerned about their femininity and reproductive capacity as they are childless. Not only women, but males are also affected. This emotional stress is a cause of impotence in males. This is a type of chemical reaction. Stress affects ovulation by disturbing neurotransmitters and hormones like catecholami; nes, prolactin, adrenal steroids, endorphins, and serotonin. This is a vicious circle and further aggravated by habitual abortion or delay in ability to conceive. As in many sections of medicine, the role of counselling is outstanding as part of the initial infertility evaluation, a complement to treatment and is an adjunct in patient understanding about the nature and acceptance of their infertility related problems. To reduce stresses among infertile

couple, they are asked to adopt a child. The statistical evidence is against this concept of pregnancy after adoption but in experience, a small percentage of patients have been successful which supports the hypothesis that stress plays a vital role in modulating the neuroendocrine status of the infertile couple. So in conclusion, a reduction in stress can be beneficial as it alters the neuroendocrine status of the infertile couple.[4]

Researches carried out on the relationship between infertility and mental state has revealed that stress affects the infertility treatment as well. Patients who suffer from depression and anxiety have poor pregnancy outcomes if they are planned for assisted reproductive techniques.[5]

Stress disturbs the reproductive physiology of the couple. Stressed women have irregular cycles & do not ovulate normally leading to problems with ovulation &inability to conceive. Infertile stressful males may have an abnormal semen analysis with oligospermia reduced motility and morphologically abnormal sperms when compared to semen analysis of males without stress. Women are more psychologically stressed than males not only because of their inability to conceive but also their concerns for infertility treatment which includes taking gonadotrophic hormones, investigations, invasive interventions and procedures. They exhibit hostile behavior and cognitive defect. The reproductive performance of an infertile woman is reduced if stress levels are high during her menstrual cycle ultimately resulting in failure to form fertilized oocytes.[6]

Infertile couples who undergo assisted reproductive techniques (ART) do suffer from psychiatric disturbances. One of the reasons could be that ovulation inducing drugs like clomiphene, leuprolide, and gonadotropins can cause anxiety, depression, and irritability.[7]

The psychological distress promotes oxidative stress and inflammation in the uterus which affects the fertility potential of the patient. The adoption of certain psychological interventions may affect pregnancy outcome.[8]

Infertile couples are stressful. The rising incidence is because of late childbearing. This is because it affects psychological health of the married couple and affects quality of married life with fears of divorce and sexual disorders leading to despair and depression. Also, the latest treatment approaches and technologies like IVF, ART for infertility are stressful if unsuccessful.[9]

Psychological consultation like mindfulness based cognitive group therapy can be helpful for infertile stressed patients and can improve chances of pregnancy.[10]

This paper is about how the stress of infertility can manifest as psychological changes in the infertile couple.

MATERIALS AND METHODS

This study was planned on infertile couples attending the out patients department at Sindh institute of Reproductive medicine, a busy IVF center in Karachi from 10th April till 10th October 2021. It was approved by the Ethical review committee with IRB Reference number ERC/S2O/P-006. The data was collected by using a simple convenient sampling method. All patients who attended infertility OPD of SIRM were specifically asked to get enrolled in this study after informed consent. A total of 312 patients calculated by using the formula $n=z^2(1-P)/d^2$ were interviewed which mostly included couples. Inclusion criteria were all male and female patients presenting with the complaint of Primary or Secondary Infertility. The Eligibility Criteria also included willingness to participate in the study. The exclusion criteria included already diagnosed Psychiatric disorders - mood (affective), delusional & behavioral disorders & those unwilling to participate in the study.

In total, 312 patients with either primary or secondary infertility were interviewed. Couples (male and female) were interviewed separately on DASS21 questionnaire. Some of the couples and especially the male partners refused to be interviewed.

The DASS 21 is a 21 item questionnaire which has been planned to assess the intensity of Depression and Anxiety and based on the responses, scoring is done. Accordingly, the DASS assesses the severity of a patient's symptoms and means by which a patient's response to treatment can also be measured. The letters D (Depression), A (Anxiety) and S (Stress), indicate the scale to which each item belongs. For each scale (D, A & S) sum the scores for identified items. Because the DASS 21 is a short form version of the DASS (the Long Form has 42 items), the final score of each item groups (Depression, Anxiety and Stress) needs to be multiplied by two (x2). This questionnaire is available in both English and Urdu versions.

RESULTS

A total of 312 patients have been included. Out of 312 patients, 186 (59.6%) were females while 126 (40.4%) were males (Table 1). Majority of females were in the age range of 25 – 35 years. Depression: Out of 312 patients, 43 (13.8%) of patients had mild depression, 89 (28.5%) had moderate while 32 (10.3%) had severe depression & 21 patients, (6.7%) experienced extremely severe depression. 31 females (16.67%) and 12(9.52%) male patients had mild depression, 58 females (31.18%) and 31 male patients (24.60%) had moderate depression, 24 female (12.90%) and 8 male (6.35%) patients had severe depression and 20 female (10.75%) and 1 (0.79%) male patient had extremely severe depression. P value was < 0.001. Female predominance in depression was seen.(Table 2 and Table 3).

Anxiety: Out of 312, 92(29.5%) patients were normal. Mild anxiety was observed in 52 (16.7%) patients, Moderate anxiety in 52 (16.7%) and Severe anxiety in 45 (14.4%) while 71 (22.8%) patients had extremely severe anxiety. Gender analysis revealed that 36 (19.35%) out of 186 female patients were normal while 56 (44.4%) out of 126 male patients were normal. 28 (15.05%) females and 24(19.05%) male patients had mild anxiety, 37(19.89%) female and 15(11.90%) male patients had moderate anxiety while 27(14.52%) female and 18(14.29%) male patients experienced severe anxiety. 58(31.18%) female and 13(10.32%) male patients had extremely severe anxiety. So, females outnumbered males in anxiety as well. P value was < 0.001. (Table 2 and Table 3).

Stress: Out of a total of 312 patients, 218 (69.9%) were normal. Mild stress was experienced by 37 (11.9%) patients, 30 patients (9.6%) had moderate stress while severe stress in 21 patients (6.7%). A total of 118 (63.4%) females and 100 (79.37%) males were stress free. 26 (13.98%) females and 11 (8.73%) males had mild stress, 21 (11.29%) females and 9(7.14%) males had moderate stress while 15 (8.06%) female and 6 (4.76%) male experienced severe stress. 6 (3.23%) female patients and no male patient experienced extremely severe stress. P value was 0.026. (Table 2 and Table 3.

Table No.1: Male and female distribution in the study

	Frequency	**Percent**
Females	186	59.6
Males	126	40.4
Total	312	100.0

Table No.2: Depression, anxiety and stress in patients.

Depression	Normal	Mild	Moderate	Severe	Extremely Severe	P - value
Male	74	12	31	8	1	< 0.001
Female	53	31	58	24	20	
Anxiety						
Male	56	24	15	18	13	< 0.001
Female	36	28	37	27	58	
Stress						
Male	100	11	9	6	0	0.026
Female	118	26	21	15	6	

Table No.3: Depression, Anxiety and Stress Scale (DASS21) - For each statement below, please circle the number in the column that best represents how you have been feeling in the last week.

	Statement	Did not apply to me at all	Applied to me some degree or some of the time	Applied to me a considerable degree or a good part of the time	Applied to me very much or most of the time
1.	I found it hard to wind down.	0	1	2	3
2.	I was aware of dryness of my mouth.	0	1	2	3
3.	I could not seem to experience any positive feeling at all.	0	1	2	3
4.	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion).	0	1	2	3
5.	I found it difficult to work up the initiative to do things.	0	1	2	3
6.	I tended to over react to situations.	0	1	2	3
7.	I experienced trembling (e.g. in the hands).	0	1	2	3
8.	I felt that I was using a lot of nervous energy.	0	1	2	3
9.	I was worried about situations in which I might panic and make a fool of myself.	0	1	2	3
10.	I felt that I had nothing to look forward to.	0	1	2	3
11.	I found myself getting agitated.	0	1	2	3
12.	I felt that I had nothing to relax.	0	1	2	3
13.	I felt down hearted and blue.	0	1	2	3
14.	I was intolerant of anything that kept me from getting on with what I was going.	0	1	2	3
15.	I felt I was close to panic.	0	1	2	3
16.	I was unable to become enthusiastic about anything.	0	1	2	3
17.	I felt I was not worth much as a person.	0	1	2	3
18.	I felt that I was rather touchy.	0	1	2	3
19.	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat).	0	1	2	3
20.	I felt scared without any good reason.	0	1	2	3
21.	I felt that life was meaningless.	0	1	2	3

DISCUSSION

All males and females have a universal right to parenthood which is happiness. When the couple is unable to conceive, there arises the element of anxiety & then depression. There is not only marital discord but also primary relationship with a spouse, family member or a friend may suffer. Infertile couples get depressed and avoid social interactions. They exhibit frustration, loss of self-esteem . .[11]

It is estimated that 4.4% of the world's population suffer from depressive disorder, and 3.6% from anxiety disorder. According to the latest reports of WHO, more than 18% of people have depression between 2005 and 2015and around 80% belong to low- and middle-income countries. [12]

The latest WHO report in 2020 states that 48 million couples and 186 million individuals live with infertility globally.

A WHO evaluation of Demographic and Health Surveys (DHS) data (2004), estimated that more than 186 million ever-married women of reproductive age in developing countries desperately wished to be mothers with an underlying element of depression.[13]

A study was conducted among women with recurrent miscarriages & it was observed that 45% women were victims of anxiety and 37% suffered depression. Although major depression alone did not affect female fertility but it lowered the chances of male partners to achieve conception.[14]

In the developing world, many studies carried out in Iran, Kuwait and Turkey have supported social reasons as a cause of psychological problems with infertility which is highlighted in our study as well. Infertility is a social stigma for females and the fact that distressed women are those who hear from their husbands and families highlighted in our study as well.[15,16]

Many studies indicated that incidence of major depression is higher among infertile than couples and ranges from 15-54% and significant anxiety levels were seen in 8-28% of infertile couples. In our study, the levels of anxiety, depression and stress are all high in infertile women which are in contrast to a study in Iranian women by Griet et al where infertile women were more anxious than infertile men while there is no difference according to levels of depression. [17]

The inference of our study that males have less psychological distress than females is supported by a postal survey by Edelmann et al. & Wichman et al. who assessed infertile couples by a modified Impact of Events Scale26 with 50.3% of men and 66% of women.[18]

Both men and women are emotionally and sentimentally disturbed being childless. A woman declares herself complete only if she is a mother & 50% of infertile women address childlessness as the most challenging issue of their lives. The infertility pain that is experienced is described as equivalent to the psychological pains in diseases such as cancer and cardiovascular disease Our study also concludes that there is female predominance in anxiety, depression and stress related to infertility. [19]

There is a dire need to manage infertile couples with support and counselling sessions before starting ART and it is a multidisciplinary diagnostic and therapeutic challenge. If couples are counselled at the start of starting treatment, this can affect outcome. [20]

This study has been designed to assess the effects of infertility on the mental health of the married couple resulting in failures in normal as well as assisted conceptions.

CONCLUSION

Infertility disturbs the psychological balance of couples and makes them socially alone. The infertile couple in a Pakistani culture has to face a society where the females are the victims of blame game. Although, with experience, we have come to know that the male partner has more than 50% role to play in infertility. This makes a base for social issues and hence psychological consequences. Infertility is responsible for low self-esteem, anxiety and fear for tomorrow.

The basic theme of the study was to find out the frequency of the depression, anxiety and stress among the infertile couple so that counselling sessions can be arranged and to bring an awareness that infertility is not a disease in the current era and multiple options are available for management. Informed consent has been taken. The results were analyzed on SPSS version 21.

Author's Contribution:

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Original Article

Comparison between Temperature Watch and Mercury Thermometer in Monitoring Temperature of Low-Birth-Weight Newborns at Kangaroo Mother Ward Children Hospital Chandaka Medical College Larkana

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ABSTRACT

Objective: The study observed the comparison of the temperature measuring by mercury thermometer in the axilla (standard method) and another measurement method by device BEMPU Temperature monitoring watch.

Study Design: Controlled prospective study

Place and Duration of Study: This study was conducted at the Kangaroo mother care ward, CMC Children Hospital, Larkana from November 2021 to December 2021.

Materials and Methods: In the study according to selection criteria, 100 neonates were selected, in which they were tied temperature monitoring watch for 02 days. The study assessed the comparison of the temperature measuring method by mercury thermometer in the axilla (standard method) and another measurement by temperature watch device. The temperature was monitored by a trained staff nurse, for two minutes every 6 hours for 48 hours, on standard method in axilla while on BEMPU watch device, whenever watch beep and blink pink light.

Results: A total of 100 neonates were included in the study, 1080 times temperature was observed, among them 215 times hypothermia monitored. In the study female neonates seemed more participation; male to female ratio was 1:1.2. The majority of neonates was registered below 7 days and had very low weights below 1500gms and preterm. On screening, the sensitivity and specificity of the BEMPU wrist device in monitoring hypothermia were 98.60% and 95.11% respectively. The positive and negative predictive values of the BEMPU wrist device were 83.79% and 95.11% respectively. The accuracy of the wrist in diagnosing hypothermia was 95.82%.

Conclusion: The temperature watch (BEMPU wrist device) is reliable detecting and alerting tool for newborn hypothermia, allowing for quick treatment and perhaps avoiding problems.

Key Words: Temperature, Watch, BEMPU watch, Very, Low, Birth, Weight, Kangaroo

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INTRODUCTION

Maintaining normal body temperature in newborn infants has, for decades, been shown to improve their survival and outcomes.[1-3]

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Interventions maintaining normal body temperature can help to reduce neonatal mortality or morbidity by 18% to 42%.[4]

The World Health Organization (WHO) defined hypothermia in newborns as body temperature <36.5°C. The causes of hypothermia in preterm and low birth weight newborns are less subcutaneous fat, decreased amount of brown fat, and an immature temperature regulating system.[5] The hypothermia is one of the most important causes of diseases and deaths in newborns in developing countries,6 as compared to term and normal birth weight newborns.[7]According to a study conducted at Aga khan university hospital Karachi in 2019, the frequency of hypothermia in low birth weight neonates is 2.5%.[8] Many instruments are used to record the temperature of newborns such as mercury and digital thermometer managed manually and take time to record the temperature and their perfection is uncertain.[9] The

temperature watch tied on the wrist is an automated continual recording instrument that can record the temperature in newborns and specify incidents of hypothermia by blinking pink light and ring. Whereas normal body temperature is shown by blinking the blue light. The temperature watch is user-friendly and helps in the continuous monitoring of temperature easily observed by caregivers and staff. The temperature watch has a hypothermia incident sensitivity of 98.6% while specificity is 95%.[10] The temperature watch has clinical proof in enhancing weight gain and encouraging Kangaroo Mother Care in low birth weight newborns.[11]A study was conducted in India on the temperature watch that has shown to decrease death in low birth weight newborns.[12]

The rationale of this study is to detect hypothermia in newborns in the Kangaroo mother care ward by using a temperature watch and compare with routine mercury thermometer monitoring in detecting hypothermia.

MATERIALS AND METHODS

Study Design: Controlled prospective study

Study Setting: Kangaroo mother care ward, CMC Children Hospital, Larkana.

Duration of Study: This study was conducted from 1st November to 31st December 2021.

Sample Size: A total of 100 neonates were included in the study for screening to compare the monitoring of temperature by watch device and mercury thermometer.

SELECTION CRITERIA

Inclusion criteria:

- Newborns having a low birth weight
- Parental consent to participate in this study

Exclusion criteria:

- Newborns having congenital malformations
- Sick newborn vitally unstable
- Parents not willing to participate in this study

Data Collection Procedure: A controlled prospective study was conducted in the Kangaroo mother care ward, CMC Children's hospital, Larkana during the period from 1st November to 31st December 2021. In the study, a total of 100 newborns were included. Newborns having low birth weight without congenital malformations, vitally stable, and parents who were willing to participate were included in this study.

Before the study, all the information regarding the study was given to the neonate's parents and written consent was taken and ethical permission was taken from the ethical review committee of SMBB Medical University. Demographic and other related information such as name, age, gender, gestational age, and birth weight were recorded. BEMPU temperature watch was tied to the neonate's wrist at the time of admission. BEMPU temperature watch device beep and flash pink light when the infant is in hypothermic condition. BEMPU temperature watches were applied for 48 hours on each neonate, monitored by the trained staff nurse. During the study, help was taken by mothers/attendants to alert staff nurses when a beep alarmed and pink light flashed. The staff nurse recorded axillary temperature 02 minutes every 6 hours for 48 hours and at the time when the watch device indicated. And also temperature is recorded when the watch device flashes pink light, to cross-check the temperature, to verify or deny the hypothermia. Both recordings (axillary method and watch device) were cross-checked with each other.

Statistical Analysis: Data was analyzed on SPSS version 21.0. Percentage and frequency were calculated for categorical variables like gender, gestational age, diagnosis, and the number of hypothermia episodes. Mean and standard deviation was calculated for quantitative variables like age, weight at admission, daily weight, and final weight.

RESULTS

In the current study, a total of 100 neonates, with low birth weight according to eligible criteria were selected i.e. The mean age of the infants observed was 6 days ± 0 days, and according to the age, less than 7days 77% of newborns and age more than 07 days seemed in 23% newborns.

Male (55%) participation seemed more as compared to female (45%) while frequency related to the gestational age seemed more in preterm neonates (59%), after that term, and post-term (41%) and (05) respectively. Frequencies of neonates regarding the weight of neonates have seemed less than 1500 grams 56%, less than 2000 grams 39% and less than 2500grams were 5% consequently. Table 1.

Table No. 1: Characteristics of study participants

Characteristics		Distribution
Age	<7 day	77
	>7 day	23
Sex	Male	55
	Female	45
Weight	<1500gm	56
	<2000gm	39
	<2500gm	05
Gestational age	Preterm	59
	Term	41
	Post Term	00

In the current study, a total of 253 hypothermia episodes were identified by the watch device equipment, with 212 of these being true positives. The equipment identified a total of 800 normal temperature occurrences, with 03 of these being false negatives. The device's sensitivity and specificity were 98.6 percent and 95.11percent, respectively, with 83.79 percent and 95.11 percent positive and negative predictive values. Table: 02 At least one episode of hypothermia was experienced by 90 of 100 newborns or 90 percent of the

research participants. Each of the 15 neonates experienced four episodes of hypothermia; 25 and 25 babies experienced three and two episodes, and 30 babies experienced just one episode.

Table No.2: Screening of Hypothermic Episodes by Temperature Watch versus Standard Monitoring With Mercury Thermometer and Weight Gain

	Neonate Truly Hypothermic (Axilla < 36.5 C)	Neonate Truly Non-Hypothermic (Axilla > 36.5 C)
BEMPU Showing Hypothermia (Positive Alarm)	212	41
BEMPU Showing Non-Hypothermia (Negative/No Alarm)	03	797

DISCUSSION

Preterm newborn infants whose birth weight is < 1.5 kg (very low weight) are prone to hypothermia. They suffer because their skin is not functionally mature and the high transepidermal water loss can result in hypothermia.[13] Additional physiologic risk factors for hypothermia include decreased brown fat, a large surface area–to–body mass ratio, and a poor metabolic mechanism for responding to thermal stress.[14]Results from this study are promising in that the temperature watch's ability to detect hypothermia at a significantly higher rate of sensitivity and specificity. It's worth noting that 95 of the 100 newborns in the research experienced hypothermia at least once. Hypothermia is a regular occurrence in postnatal wards, according to this study. Furthermore, monitors provide continuous monitoring easily picked by a caregiver. Thus temperature watches help to facilitate early detection of hypothermia and early intervention thus preventing serious consequences in newborns, especially low birth weight is a great challenge for survival. This will facilitate kangaroo mother care and the overall outcome of preterm and low birth weight newborns.[15]

CONCLUSION

Temperature watch's ability to detect hypothermia at a significantly higher rate than with standard intermittent monitoring by staff. Furthermore, monitors provide continuous monitoring easily picked by a caregiver. Thus temperature watches help to facilitate early detection of hypothermia and early intervention thus preventing serious consequences in newborns. This will facilitate also kangaroo mother care at home.

Author's Contribution:

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

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Original Article

Frequency of Accidental Poisoning in Children at CMC Children Hospital / SMBBMU Larkana

Accidental Poisoning in Children

Siraj Ahmed Bhutto[1], Nazia Faraz[1], Vijia Kumar Gemnani[2], Nazimuddin[1], Muhammad Anwar Shaikh[1] and Sobia Larik[1]

ABSTRACT

Objective: To assess the frequency of accidental poisoning in children presenting with history of suspected poisoning at CMC Children Hospital / Casualty Department, Larkana.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Pediatrics Department and Casualty Department, CMC, Larkana from January, 2019 to July, 2019.

Materials and Methods: There were 152 children with suspected poisoning were included in the analysis. Demographic and clinical and general physical examination was conducted. Poisoning was evaluated on the basis of history given by patient/guardian and then examination. Data was entered into study specific proforma.

Results: The mean age of the children was 6.14±3.45 years with 93(61.18%) male and 59(38.82%) female. Frequency of accidental poisoning in children presenting with history of suspected poisoning was observed in 48.68% (74/152) children.

Conclusion: This study demonstrates how parental ignorance, negligence, and carelessness result in cases of accidenta lpoisoning. Pharmacists play an important role in educating the public regarding poison management, counseling patients and offering instructions to their careers, and in providing information to doctors regarding antidotes for specific poisons.

Key Words: Poisoning, Accidental poisoning, poison management

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INTRODUCTION

Poisoning occurs when a person is exposed to a substance that causes organ failure, which can result in harm or death.[1] Children under the age of five are particularly affected due to their natural curiosity and impulsiveness. Also, are there people in this age bracket that are going through the phase of their development? As a result, the majority of paediatric poisonings are caused through ingestion. Because they lack the gross motor skills to put objects to their mouth, young newborns (0- 2 months) are seldom harmed. Ingestion of substances can also be caused by variables like as parental negligence and copying of parental behaviour. Poisoning in children is caused by a complicated interplay between the child, the agent, and environment of home.[2] The frequency and kind of substances consumed varies by location and throughout time.[3,4,10] Paediatric poisoning has a wide range of causes, ranging from a lack of mother awareness, incorrect substance storage, and insufficient monitoring to the child's curious impulsive behavior.[5] Ingestion is the most common method of poisoning regarding to the American Poison Control Centre [6] Kerosene oil, which is widely used in underdeveloped nations in South Asia and portions of Africa,[7,8] is followed by organophosphorous substances such as insecticides, which are particularly dangerous in Pakistan due to a lack of safety precautions from producers to caretakers. Pharmaceuticals, like as cough/flu medicines as well as sedatives/hypnotics, are other dangerous chemicals that young toddlers use out of curiosity. [9]

Accidental childhood poisoning was a serious contributor to Emergency Department presentations and hospital admissions in developed countries like the UK before stringent regulatory policies.[11] A five years study with a fifteen-year analysis of accidental poisoning fatalities in the urban population.[12] The research included a total of 2098 children. Poisoning occurs at a rate of 293 per 100,000 children (0-5 years) and has been declining over the past three decades. Toxic exposure continues to be a regular occurrence in the pediatric population, despite successful treatments and

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safety measures to avoid accidental poisoning.[13-14] Accidental poisoning in children follows a regular trend in terms of age and gender, with males and age < 6 years predominating because they are more active and have a desire to explore the environment, according to epidemiological research. [15]

Accidental poisoning was the 15th leading cause of mortality in Australia between 2010 and 2012.[16] Out of 300 children aged 0 to 19 who reported to an emergency in the United States, among them 02 children die due to poisoning.[17,18] Ahmed et al (2010)[19] studied accidental poisoning in children at their Military Hospital. They discovered that kerosene oil (51 percent) and pesticides were the most often swallowed toxins (17.5 percent). A total of 6% were observed complications and 4% of them were of pneumonia. Seizures occurred in 1% cases. Mortality was not reported. The authors concluded that poisoning in children is a major public health problem in children. Main substances were kerosene oil, insecticide, bleach and medicines. The authors concluded that ignorance, negligence and carelessness were the factors responsible for accidental poisoning. Unintentional childhood poison in is preventable with the utilization of healthcare resources. Advances are being made for its prevention worldwide.[20]

MATERIALS AND METHODS

Study setting: The study was carried out at Pediatrics Department, Casualty Department, CMC Larkana

Duration of Study: 22-01-2019 to 21-07-2019

Study Design: Descriptive cross sectional study

Sample Size: Population: 250

Confidence Level: 95% Confidence Interval: 5 Sample size: 152

Source: [21]. Creative Research System. https://www.surveysystem.com/sscalc.htm

Sampling method: Consecutive sampling (Non probability)

Inclusion Criteria:

1. Age 6 months to 14 years
2. Both genders
3. All cases of suspected poisoning

Exclusion Criteria: Cases of snake or dog bite, insect sting

Data Collection Procedure: After approval of synopsis and permission from Ethical Review Committee of training institute and CPSP, study was conducted at CMC Children Hospital & Casualty department Larkana. After receiving written consent from parents or guardians, all children who met the inclusion criteria were included in the research, and data was input into a study proforma. A complete history of the patient's age, gender, domicile, and clinical history was collected, as well as a comprehensive physical examination. Poisoning was evaluated on the basis of history given by patient/guardian and examination and the frequency of accidental poisoning determined on the basis of history.

Data analysis procedure: SPSS version 20 software was applied to compute the data. Such as age and length of sickness (Continuous data) were collected and evaluated using the mean and standard deviation. The frequency of accidental poisoning was investigated. Age, gender, and residence status were stratified based on recommendations in order to investigate the impact of these characteristics. The Chi square test was used to see if there was any difference between the categories. Significant was applied as a P value below than 0.05.

RESULTS

In study, total 152 children with suspected poisoning were included in the analysis. The average age of the children was 6.14±3.45 years [range: 1-14] as shown in table 1. Age distribution is also presented in figure 1. There were 93(61.18%) male and 59(38.82%) female as shown in figure 2. Residential status of the family is also reported in figure 3. Frequency of accidental poisoning in children presenting with history of suspected poisoning was observed in 48.68% (74/152) children as presented in figure 4. Rate of accidental poisoning in children was significantly high in below 5 years of age children as compare to above 5 years of age children (68.6% vs. 22.7%; p=0.0005) as seemed in table 2. Rate of accidental poisoning in children was not statistically significant between male and female and rural and urban table 2.

Table No.1: Descriptive Statistics of Children

Variables		Age (Years)	Duration of illness
Mean		6.14	3.27
Std. Deviation		3.45	1.27
95% Confidence Interval for Mean	Lower Bound	5.59	3.07
	Upper Bound	6.7	3.47
Median		5	3
Range Interquartile		5	2
Minimum		1	1
Maximum		14	6

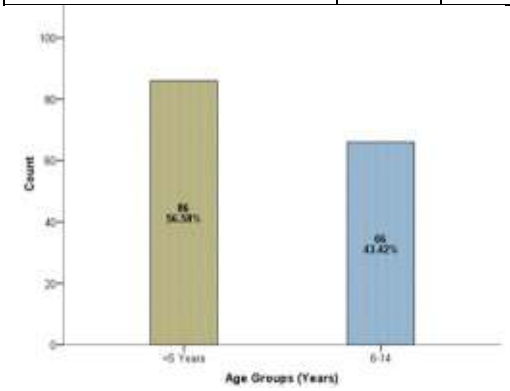

Figure No.1 Age Distribution of the ChildrenN=152

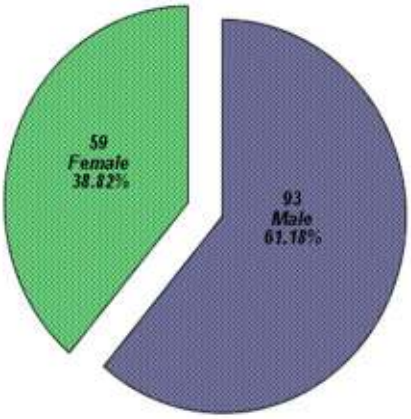

Figure No.2: Gender Distribution of the Children N=152

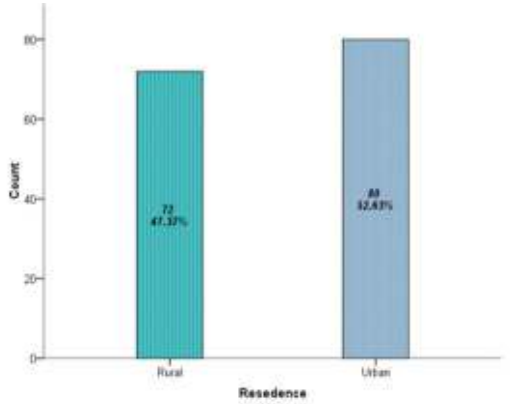

Figure No.3: Residential Status of the Children N=152

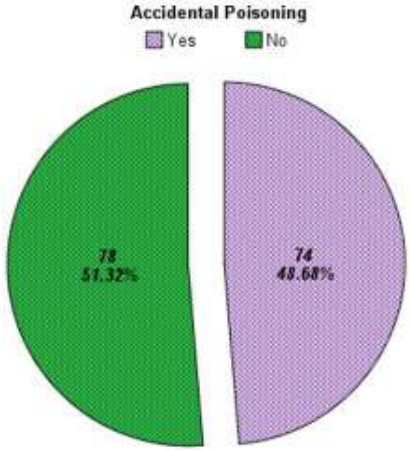

Figure No.4: Frequency of accidental poisoning in children present with poisoning history n=152

Table No.2: Frequency of Accidental Poisoning in Children Presenting with History of Suspected Poisoning By Children Age n=152

Age Groups (Years)	Accidental Poisoning		Total	P-Value
	Yes	No		
≤ 5	59(68.6%)	27(31.4%)	86	0.0005
6-14	15(22.7%)	51(77.3%)	66	

Chi-Square=31.46

Table No.3: Frequency of Accidental Poisoning in Children Presenting with History of Suspected Poisoning by Gender n=152

Gender	Accidental Poisoning		Total	P-Value
	Yes	No		
Male	45(48.4%)	48(51.6%)	93	0.927
Female	29(49.2%)	30(50.8%)	59	

Chi-Square=0.008

Table No.4: Frequency of Accidental Poisoning in Children Presenting with History of Suspected Poisoning by Resident Status n=152

Resident	Accidental Poisoning		Total	P-Value
	Yes	No		
Rural	36(50%)	36(50%)	72	0.758
Urban	38(47.5%)	42(52.5%)	80	

DISCUSSION

Accidental poisoning is a major concern[22] and a leading cause of injury-related morbidity and mortality across the world. Childhood poisoning was believed to be responsible for 500 fatalities per year, largely owing to household items in 1940[23]. According to new study, several social and demographic characteristics such as family size, socioeconomic status, kid attention, and poison storage location are critical risk factors that have a considerable impact on acute home poisoning incidents in children [24,25]. Among developed countries, a lot of data present regarding accidental childhood household poisoning from developed countries, [26,27] but there is a scarcity of data from Pakistan due to the lack of a national database and relevant authority, though individual studies have been conducted in local cities in the past. [28,29] Research in India revealed death rates ranging from zero to 11.6 percent, whereas studies in Pakistan found rates ranging from 2.5 percent to 13.6 percent. [28,30] Karachi had the highest death rate of 13.6 percent in 1982. Aside from these characteristics, the mother's education, awareness of poison, and poison storage location, as well as the number of siblings and family members, all contribute to accidental poisoning incidents. Children of young moms with just a high school education were shown to be more likely to be engaged in home poisoning in a multivariate research. [31,32] The mean age of the children in this research was 6.14.35 years. Previous researches from Pakistan have also found a high occurrence in this age group, owing to children's natural curiosity, which leads to damage. In our survey, there were 61.18 percent males and 38.82 percent females, which was similar to what we saw in the previous study.[26] The ratio was 1.2:1 owing to biological poisoning and 1.5:1 due to chemical poisoning in an Indian research. [33] Accidental poisoning is most common in children aged 0 to 5 years,[33,34] with a peak age of 2-3 years.[35] Accidental poisoning is still a major health concern among children throughout the world,[22] particularly in developing nations like

Pakistan. Accidental poisoning was seen in 48.68 percent of children who presented with a history of suspected poisoning in the current research. Military Hospital study discovered that kerosene oil (51 percent) and pesticides were the most often swallowed toxins (17.5 percent). Complications were seen in 6% of the cases, with pneumonia accounting for 4%. Seizures were reported in 1% of the patients. There was no mention of fatality. Poisoning in children is a huge public health concern, according to the authors. Kerosene oil, pesticide, bleach, and medications were the main ingredients. Kerosene oil intoxication was the most prevalent cause, affecting children aged 2-3 years.[37] Because medication prescription patterns have altered and risky drug packaging has been made safer, accidental poisoning of children resulting in mortality has decreased.[27]

Accidental poisoning prevention is a critical stage in the treatment of important health issues. Poison control centres provide up-to-date information on treatment and toxicity, as well as the opportunity to support education and research as part of their mission.[28] Household goods, cosmetics, cleaning agents, analgesics, plants, pesticides, vitamins, arts and craft materials, and hydrocarbons or other medications are all common causes of accidental poisoning in children. To offer fundamental emergency medical expertise, early assessment and care of poisoning should be done. For individuals with unstable vital signs as a result of a poisoning exposure, emergency medical services should be notified right once to offer advanced life support. The state of awareness of a patient with suspected poisoning must be checked in an emergency, as well as the airway, breathing, and circulation. Heart rate, pulse rate, respiration rate, blood pressure, and glucose level are all vital indicators.

CONCLUSION

Frequency of accidental poisoning in children presenting with history of suspected poisoning was observed in 48.68%. This study demonstrates how parental ignorance, negligence, and carelessness result in cases of accidental poisoning. A pharmacist's involvement is critical in raising public knowledge of immediate poison management, counselling patients and providing recommendations to their caretakers, and providing information to doctors regarding antidotes to specific poisons.

Author's Contribution:

Concept & Design of Study:	Siraj Ahmed Bhutto
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Data Analysis:	Nazimuddin, Muammad Anwar Shaikh and Sobia Larik
Revisiting Critically:	Siraj Ahmed Bhutto, Nazia Faraz
Final Approval of version:	Siraj Ahmed Bhutto

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

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Original Article

Incidence and Risk Factors for Acute Kidney Injury in Critically ill Neonates Admitted in Neonatal Intensive Care Unit

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ABSTRACT

Objective: To find the incidence and risk factors of AKI among the critically ill neonates in a public sector tertiary care hospital in Karachi.

Study Design: prospective study

Place and Duration of Study: This study was conducted at the public sector Hospital National Institute of Child Health, Karachi, Pakistan from January, 2022 to April, 2022.

Materials and Methods: 300 neonates admitted to NICU were carefully monitored for morbidities that can lead to AKI. 95% confidence interval was calculated, considering a p-value ≤0.05 as significant.

Results: Out of 300 neonates, 80 (26.66%) developed AKI. 59% were full term. Mean age with and without AKI at presentation was 7+3.83 and 4±1.99 days which was statistically significant (p=0.001). The BW ranged from 1200 to 3300 grams with a mean ±SD of 2120 ± 420 grams. The most common risk factors were sepsis (67.5%), nephrotoxic drugs (55%), and mechanical ventilation (51.3 %) followed by perinatal asphyxia (47.5%). The mortality rate was higher in patients with mechanical ventilation (P< 0.001), sepsis (P=0.008), nephrotoxic agent use (P=0.008) and birth asphyxia (p=0.001).

Conclusion: This study suggested that early recognition and better management of risk factors like sepsis, tetanus, nephrotoxic drugs, mechanical ventilation and birth asphyxia can improve the outcomes.

Key Words: Risk Factors, Acute Kidney Injury, Neonates, Intensive Care Unit

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INTRODUCTION

Acute kidney injury (AKI) can be defined as a sudden reduction in kidney function which results in fluid and electrolyte imbalance as well as uremia which ultimately leads to lethal complications like hypertension, hyperkalemia and metabolic acidosis [1,2]. It is one of the most commonly encountered problems in newborns admitted to the neonatal intensive care unit (NICU) and accounts for 6% to 24% of the NICU admissions [3]. AKI has been considered to be an independent risk factor for morbidity and mortality resulting in increased length of hospital stay in neonates [4]. An international multicenter study confirmed higher mortality rates in newborns suffering from AKI (9.7%) as compared to the non-AKI (1.4%) group and approximately 40% of survived neonates developed everlasting kidney damage [5,6].

AKI can be divided into oliguric (urine output of <1 ml/kg/h) and non-oliguric (urine output of >1 ml/kg/h) subtypes [7]. It is common in neonates presenting with premature birth, perinatal asphyxia, respiratory distress syndrome, hemodynamic instability, patent ducts arteriosus, renal venous thrombosis, bronchopulmonary dysplasia and maternal as well as neonatal nephrotoxic medication exposure [7-9].

As previous literature reported that the incidence of acute kidney injury in neonates admitted to NICU varied from one geographical area to another. Studies regarding the prevalence and risk factors of AKI among critically ill neonates are very scarce in underdeveloped countries like Pakistan. So it is important to determine the burden imposed by AKI and its risk factors in our local population.

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MATERIALS AND METHODS

This longitudinal prospective study was conducted at the NICU at the National Institute of Child Health, Karachi from January, 2022 to April, 2022. This was initiated after approval from IERB and obtaining consent from the parent. AKI was considered when serum creatinine (Cr) >1.5 mg/dl and/or blood urea nitrogen (BUN) >20 mg/dl on two different times at least 12 hours apart from each other [5].

300 neonates admitted to NICU for different clinical indications were enrolled in the study. A consecutive non-probability sampling technique was used until the desired sample size was achieved. Inclusion criteria were neonates up to 28 days of life, referred from other hospitals and length of stay > 24 hours. Exclusion criteria include multiple congenital anomalies, all syndromic babies, neonates on GFR alternating drugs such as ACE inhibitors and maternal history of AKI.

Basic demographics and clinical data, including history and clinical examination, were collected in a specifically pre-designed proforma. Investigations that included creatinine, and blood urea nitrogen (BUN) at admission and 24 hours apart were done.

All patients were monitored for AKI occurrence up to 7 days of admission. Short-term outcome of neonates was measured as survival and death, Data was entered on excel 2016 and analyzed using SPSS version 24. Mean ± SD/ Median (IQR) was reported on the basis of normality for quantitative variables such as age and baseline creatinine. However, qualitative variables such as gender, the reason for NICU admission, diagnosis at the time of admission, acute kidney injury and risk factors (age, gender, nephrotoxic drugs) was reported as frequency and percentage. Chi-Square or Fisher exact test was done for analysis and a 95% confidence interval was reported, considering a p-value ≤0.05 as significant.

RESULTS

A total of 300 neonates were examined in this study and AKI occurred in 80 (26.66%) patients, 177 (59%) and 123 (41%) cases were full-term and preterm neonates, respectively, the difference was significant (p=0.004).

The mean ± SD age of the patients whether suffering from AKI or not on admission was estimated at 7±3.83 and 4±1.99 days respectively. The birth weight ranged from 1200 to 3300 grams with a mean ± SD of 2120 ± 420 grams. The difference between mean birth weight and gestational age of AKI and non-AKI babies was statistically significant (2.4 kg v/s 2.0 kg, p-value < 0.02: 36.95 weeks v/s 35.28 weeks, p=0.001). there was no variance in gender between patients with or without AKI (p=0.43).

One baby out of 7 babies < 1500 gram had AKI, 43 babies out of 229 babies between birth weights 1500 - <2500 gram had AKI, and 36 out of 64 babies with birth weight 2500 gram or more had AKI. The demographic data of the studied cases are shown in Table 1.

Table No.1: Demographic features of neonates admitted to the neonatal intensive care unit

		AKI	Non-AKI	p-value
Gestational Age	Term	58	119	0.004
	Preterm	22	101	
Sex	Male	47	118	0.43
	Female	33	102	
Mode of delivery	SVD	44	135	0.32
	CS	36	85	

80 cases diagnosed with AKI, there were 52 cases with multi-factorial predisposing factors and 28 cases with a single risk. The most common risk factors for AKI were sepsis (67.5%) mechanical ventilation (51.3%) followed by birth asphyxia (47.5%).

The distribution of various factors across both groups is given in Table 2.

Table No.2: Predisposing factors for acute kidney injury

	AKI (80)	Non-AKI (220)	p-value
Sepsis	54 (67.5)	117 (53.2)	0.027
Birth asphyxia	38 (47.5)	70 (31.8	0.012
Meconium aspiration	16 (20)	22 (10)	0.021
RDS	16 (20)	29 (13.2)	0.144
Neonatal jaundice	16 (20)	34 (15.5)	0.35
CHD	24 (30%)	45(22%)	0.082
mechanical ventilation	41(51.3 %)	68 (30.9%)	0.001
nephrotoxic drugs	44 (55%)	85(38.6%)	0.01
Tetanus	9 (11.3)	5 (2.3)	0.001

However, there was no statistical significance between the AKI and non-AKI groups except for sepsis, birth asphyxia, mechanical ventilation, nephrotoxic drugs and tetanus.

In total, 51 (17%) neonates died. 80 neonates developed AKI out of which 22 (27.5%) cases expired. On the other hand, 30 out of 220 (13.6%) with no evidence of AKI expired. The difference was statistically significant (p<0.010). Various factors were studied in AKI groups in regard to mortality. The significant morbidities and factors in patients who expired from AKI patients were as follows i.e. mechanical ventilator (p<0.001), those with sepsis (p=0.008), nephrotoxic agent use (p=0.008) and with birth asphyxia (p=0.001).

DISCUSSION

AKI can be developed in high-risk neonates leading to further morbidity and can even be fatal [2]. In research

by Noami A et. al neonates who were critically ill and had AKI had a mortality rate of 70.6% compared to those who did not suffer from AKI [9]. In this study neonates who developed AKI were 26.6% which is similar to a study carried out by Charlton et. al [2]. Similarly, the multinational multicenter retrospective cohort study AWAKEN had also concluded about 30% of AKI coincided with a study of Tanzania i.e. 31.5% [6,9]. As a fact, the incidence of AKI is multifactorial and may affect every neonate differently admitted under similar conditions.

In this study neonate who developed AKI were 80 of which 47 were males (58.75%) and 33 were females thus impact of gender on the incidence of AKI was not significant. Various studies have concluded that the occurrence of AKI in the boys was more than in the girls. [3,5-6,10]. The higher incidence of AKI can be because of the higher susceptibility of boys to have peri-natal disorders such as sepsis and respiratory distress syndrome [11].

A study by Al Gadeep et. al, reported that 67.7% of low birth weight (1500-2500g) neonates had AKI [12]. On the contrary, our study in which 36 out of 64 (56.6%) normal birth weight neonates had AKI. However, the higher rate in normal birth weight neonates can be a result of maternal infections, babies born with meconium-stained fluids, and hypoxic-ischemic encephalopathy due to outborn deliveries. Bamsai et. al also supports our study that full-term neonates were at a higher risk of AKI [3].

Many studies reported sepsis as a leading factor of AKI. Neonates with sepsis are thought to be susceptible to AKI due to hypotension. In this study, 67.5% (54) of neonates suffering from sepsis had acute kidney injury. Similarly, Youssef et. al found that almost 63% of neonates with sepsis had AKI, therefore susceptibility of AKI in neonates suffering from sepsis is high [11]. However, a few of the research carried out in India and Tanzania had a lower rate of incidence of AKI due to sepsis i.e. 39.25% and 22.4% respectively [9,13].

Moreover, the administration of nephrotoxic drugs also contributes to AKI. Studies showed that these drugs cause inflammation in the glomerulus, proximal tubules, and surrounding cellular matrix. This inflammation may ultimately fiberize the kidney tissue resulting in AKI [14-15]. During our study, about 55% of neonates had AKI after they were administered such nephrotoxic drugs. This is in line with a study done by Leghrouz et al. [8]. In our setup amikacin was administered as a first-line drug in neonates as most of the organisms in this age group are susceptible to it whereas 44% of patients received other nephrotoxic drugs i.e. meropenem, vancomycin, colomycin, ceftazidime and amphotericin B. Various studies further justified that these drugs significantly contribute to AKI ($p<0.001$) [12,16].

Furthermore, mechanical ventilation is a life-saving procedure. 51.3% of neonates had AKI after mechanical ventilation which is in line with a study carried out by El Badaway et al. which was 56% [5]. However, the incidence can be diminished by early interventions and by improving intensive care unit management in developed countries such as China it was found that only 15.1% of ventilated babies developed AKI. Y. fan et al. also concluded that the highest oxygen concentration contributed to AKI [17]. Mechanical ventilation contributes to AKI as it decreases renal blood flow and increases renal vascular resistances furthermore it causes hypercapnia or hypoxemia which causes activation or inactivation of vasoactive substances such as nitric oxide and angiotensin II. It can further cause barotrauma leading to the release of inflammatory mediators and contributing to a systemic inflammatory reaction [9].

Perinatal asphyxia was also a major cause of AKI in this study (47.5%) which is supported by Gupta et al. (54%) and Kaur et al. (56%) [18,19]. A recent study also showed a significant association o perinatal asphyxia with AKI because perinatal asphyxia causes acute tubular injury and reperfusion injury following hypoxia [8,10]. Another study also supports our observation and regards perinatal asphyxia as a major cause of AKI even higher than sepsis [6].

Consequently, lack of awareness of mother immunization coupled with the unsanitary conditions during deliveries at home causes umbilical cord infection and results in neonatal tetanus. There is scarce knowledge about neonatal tetanus published yet. Our data shows neonatal tetanus is majorly associated with acute kidney injury. Moreover, RDS, congenital heart disease and hyperbilirubinemia were insignificant risk factors for AKI in our research although according to a study in the USA very low birth weight neonates had 96% of AKI because of RDS [4].

It was found that the death rate was significant in babies who underwent mechanical ventilation i.e. ($p < 0.001$), various studies supported our finding such as a study carried out in Western India neonates had a greater chance to survive who were not mechanically ventilated [3]. Neonates with birth asphyxia along with AKI also accounted for higher mortality as compared to those without AKI [20] in our observation it was statistically significant ($p < 0.001$), Nandhagopal et. al also reported 71% mortality in such neonates [10]. Likewise, Selewski and colleagues also reported a higher incidence of mortality in asphyxiated neonates with AKI (14% vs 3%) [20]. Sepsis and nephrotoxic drugs were also significant factors in correlation with mortality ($p<0.008$). This coincides with research by Gohiya et al. that justifies that neonates who underwent sepsis had a higher risk of stage III, AKI which in turn led to more risk of mortality [13]. Similarly, another

study carried out in Egypt reported quite high mortality in septic neonates with AKI i.e. 50-78% [11].

CONCLUSION

AKI occurred in approximately half of the neonates admitted to the neonatal intensive care unit during the study period. Term neonates and those having normal birth weight were at higher risk of AKI. In this prospective study, critically ill neonates with predisposing factors such as sepsis, birth asphyxia, mechanical ventilation, nephrotoxic drugs and tetanus accounted for 43% of mortality. Therefore, cautious monitoring of kidney function and better nursing care of critically ill neonates can drop the rate of mortality dramatically.

Author's Contribution:

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Original Article

Frequency of Faulty Inter-Proximal Contacts in Patients Receiving Fixed Dental Prosthesis

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ABSTRACT

Objective: The objective of the study is to determine the frequency of faulty interproximal contacts in patients receiving fixed dental prosthesis.

Study Design: Descriptive, cross sectional study.

Place and Duration of Study: This study was conducted at the Prosthodontics Department, Bacha Khan Medical College Mardan from 17 October 2017 to 17 April 2018.

Materials and Methods: Patients visiting the department of Prosthodontics, fulfilling the inclusion criteria was included in the study. Written informed consent was taken. Patients with porcelain fused to metal crowns and all metal crowns were assessed. The floss was passed through interproximal contacts under assessment. Proximal contact points were categorized as tight, open or loose and acceptable.

Results: Out of the 174 participants (Male and Female) enrolled in this study, mean age of the patients was 35.2±7.9. Stratification analysis was performed and observed that the porcelain fused metal crown success rate being acceptable higher in all age group like 25-35 age grouped showed 59% acceptable rate and 36-45 years age group acceptance were 52%. The age is strongly associated with porcelain fused metal crown (P value 0.059) while gender was not associated with porcelain fused to metal crown (p vale 0.606).

Conclusion: This study showed that majority of the fixed dental prosthesis and metal crown were acceptable. Too tight or loose dental prosthesis can have their own consequences. Therefore, it is suggested that the crown should be evaluated properly by the dentists; both clinically and radiographically before final cementation.

Key Words: Inter-proximal contacts, Dental prosthesis, Proximal contact points.

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INTRODUCTION

Proximal contact points (PCP) play an important role in maintaining integrity and stability of the dental arch.[1,2,3] Proximal contact points prevent the food from being trapped between teeth so avoid food impaction which can lead to periodontal disease.[4,5] They also prevent the horizontal movement of teeth which can lead to occlusal trauma and premature contacts.[6]

To restore the proximal contact points of proper size and position is essential to the health of dentoalveolar complex as well as the success of indirect restorations.[7,8,9] Any variation in contact points has adverse effects on surrounding tissues.[10]

Flossing becomes extremely difficult in patients with tight contact points.[11] Tight contact points also make the area highly susceptible for caries, causes damage to periodontal tissues or interfere with the physiological placement of the teeth or cause unwanted tooth movement. Loose or slightly opened proximal contact points (PCPs) may also cause food impaction, dental caries, periodontal disease, and failure of occlusion and an undesirable drift of the teeth. [12-17]

FDPs (Fixed partial denture) retainers must be contoured properly to ensure that the patient has access for oral hygiene measures like tooth brushing and flossing. [1] Different method has been suggested in the past to check PCP before cementation. Acceptable contact points in FDPs are those that allow the floss to pass through with the same amount of resistance offered by the other contacts in natural dentition. In a study by Kim et al they determined the strength of PCPs with dental floss that passed through the inter-proximal contact with a snap.[18] Dorfer et al. measured PCP strength with a calibrated metal strip (0.05 mm thick), and reported that the strength varied between teeth, arches and function. [19] When new prosthesis was

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fabricated, the PCP had to be checked during try in stage on the cast and intra orally before final cementation.[20]

MATERIALS AND METHODS

The descriptive cross-sectional study was carried out in the prosthodontics department, Bacha Khan Medical College Mardan. Written informed consent was taken from each patient for participating in the study. Patients with age range of 20 to 45 years both male and females were selected with non-probability consecutive sampling technique. The sample size of 174 was calculated using the WHO software. Patients with porcelain fused to metal crowns, full metal crowns and fixed partial denture with at least one adjacent natural tooth were included in the study. Patients with any periodontal symptoms, heavily restored teeth and fixed partial dentures with no adjacent teeth were excluded from the study.

Patients with porcelain fused to metal crowns and all metal crowns were assessed. Clinical assessment of interproximal contacts was done before cementation with the dental floss of waxed type. The floss was passed through interproximal contacts and were categorized as tight, open/loose and acceptable. The variables including age, gender, tightness of proximal contact point, material of prostheses (porcelain fused to metal crowns, all metal crowns) were collected on a structured Performa with 95% of confidence interval and 0.5% margin of error.

RESULTS

Data was entered and analysed by using SPSS version 20.0. Descriptive variables were expressed in percentages like gender and porcelain fused to metal crowns (acceptable, open or loose, tight) and all metal crowns (acceptable, open or loose, tight) were presented in the form of frequencies and percentages.

Table No.1: The Frequency distribution of variables (age and gender) of faulty inter-proximal contacts in patients (n=174) Variable n (%)S

Age (years) Mean ± S. D	35.2 ±7.9
< 25	28 (16.1)
25-35	42 (24.1)
36-45	104 (59.8)
Gender	
Male	104 (59.8)
Female	70 (40.2)

Quantitative variables like age were calculated as Means. Porcelain fused to metal crowns (acceptable, open or loose, tight) and all metal crowns (acceptable, open or loose, tight) were stratified among age and gender to see effect modification by using chi square test keeping P-value ≤0.05 as significance. Post stratification chi square test was applied and P-value ≤0.05 were taken as significant.

Out of the 174 Participants (Male and Female) enrolled in this study, mean age of the patients was 35.2±7.9. Patient's having open/faulty inter-proximal contacts according to age < 25 years were 16%, 25-35 years 24%, 36-45 years 60% %. In this study male were 59.8% and 40.2% female. (Table 1).

The assessment of proximal contacts was carried out in 92.5% porcelain fused metal crowns and 7.5% in all metal crowns. In porcelain fused to metal crowns 47.1% were acceptable, 33.3% were open or loose and 12.1% were tight while in all metal crowns 1.8% were acceptable,4.6% were open or loose and 1% were observed tight showed in Table 2.

Table No.2: The frequency distribution of variables of faulty inter proximal contacts in patients with fixed dental prosthesis (n=174)

Fixed dental prosthesis			
Porcelain Fused To Metal Crowns n (%)		**All Metal Crowns n (%)**	**Total**
Acceptable	82(47.1)	8(4.6)	90(51.7)
Open or loose	58(33.3)	3(1.8)	61(35.1)
Tight	21(12.1)	2(1.1)	23(13.2)

Table No.3: Stratification analysis of Porcelain fused to metal crowns fixed dental prosthesis in Patients (n=174)

Porcealin Fused To Metal Crowns				
AGE (YEARS)	**ACCEPTABLE**	**LOOSE**	**TIGHT**	**P-VALUE**
< 25	10(35.7)	14(50.0)	4(14.3)	0.059
25-35	24(58.5)	16(39.0)	1(2.4)	
36-45	48(52.2)	28(30.4)	16(17.4)	
GENDER				
Male	46(47.9)	36(37.5)	14(14.6)	0.606
Female	36(55.4)	22(33.8)	7(10.8)	

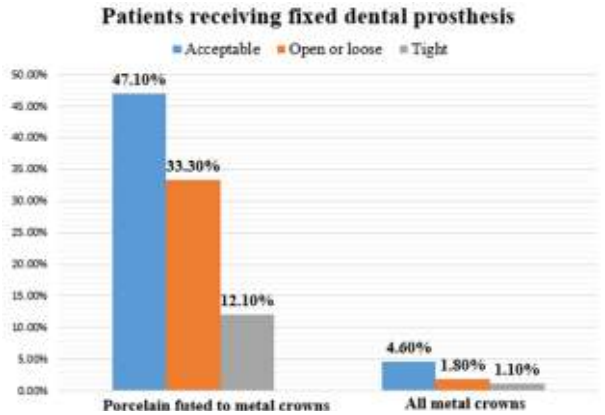

Figure No.1: Frequency of patients with fixed dental prosthesis N=174

Stratification analysis was performed and observed that the porcelain fused metal crown success rate being acceptable higher in all age group like 25-35 age grouped showed 59% acceptable rate and 36-45 years age group acceptance were 52%. The age is strongly associated with porcelain fused metal crown (P value 0.059) while gender was not associated with porcelain fused to metal crown (p vale 0.606) (Table 3).

Stratification analysis was observed that all metal crown success rate of acceptable were not found significantly associated with age (P value 0.164) while gender also was not associated with all metal crown (P value 0.420) showed in Table 4.

Table No.4: Stratification analysis of all metal crowns fixed dental prosthesis in patients(n=174).

All metal crowns				
AGE (YEARS)	**ACCEPTABLE**	**LOOSE**	**TIGHT**	**P-VALUE**
< 25	___	___	___	0.164
25-35	0(0)	1(100.0)	0(0)	
36-45	8(66.7)	2(16.7)	2(16.7)	
GENDER				
Male	6(75.0)	1(12.5)	1(12.5)	0.420
Female	2(40.0)	2(40.0)	1(20.0)	

DISCUSSION

Literature suggested several methodologies of checking proximal contact point (PCP) before the cementation. [18] The dentists usually measure the strength of suitable PCP in clinical treatment by passing floss with a snap. This technique was found simple however it was considered difficult to discover comprehensive changes in the strength. [21] Moreover, discrepancies also existed in PCPs of crowns/FPD and anatomic contour that may have adverse effects on surrounding tissues in the form of tight and open PCP. [8] One of the reasons of tight contact points can be over contoured crown on proximal surfaces reducing gingival embrasure that can lead to gingival inflammation; hence inhibiting effective oral hygiene. Therefore, every effort should be made to allow easy access to the interdental area for plaque control. [22]

The present study evaluated the Frequency of faulty inter-proximal contacts in patients receiving fixed dental prosthesis. Stratification analysis revealed that the success of Porcelain fused to metal crowns was significantly associated with age specifically with 25-35 years age group. However, gender was not found related. All metal crowns no significant relationship was found with age and gender. A study evaluating the tightness of proximal contact points (PCPs) of fixed dental prosthesis with natural teeth assessed 142 PCPs and found that 58.4% were acceptable, 28.8% were loose and 12.6% were tight. This study included 55.1% females and 44.9% males having a mean age of 39 which was quite near to the findings of our study; as in our study the mean age was 35.2±7.9 where the male to female proportion was 60% and 40% respectively. Here, the term PCP referred to the area of proximal contour height on the mesial or distal surface of a tooth touching its adjacent tooth in the same arch. [6,7]

In the study the single crown PCPs were 66.9% acceptable, 33.1% were of Fixed Partial Dentures with natural teeth in which 73.2% were Porcelain Fused to Metal and 26.7% were all metal; out of total PFM crown/FPD PCPs 56.7% were acceptable, 30.7% were loose and 12.5% were tight. Yet, from the total metal crown PCPs, 63% were acceptable, 23% were loose and 13% were tight which was in contrast and greater than our study where 5% of all metal crowns were acceptable, 2% were loose or open and only 1% were tight.[6]

A cross sectional study was carried out to know the inconsistencies between marginal integrity and contact points of Porcelain Fused to Metal (PFM) crowns and its relationship with caries in adjacent teeth. It found a significant association between faulty contact points and margins of PFM crowns with caries in adjacent teeth. Marginal overhang and marginal gaps on the mesial surfaces of PFM crowns were observed in 17.7% and 13.5% respectively. Tight contact points and open contacts of PFM crowns with adjacent teeth were 15.6% and 17.8% respectively on mesial surfaces. Caries was present in 33.3% and 20% of teeth were carious on mesial and distal to PFM crowns respectively. The association of faulty contact points of PFM crowns with caries in adjacent teeth was found significant ($p < 0.001$). The association of marginal discrepancy with caries in adjacent teeth was found significant ($p = 0.002$).[10]

Dentists frequently prepare the axial surfaces to be flat, pushing technicians to make over contoured crown with wide occlusal tables specially on distal surfaces of the posterior molars. Thus, the axial reduction of tooth structure needs to follow the original contour of the tooth so that ultimate restoration is much closer to the natural anatomy of that toot, allows maintenance of oral hygiene to prevent caries on adjacent natural tooth surfaces.

CONCLUSION

The patency of proximal contact points should be similar to natural dentition in restorations of single or fixed partial dentures. The flossing method is simple and effective to assess the open, tight or acceptable proximal contact points. However, the quantitative assessment of the PCP tightness needs further investigation via standardized method to meet the standards of natural dentition.

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Original Article

Knowledge and Awareness of Medical Students for Protective Measures against COVID-19

Mukhtar Hussain[1], M Ahmad Mukhtar[2], Amna Mukhtar[3], Aeimen Khalid[2], Naila Tariq[2] and Rubina Mukhtar[4]

ABSTRACT

Objective: Our study aimed to assess the knowledge and awareness of medical students for preventive and protective measures towards Covid-19.

Study Design: descriptive observational cross sectional study

Place and Duration of Study: This study was conducted at the institutes of southern Punjab including Nishtar Medical University, Multan, Bakhtawer Amin Medical College, Multan and Quade Azam Medical College, Bahawalpur from June, 2020 to September, 2020.

Materials and Methods: A structured questionnaire based on demographic, COVID -19 related information and practice for preventive measures was distributed online among medical students of southern Punjab, Pakistan. The response of students was recorded and result was analyzed.

Results: Out of 736 students 287 (39%) were males and 449 (61%) were females. Over all 85% students showed appreciable awareness for predisposing factors, virology, preventive and protective measures Clinical students were more aware as compare to pre-clinical students. Awareness was better among male students as compare to females one. The most common source of gaining knowledge was social media. Clinical students were in good practice of preventive and protective measures. Direct dealing or contact with Corona patients in wards might be the cardinal reason for good awareness and preventive practice in clinical students. Observation of the intensive treatment required for symptomatic patients and poor outcome in some patients is another fundamental ground that increases the Covid fear or anxiety and the thirst for gaining more information and knowledge.

Conclusion: Medical students are asset of a nation, being the future frontline worriers against these kinds of pandemics. Overall, the Covid Related knowledge was deficit among pre-clinical and female medical students. Awareness for covid-19 pandemic is the one and only key to protect our medical students and its associated mental and physical impact but unfortunately is an ignored aspect in developing countries. There is need of intervention by public health department for designing awareness and education plans.

Key Words: Awareness, Corona Virus, COVID-19, pandemic, Viral Infection, Anxiety, Medical students

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INTRODUCTION

COVID-19 pandemic is currently, the most concerned health challenge worldwide[(1)]. After starting in China it imprisoned the most of the countries of the world[(2, 3)]. It affected not only economy but also physical and mental health of people[(4)]. Millions of deaths have been recorded worldwide because of this pandemic[(5)].

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Its proven transmission from animals and human to human is via direct communication, coughing, sneezing or direct touching[(6,7)]. Observing social distancing, self-quarantine, use of face mask and adopting the habit of frequent hand washing are the key measures in control of its spread[(8)]. Due to Non availability of definitive treatment protocols, main focus of management for Covid patients is supportive treatment. Preventive measures are implemented worldwide that has key role in control of this communicable deadly disease [(9, 10)]. Awareness and knowledge is fundamental necessity to control current situation, as proven by previous studies that epidemics of such type are best controlled by enhancing the knowledge and awareness of public [(11-13)].

Medical students in clinical years attain noteworthy significance of having bilateral risk of contracting disease and transmitting it to others. Medical students are involved in history taking and initial patient evaluation for signs and symptoms and further guidance. Previous studies show that lack of knowledge results in misdiagnosis and mismanagement due to poor skill for patient evaluation and recognition of clinical

symptoms and signs. Moreover medical students are blessed to get opportunity of being advocate of health knowledge in society so it is highly imperative for them to gain maximum knowledge for diagnosis and preventive measures of COVID-19. Over and above Medical students can be a source of transmitting disease to Immuno compromised patients and those with co morbidities who are highly susceptible to contract disease. In modern era of technology, the most common and fastest source to gain and disseminate the knowledge and information is social media leaving other sources of literature or books behind [(14)]. Media has established role in creating awareness in public. Public messages on media have shown change in behavior of people for cigarette smoking and other deleterious factors and habits. It is research based proven fact that media act as double edged sword. On one side it has positive role in creating behavioral changes in public by highlighting the high threat of certain habits and behaviors. But on other side daily updates for increasing number of deaths on media and news creates fear and phobia for Covid-19 [(15,16)].

MATERIALS AND METHODS

This observational cross sectional Study was conducted at institutes of southern Punjab including Nishtar Medical University, Multan, Bakhtawer Amin Medical College, Multan and Quade Azam Medical College, Bahawalpur. A self-designed objective type questionnaire derived from previous literature on awareness about pandemics in past, was sent to students Online via watsapp and emails. Questionnaire was designed to evaluate the knowledge and awareness of medical students of this region with reference to, risk factors, causative factors, and mode of transmission, clinical presentation, complications, outcomes and protective measures. Total 736 students participated in study. Students, who were volunteer and showed keenness, responded positively by filling Performa, were included in the study and students not willing to participate were excluded from the study. Data was collected recorded and analyzed using SPSS version 24. Frequency and percentages were calculated to define the Qualitative statistics. Mean and standard deviation was calculated for descriptive values like age. Variables were calculated applying Chi square test with significant p value defined as < 0.05 and independent student t test was applied to determine association of scores from different groups.

RESULTS

Out of total 736 students 39% were male and 61% were females. 56.2% were preclinical and 47.8% were clinical students. Demographic features are expressed in Table 01. Two groups of Students were defined based on gender and level of study year. Response to questionnaire for awareness about Covid-19 pandemic is summarized in table 2. Response of students regarding practice of protective measures and their approach towards management, and interest in educational and awareness programs is summarized in table 3.

Knowledge regarding causative agent was good overall. Knowledge in regards to other aspects of covid-19 pandemic including risk factors, clinical presentation and mode of transmission was better in clinical students with no significant gender based difference. Knowledge about Incubation period, its fatality and protective measures was comparatively deficit among female and preclinical students. The most common and favorite source of information or knowledge among medical students was Social media.

Table No.1: Showing Demographic Features

Demographic Feature	**Frequency**	**Percentage**
Gender		
Females	449	61%
Male	287	39%
Total	736	100%
Age		
18-20	294	40%
20-25	442	60%
Total	736	100%
Study year		
Pre-Clinical students (1^{st}& 2^{nd} year)	486	66%
Clinical students (3^{rd},4^{th},5^{th} year)	250	34%
Total	736	100%
Days scholar/Hostelite		
Days scholar	236	32%
Hostelite	500	68%
Total	736	100%

Table No.2: Showing Response of Students to Questionnaire

	Questions	Sex				P value	Educational status				P value
		Male		Female			Preclinical		clinical		
		No	%	No	%		No	%	No	%	
1.	Do you know what Corona Pandemic is?										
	Yes	287	100	377	84.4	NS	404	83.1	250	100	NS
	No	Nil		70	15.6		82	16.9	Nil		
2.	What is infective agent for CORONA?										
	Virus	282	98.2	242	54	0.002	387	79.7	248	99.3	NS

	Bacteria	05	1.8	207	46		98	20.3	02	0.7	
3.	Does chronic disease increases the risk for Corona?										
	Yes	254	88.6	322	71.8	NS	317	65.2	238	95.3	0.025
	No	33	11.4	127	28.2		169	34.8	12	4.6	
4.	Can Corona be fatal/Causes death?										
	Yes	287	100	370	82.4	NS	393	80.9	250	100	0.017
	No	Nil		79	17.6		93	19.1	Nil		
5.	Corona can be controlled by applying protective measures										
	Yes	245	85.2	309	68.8	NS	333	68.6	227	90.7	0.028
	No	42.4	14.8	140	31.2		153	31.4	23	9.3	
6.	Incubation period of Corona is										
	24 hours	10	3.5	57	12.7		101	20.8	5	0.7	
	1-10 days	05	1.7	21	4.7		39	8.1	12	4.6	0.034
	1-4 weeks	269	93	361	80.4		327	67.4	233	93.7	
	>5 weeks	05	1.7	9	2.2		17	3.6	00	00	
7.	Disease can be transmitted via										
	Skin contact	01	0.4	101	22.3	0.008	83	17.2	7	2.7	0.029
	Droplet infection	267	93	292	64.9		342	70.2	235	94.1	
	Oro fecal route	18	6.5	56	12.5		61	12.6	8	3.1	
8.	Presenting complaints include										
	Fever	17	6.0	79	17.3		94	19.3	12	4.7	
	Cough	15	5.3	52	11.7	0.026	69	14.2	07	2.7	0.001
	Shortness of	15	5.3	52	11.7		72	14.8	05	2.0	
	breath(SOB)	240	83.4	266	59.3		248	51.6	226	90.6	
	All of above										
9.	Common Source of information are										
	Newspaper	07	2.6	3	0.67		23	4.88	00		
	Television	29	10	83	18.5		30	6.11	15	6	
	Social media	251	87.4	363	80.03		433	89.09	235	94	

Table No.3: Showing Response of Students towards Practice for Preventive Measures

	Questions	Numbers	%tages
1	Do you afraid of infecting Corona by yourself or your family member?		
	Yes	480	81.4%
	No	109	18.6%
2	Which of the following protective measure you practice?		
	Social distancing & Self quarantine	44	7.5%
	Face mask	540	91.68%
	Hand sanitizer& frequent hand wash	5	0.82
3	Did you get vaccination?		
	Yes	521	88.4%
	No	68	11.6%
4	Do you use following protective measures while dealing Corona patient?	548	93%
	Use gloves	529	90%
	N95 Mask	579	98.3%
	Hand sanitizer	589	100%
	gown	431	73.1%
	All above	357	60.6%
	Are you satisfied with available information?		
	Yes	137	23.2%
	No	452	76.8%
	What source do you use to get information?		
	Television	67	11.4%
	Print media i.e. newspaper	12	2.0%
	Social media i.e. face book, whattsapp etc.	510	84.6%
	Would you like to join awareness and educational programmes about Corona pandemic?		
	Yes	503	85.4%
	No	86	14.6%

DISCUSSION

Knowledge gap among medical students about Covid-19 pandemic in regards of prevention, dissemination and treatment has been shown by some studies [17]. Previous studies manifested that misdiagnosis and mismanagement is common due to paucity of Knowledge leading to poor skills for history taking and recognition of signs and symptoms [18]. This aspect of shortfalls in control of pandemic is supplemental in developing countries like ours. In view of previous studies and irrevocable current widespread global issue of Covid-19 pandemic, this study was carried out to find out the level of knowledge and awareness of our medical students of southern Punjab, Pakistan. As per we know, no such study yet conducted in this region that also signify our study.

Overall better knowledge and attitude towards protective measures for Covis-19 is shown among clinical and male students in our study. Direct involvement of clinical students in patients dealing for taking history and initial evaluation that increases their confidence level on one hand and practical knowledge on other hand is a basic suggested ground of this difference. Another cause forcing them to enhance their knowledge for preventive measures and its management might be the metal trauma gained by direct observation of Covid affected patients, their management in isolation far from dear ones and fatal outcome. Previous studies show the undeniable constructive relation of knowledge with level of study year, senior the student more the knowledge [2, 8, 19]. International research is continuously revising the treatment of Covid-19 with yet no consensus on its definite treatment.[20] Different trails on vaccination are going on. All these factors compel to update of knowledge. Our study shows the most popular and main source of information in medical students is a social media. Rapid shift of learning pattern has been seen in recent past. Recent publications showed increased utilization of internet and social media for Covid-19 updates. The influential role of social media to update and disseminate information cannot be challenged but on the other hand might be harmful by propagating wrong information[21,22]. Continues media updates for Covid related death rate creates the dread leading to anxiety, Depression and other psychological impacts. No question about hot favorite source of information by youth is social media but Strategic planning is prime need for its pragmatic utilization, to overcome the fallibilities resulting from deficiency of basic knowledge. Online short courses for medical students might be the solution.

Female students were not much erudite in comparison to male. It's highly reflective of our society where females have less exposure to public and media. Moreover females are generally least updated for current affairs[23, 24]. There is exigency to annihilate the shortfall of knowledge among medical students observed in our study and to orchestrate curriculum for medical students incorporating all clinical aspects of Covid-19 including the virology, epidemiology, pathology and management. Courses on infectious diseases should be part and parcel of their medical curriculum[25, 26]. Benefits of internal assessment grades or certificate can be offered to compel the students to attend the online education programs or courses during the current situations of lock down. Indubitably, early diagnosis has indispensable role in reducing the mortality rate of any disease through the proper treatment in time leading to better recovery. Our study showed, comparatively, the awareness of clinical presentation of Covid-19 patients was not superlative among females and preclinical students. To conquer this meagerness of knowledge, short courses on subject of infectious diseases covering all aspects of risk factors, etiology, clinical presentation and diagnosis, management and complications could be organized for medical students as a part and parcel of their main course [25, 26].

CONCLUSION

Our study shows, overall dearth in basic knowledge and awareness about Covid -19 among medical students. However awareness and practice for protective measures was comparatively better among clinical and male students. A pivotal yardstick to measure pandemic control is compliance with behavior change and protective measures that is not shown good enough. Medical students are frontline soldiers of future that necessitate the strategic planning to refine their curriculum aimed to amplify their knowledge and enhance their expertise with high potential to foil this kind of pandemics in future.

Author's Contribution:

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Original Article

Free Flaps Reconstruction in Head and Neck Cancers: Frequency and Outcome in a Tertiary Care Hospital

Fahmina Buriro[1], Syed Akbar Abbas[2], Syeda Amna Bukhari[3], Mazhar Nizam[1], Furqan Mirza[4] and Sana Sadiq[5]

ABSTRACT

Objective: To determine the Frequency of different Free flaps for head and neck reconstruction and their outcome.
Study Design: Retrospective study
Place and Duration of Study: This study was conducted at the Plastic and reconstructive surgery department and department of ENT, head and neck surgery, Patel Hospital Karachi from July 2011 to June 2015.
Materials and Methods: 110 patients with different head and neck cancer who underwent reconstruction with free tissue transfer were evaluated. Most of the free flaps performed for squamous carcinoma of cheek with or without bony involvement. There were 93 free flaps for soft tissue reconstruction and 16 for bony reconstruction.
Results: The most common free flap performed was Anterolateral flap (n: 50) followed by radial forearm flap (n:44) and free fibular flap (n: 16) An overall success rate of 94.5% for free-tissue transfers is reported. Radial forearm was most common flap for tongue reconstruction and anterolateral thigh flap for cheek and other larger defects while fibular free flap for bony reconstruction. Donor and recipient site complications, including flap failures and anastomotic revisions, are analyzed in detail with respect to age, radiation status, donor site, and primary or recurrent neoplasm.
Conclusion: Different Microvascular free flaps in head and neck depends on type, size and composition of defect and surgeon's preference and expertise and anterolateral thigh flap has become most popular free flaps for variety of defects.

Key Words: Microvascular, free flaps, reconstruction, head and neck

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INTRODUCTION

Microvascular free-tissue transfer to the head and neck has become most popular method of reconstruction nowadays. Reconstruction in head and neck require complex reconstruction. It ranges from lining defect to composite defects involving soft tissue as well as bone. Time of patient presentation is very important. If patient presents early and T stage is low reconstruction will be simpler than the patients present late with advanced T stage making reconstruction more challenging and difficult. Key to success of surgery is choosing an appropriate reconstructive option based on the patient's requirements and fitness for major surgery. Where possible, free tissue transfer provides the best functional and aesthetic outcomes for the vast majority of defects.[(1)] Free flaps offer more reliable wound coverage with superior cosmetic and functional outcome and minimized donor site morbidity as well. There are many different free flaps used worldwide depend on site size and composition of recipient defect, surgeon's expertise and preferences. Perforator flaps rapidly gained popularity due to their main advantages: sparing of the underlying muscle with the resultant decreased donor-site morbidity and the possibility of improving aesthetic outcome.[(2)]

Regarding choice of free flaps, majority of surgeons set their preferences for small soft issue and lining defects, large soft tissue defects and composite defects necessitating bony reconstruction. Anterolateral thigh flap is nowadays flap of choice for large soft tissue defects because of its versatility. The choice of an osseous flap for mandibular reconstruction depends on pedicle length requirement and the availability of donor tissue.[(3)]Free fibula is still first choice of majority of head and neck reconstructive surgeons for these reconstructions. For lining defects and tongue reconstruction there are various options in modern era

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like thinned ALTF, MSAP, lateral arm flap etc. but still radial forearm and rectus abdominis flaps are widely used for such defects.

Several flaps, including the anterolateral thigh, fibula osteocutaneous, and suprafascial radial forearm fasciocutaneous free flaps, have emerged as workhorse flaps for reconstructing a wide variety of defects. As the anatomy of these flaps has become more familiar, their reliability and versatility have increased.[4]

Success rate of free flaps routinely exceeds more than 95% in majority of centers practicing microsurgery.[5] Re exploration of flaps is most of the time because of venous compromise followed by arterial compromise and with timely pick of problem and urgent re exploration majority of flaps survive.[6] Complications like wound infection and dehiscence, neck hematoma formation, fistula, implant exposure vary with center to center but are well documented complications in head and neck reconstruction.

MATERIALS AND METHODS

A retrospective review was carried out of all patients who underwent free flap surgery for head and neck cancer reconstruction at Plastic and reconstructive surgery department of Patel hospital Karachi; between July 2011 to June 2015 to evaluate the frequency and outcome of different free flaps over this period. Data was collected about age, gender, comorbids, radiation, and histopathology, stage of disease, site and size of defect, flap chosen, donor site closure, early flap complication and final outcome of flap. A flap was labelled as successful if it survived with or without any complications. We compared the flap failures with age, comorbids, radiation and type of flap.

During this study period 110 free flaps were done to reconstruct variety of defects. Most of the free flaps performed for squamous carcinoma of cheek with or without bony involvement (n=72) followed by tongue (n=15) mandibular body (n=6) retro molar area (n=6) palate (n=4) lower alveolar ridge (n=4) lip (n=3), There were 93 free flaps for soft tissue reconstruction and 16 for bony reconstruction, as shown in Figure 1.

Among these 110 patients 71 were male and 29 females with mean age of the patient was 47 years. 18 patients had comorbids among which diabetes mellitus, hypertension and hepatitis C were most common comorbids. Number of patients presented with primary lesion was 100 while 4 residual, 3 recurrent and 3 presented with synchronous lesions. T4 was observed to be most common T stage both clinically (n:56) and pathologically (n:39). Cervical lymph nodes were involved clinically (n:47) and pathologically (n:45). Squamous cell carcinoma, as shown in Figure 2.

Surgical protocol and Technique: Our protocol was to evaluate the patient pre operatively in weekly combine ENT/Plastic surgery clinic (head and neck clinic) after complete work up and selected patients discussed in official MDTs. In our unit we routinely did anterolateral thigh flaps for soft tissue defects, radial forearm for majority of tongue and lining defects and fibula for mandibular reconstruction, as shown in Figure 4.

Statistical Analysis: Data was entered and analysis in to SPSS version 22. Descriptive statistics were calculated in term of mean ± SD as appropriate. Categorical variable was computed in term of frequency and percentages. All results were display in the form of charts and tables.

RESULTS

A total of n=110 patients of free flap meeting the inclusion criteria were enrolled in the study.The most common free flap performed was Anterolateral flap (n: 50) followed by radial forearm flap (n:44) and free fibular flap (n: 16). Soft tissue reconstruction was performed in 94 (%) and bony reconstruction along with soft tissue was done in 16 (%), depicted in Figure 4.Complete flap survival was obtained in 104 patients (94.5%). Eight flaps got compromised out of which 5 flaps were re explored and 3 were not re explored. Among 5 re explored flaps 3 had venous compromise, one had arterial compromise and one had neck hematoma causing compression over pedicle which was otherwise normal. Two flaps survived and 3 did not survive after re exploration. Among three flaps which could not re-explored, 2 had venous and one had arterial compromise clinically, as shown in Figure 3.

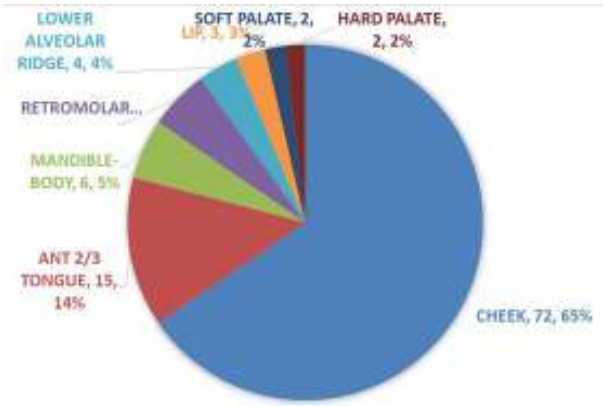

Figure No.1: Site of Lesion

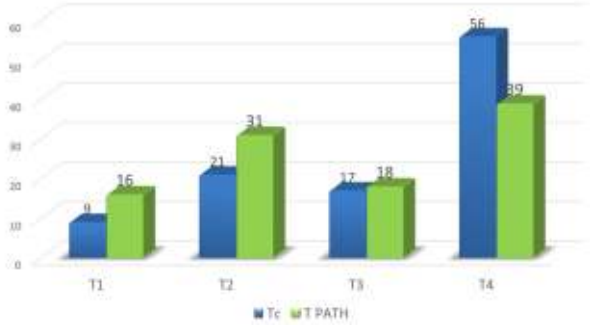

Figure No.2: Size of the Lesion

Complications other than flap compromise were observed in 26(23%) flaps. These were neck wound infection (6.3%), flap dehiscence (4.5%), donor site graft loss (4.5%), chest infection (3.6%), hematoma without flap compromise (1.8%), lower lip necrosis (0.9%), partial flap necrosis (0/9%), as shown in Figure 3.

We compared the flap failure with age of patient by dividing patients in 2 groups. First group was of age below 45 years and second group of age above 45 years. In first group number of patients were 54 and in second group number of patients were 57. In first group number of flap failure were 3(2.7%) and in second group number of failure were also 3 (1.7%) suggesting that advanced age does not statistically significant have impact on flap failure. We compared the flap failure with history of previous radiation. Nine patients had history of radiation (8.1%), among which 2 (22%) patients faced flap failure. So, among 6 flap failures 2 (33.3%) had history of radiation suggesting previous radiation has role in flap failure.

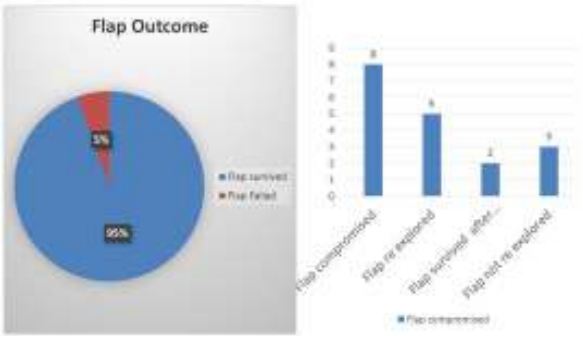

Figure No.3: Flap Success and Failures

Figure No.4: A: Anterolateral thigh flap for composite cheek defect, B: Radial forearm free flap for tongue reconstruction, C: Fibular free flap for mandible and soft tissue defect

We compared the flap failure with history of comorbids. Among patients with comorbids, 3 (16.6%) had flap failure while among patients without comorbids flap failure was observed in 3 (3.2%), suggesting comorbidities has role in flap failure.

We compared the flap failure with type of flap. Anterolateral thigh flap has highest number of failure (n:3) followed by free fibula flap (n:2) and radial forearm flap (n:1).

Radial forearm was most common flap for tongue reconstruction and anterolateral thigh flap for cheek and other larger defects while fibular free flap for bony reconstruction. Overall success rate of 94.5 % were found more statistically Significant for success rate (P<0.0001).

DISCUSSION

Reconstruction in head and neck cancer has always been a challenge. These defects need to be reconstructed at the same time after ablative surgery to maintain form and function of highly specialized region of head and neck. In search of replacing like with like tissue researchers has done extensive job.[1]

Since the advent of free tissue transfer, marked improvement in both form and function is noticed. Free flaps are nowadays mainstay of head and neck reconstruction in majority of centers practicing head and neck cancers worldwide.

With advances in the field of free flaps and advancement in knowledge of anatomy, new flaps and flap techniques also emerged. Perforator flaps revolutionized the free tissue transfer surgery. There are so many flaps available in human body but not all of them got popularity in routine use. Commonly used flaps for soft tissue reconstruction are anterolateral thigh flap, radial forearm flap, lateral arm flap, latissimus drosi flap, thoracodorsal artery perforator flap, rectus abdominis and its variants etc. while for bony reconstruction most popular flaps is free fibula flap, followed by DCIS, scapula, and radius. Each flap has its own merits and demerits in regard to elevation, length of vascular pedicle, diameter of vessels, quality and quantity of soft tissue and bone, and donor site morbidities. Selection of flap has its own learning curve for reconstructive surgeon. In my personal experience young reconstructive surgeons want to do each and every flap but with the time and experience they realize that not each and every flap is worth doing and consistency of their success with particular flaps help them decide their choice with high comfort level. Donor site considerations are highly considered in selection of free flaps in current era.

We evaluated our 110 free flaps in head and reconstruction done in 4 years' time which is not a big number as compared to many other centers. We found in our data that we are doing three most commonly used free flaps in head and neck cancer reconstruction with consistent results and with the time operative time has reduced significantly. Senior author (dmn) has been using latissimus dorsi free flap, rectus abdominis free flap, and gracillis free flap in non-head and neck reconstruction but for head and neck he worked mostly on three free flaps, and set an institutional practice of doing radial forearm for tongue and lining defects, anterolateral thigh flap for large soft tissue defects and fibular flap for bony reconstruction. Although

sometimes we used radial forearm for medium size soft tissue defect and ALTF for tongue reconstruction and very large soft tissue and bony defect with reconstruction plate and ALTF.

We discuss the case in combine head and neck clinic with our otolaryngologist and make individualized plan for each case. In some high-risk patients and for patients not fit for prolonged surgery we make different plan with pedicled flap also.

In our set up late presentation is very common and, in our data, high number of patients presented in T4 stage, as shown in Figure 2. Such patients are also big challenge for both ablative and reconstructive surgeons. Many patients present with history of reduced mouth opening to general physical and then found to have ulcer. Squamous cell carcinoma is most common presentation in our data as well as worldwide.

A number of authors have investigated the causes and timing of flap failure. In a series of 990 patients Kroll et al reported that 50 cases (5.1%) developed pedicle thrombosis.

Venous thrombosis was more than twice as common as arterial thrombosis and tended to develop later. Hidalgo et al identified venous problems (35%) as the most common etiology of flap failure followed by arterial problems (28%), hematoma (26%) and recipient vessel problems (11%).[6, 8] In our data also venous complication is the most common complication and reason for flap failure. We documented venous compromise (4.5%), arterial compromise (1.8%) and hematoma (0.9%). Grammatica et al reported no role of advancing age in flap failure in their study on expected outcome of free flaps in elderly.[7] We also did not find more failures in elderly patients.

Overall success rate of free flaps varies in literature from 94% to 97% and some centers reported even more than 97%.[5] We documented overall success rate of 94.5% which is comparable with international standards.

Successful free flap is sometimes not enough for patient of head and neck if functional outcome is not good or if patient is not satisfied with cosmetic appearance of flap. Patient develops problems after radiation therapy. And majority of patients with advanced stage has reduced mouth opening pre operatively which further reduced after radiation. This is limitation of our study that it does not address late outcomes as true success can be better determined by late outcome of surgery. In this situation a prospective series or retrospective cohort is highly recommended**.**

CONCLUSION

Different Microvascular free flaps are used in head and neck depends on type, size and composition of defect and as far as success rate matches standard and donor site morbidities are minimized choice of flap is surgeon's preference and expertise. Anterolateral thigh flap has become most popular free flaps for variety of defects.

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Original Article

Vitamin-D Deficiency in Women of Reproductive Age

Prevalence of Vitamin-D Deficiency in Women of Reproductive Age

Zubia Bugti, Samia Saifullah and Nasreen Sultana

ABSTRACT

Objective: The aim of this study is to evaluate the prevalence of vitamin D in females of reproductive age.
Study Design: Observational / cross sectional study.
Place and Duration of Study: This study was conducted at the OPD of Sandeman Provincial Hospital (SPH), Quetta, Balochistan, Pakistan, in the time period between September 2021 to April 2022.
Materials and Methods: The study was conducted on a sample of 100 women, aged between 15 to 51. To evaluate the prevalence in the different stages of the reproductive age, the sample was distributed in three different groups. Group A included patients of age 15 to 25 (n=20). Group B included patients of age 25 to 40 (n=25). Group C included patients of age 40 to 51 (n=45). These patients arrived with complaints of lower backache and had not been subjected to vitamin D supplements prior to investigations.
Results: It was found that 77% of the patients either had a deficiency or insufficiency of vitamin D, whereby patients of Group C were found to be most prone to vitamin-D deficiency and lower backache.
Conclusion: The prevalence of vitamin-D deficiency is very high in women of reproductive age group. The patients of childbearing age came to the OPD with complaints of chronic backache and/or overall body aches. These patients had not been taking any sorts of supplements for Vitamin D prior to this investigation. These patients were subjected to vitamin d serum level test and it was found that 77% of the patients had severe to moderate Vitamin-D deficiency. vitamin-d deficiency is a prevailing issue all around the world and is causing various health related issues, further lowering the quality of life, as well as proving to be a hindrance in the socio-economic development of the developing countries where the vitamin-d deficiency level has been found to be the highest.
Key Words: Vitamin-D Deficiency, Women, Reproductive Age

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INTRODUCTION

Vitamin D is a prohormone vitamin required for the various significant functions of the human body; it also plays an essential role in the reproductive well-being of females. Human body itself is capable of synthesizing this vitamin when the skin is exposed to ultraviolet light varying between the wavelengths 290nm to 350nm [1].
Prevalence of Vitamin-D deficiency as well as lower backache has been found to be more common in females as compared to their male counterparts of the same age [2].
Vitamin-D deficiency may occur due to low life quality, low nutritional value intake of vitamin d, lack of exposure to direct UV light of the aforementioned wavelengths and long periods of time spent indoors [3].
Vitamin-Deficiency can lead to a number of health issues including inadequate bone development, poor mental growth, diabetes 1 and cancer [4]. It is therefore, very important for the body to obtain a sufficient amount of vitamin D in order to function and develop properly.
The Endocrine Society suggests that vitamin D serum levels equal to or below 50nmol/L are considered a deficiency; meanwhile a serum level between 50 to 75 nmol/L is considered an insufficiency [5].
The incidence of vitamin-D deficiency can be observed in pupils who do not get ample exposure to sunlight, which is one of the main sources of vitamin-D production in the human body. The diet, of course, plays an important role as well. It has been found that people who prefer a vegetarian diet often suffer from this deficiency since their intake of dairy products and other food sources of vitamin D is very low [6].
Vitamin-d deficiency poses a serious threat to the normal functioning of human body. Since vitamin d plays a significant role in the calcium-phosphorus homeostasis, women facing vitamin-d deficiency are prone to osteomalacia[7]. This is in direct relation with the prevalence of chronic lower back ache, which was a frequent complaint from the patients, and is caused

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when a person remains deficient for a long period of time [8].

MATERIALS AND METHODS

This study was conducted on a total of hundred patients, all within a reproductive age group i.e. 15 to 51. These patients came to the OPD of Sandeman Provincial Hospital, Quetta. The duration of the recordings in this study is from September 2021 to April 2022. The area of residence of these patients were somewhat spread through all of Balochistan. About 86% of these patients were from rural areas where lifestyle includes hard labor including labor related to agricultural. Lack of modernization in these areas also means that the simplest of household chores can put them under physical strain. None of these patients had been taking any form of vitamin d supplements prior to this investigation.

All patients who had been taking any form of supplement for vitamin-d deficiency were excluded from this study, hence the study targets only those patients who had been obtaining vitamin d through natural sources only.

Complete histories were taken from all these patients after whom they were examined physically. These patients came to hospital for consultations regarding various gynecological issues and complained about chronic backaches. Patients who come to consult for their gynecological issues had often been complaining about chronic backache, one of the most common complaints we have encountered from female patients over the years. Thereafter, tests for Vitamin D serum level were conducted on these patients and their results were then recorded and studied.

These records of their tests were divided into three groups according to a certain age group for further evaluation. These groups included:

The frequency, percentage and test results of vitamin d level were analyzed to determine the deficiency or insufficiency of vitamin d in these patients and to determine its relation to the lower backache patients had been complaining about.

RESULTS

The study was conducted on a total of 100 patients. 77% of these patients complained of lower backache and had vitamin-D deficiency.

Table No.1:Age group

Group	Number of patients	Age group
A	20	15-25
B	35	25-41
C	45	41-51

The maximum number of patients that came to the OPD with a complaint of chronic lower backache were in group C and upon obtaining the test results of their vitamin d serum level, it was found that prevalence of vitamin-d deficiency was also most common in this group.

Table No.2: Severe deficiency with serum level

Severe deficiency	serum level ≤10 ng/ml
Deficiency	10-20 ng/ml
Slight to moderate deficiency	20-30 ng/ml
Sufficient	≥30 ng/ml
Ideal	40-50 ng/ml
Indeterminate	50-150 ng/ml
Toxicity	>150 ng/ml

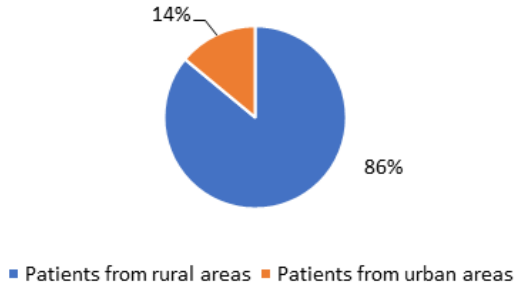

Figure No.1: Patient Distribution

DISCUSSION

The fat soluble vitamin D has the basic function of maintaining calcium homeostasis and plays a significant part in sustaining healthy bones [9]. The human body requires vitamin D for efficient absorption of calcium, which then strengthens the bones. In case of fractures, it becomes all the more significant since an adequate amount of vitamin d intake allows absorption of calcium, which in turn allows the bone to grow and heal. Vitamin-d deficiency results in the softening of bones in adults, which then increases the chances of fracture. Along with high chances of fracture, the weakening of bones causes pain and reduces the overall strength and therefore the quality of life of the person. Along with this, vitamin D also aids in strengthening the muscles and VITAMIN-D DEFICIENCY can cause the muscles to degenerate as well.

Not only does vitamin-d deficiency have adverse effects on the bones, it also has a massive impact on the immune system. Vitamin-d deficiency has been found to be correlated with life-threatening deceases such as breast cancer, colon and prostate cancer, as well as various heart deceases.

Vitamin D can be obtained from a number of food sources such as dairy products, fish, cod liver oil etc. The human body itself is capable of synthesizing vitamin D upon exposure to ultra violet light obtained from the sun. A limited or scarce intake of vitamin D food sources and lack of exposure to sunlight can cause vitamin-d deficiency [10].

Vitamin-D deficiency is common around the world as it is hard to obtain the adequate amount from food sources alone and a vast portion of the population

around the globe are not exposed to sufficient sunlight either. As a result, vitamin-d deficiency is very common; more so in developing countries [11]. It has also been found that vitamin-d deficiency's prevalence is rather high and common among patients with chronic backache, which implies that there is a connection between the two [12].

Patients that have vitamin-d deficiency often show common symptoms, these may vary from patient to patient but collectively, vitamin D deficient patients show these symptoms more often than not. The symptoms include muscular ache and aching bones, exhaustion, lower backache, depression and delayed recovery from sore muscles [10].

Lower backache is found to be strongly associated with vitamin-d deficiency [13]. Lower backache can be defined as an ache or stress in the muscles, or painfulness confined underneath the costal margin and over the inferior gluteal folds. This ache may or may not be with pain in the legs [14].

The concentration of vitamin d level in human body can be obtained by testing the level of 25 (OH) Vitamin D. Vitamin D serum levels can be distributed into seven categories. These can be listed as:

In our study, no patients were found to have either indeterminate or toxic level of 25 (OH) vitamin D. Nearly 45% of the patients in Group C were found to be severely deficient, while most members of group A were found to be within the values of ideal, sufficient or moderately deficient regions.

Patients of Group A were found to have the least amount of vitamin-d deficiency. The patients who reported that their exposure to sunlight was ample either had the ideal or sufficient level of vitamin d. Their diets consisted of dairy products which further reduced their chances of vitamin-d

Deficiency. However, it was found that these pupils complained of lower backache as well. This implies that vitamin-d deficiency is not the only factor causing lower backache. It was found that the prevalence of backache in patients of Group A was related to either menstrual backache along with leg pain, or was due to work load and poor quality of life. This finding is also supported by the study conducted in Turkey [15].

Patients of Group B included women who had had various deliveries and in some cases abortions as well. Majority of the patients in this group were found to have at least an insufficiency of vitamin D. Vitamin D level of patients who had recently given birth were often found to be low.

Pregnant patients in all groups often complained of lower backache, however it was not always due to vitamin-d deficiency. These patients complained of lower backache more frequently than those who were of the same age group but were not pregnant. This finding again, is in correspondence to the study conducted in Turkey [14]

Patients of Group C included women who had had the highest number of deliveries, and also included patients who have had multiple abortions. A number of these patients belonged to the rural areas of Balochistan, where quality of life is very low and despite the increasing age, women have to do heavy labor along with household chores. A combination of multiple pregnancies, low quality of life, inadequate exposure to the sun and low intake of foods rich in vitamin D, result in the high prevalence of vitamin-d deficiency in these patients.

Our study was found to show findings similar to those of Nupur Nandi and Banasree Bhadra, where it was observed that prevalence of lower backache is also associated with the number of deliveries and/or abortions [16]. Patients included in group C had had the highest number of pregnancies, indicating that the number of deliveries and in certain cases abortions was highest among these patients as well. As stated above, this group was also found to have the highest prevalence of vitamin-d deficiency. This observation reinforces the finding that the two are correlated.

Since vitamin D is also associated with muscular strength [17], not only did a number of patients complain about chronic backache but also complained about overall body aches. These patients also showed vitamin-d deficiency or insufficiency.

Not only in Pakistan, but it has been found in studies conducted in Iraq [1] and Iran [18], that prevalence of vitamin-d deficiency in females of reproductive age group is high. The studies conducted in Iraq and Iran also state that vitamin-d deficiency is common in UK and USA as well. People living the extreme north were also found to have high prevalence of vitamin-d deficiency, probably due to very limited exposure to the ultraviolet light. This indicates that vitamin-d deficiency is a prevailing issue not only in developing countries but all over the globe. However, its prevalence in developing countries is the highest since there are various factors including low quality of life, lack of nutritious food, hard labor etc. that increase the chances of Vitamin-D deficiency and resulting chronic backache.

CONCLUSION

Our study indicates the prevalence of vitamin-D deficiency is very high in women of reproductive age group. The patients of childbearing age came to the OPD with complaints of chronic backache and/or overall body aches. These patients had not been taking any sorts of supplements for Vitamin D prior to this investigation. These patients were subjected to vitamin d serum level test and it was found that 77% of the patients had severe to moderate Vitamin-D deficiency. vitamin-d deficiency is a prevailing issue all around the world and is causing various health related issues, further lowering the quality of life, as well as proving to

be a hindrance in the socio-economic development of the developing countries where the vitamin-d deficiency level has been found to be the highest.

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Original Article

Gender Influences on Lifestyle Behaviors – A Cross-Sectional Study in the Public Sector Medical College of Abbottabad

Abdul Rauf[1], Mohsin Khan[1], Niama Khan[2], Haidar Zaman[1], Abdul Ali[1] and Faiza Khan[3]

ABSTRACT

Objective: Medical students are not only the last but also the most important chance for instruction in the field of healthy lifestyles and eating habits. The goal of the study is to assess and compare the lifestyle of medical students.

Study Design: Descriptive Cross-Sectional Study

Place and Duration of Study: This study was conducted at the Ayub Medical College, Abbottabad from March 2022 to April 2022.

Materials and Methods: Socio-demographic profile, body mass index (BMI), eating habits, sleeping hours, activity hours, exercise, and substance addiction was recorded in the pretest questionnaire.

Results: In this study, 270 participants were recruited, among which 58% (157) were males and 42% (114) were females. The majority of males fell in the category of overweight (38%) and obese (18%) while in the underweight category majority were female. Low income, increased sedentary hours, waking up late in the morning, and hostel residency are the significant risk factors for males' overweight and obesity. Females significantly consume more fruits, legumes, milk, and fast food. 22% of individuals have clinically significant activity hours. The majority of males (10%) (15/156) have substance addiction while only 4% (5/114) of females use substance addiction.

Conclusion: Prevalence of pre-obesity and obesity is high among males. Regular consumption of healthy diets is low and there is a high rate of consumption of unhealthy foods among both genders. Activity hours are decreased in both genders while there is decreased prevalence of substance addiction as compared to medical students of other regions

Key Words: Body mass index (BMI), Gender, Dietary Habits, Activity hours

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INTRODUCTION

The term Gender means a characteristic that a man or woman acquires through psychosocial or cultural influences while sex denotes the biological features that are determined by different physiology specific to man and woman. Gender behaviors are determined by the socio-cultural environment of a particular society so that a defined behavior may be considered in a different way i.e. masculine or feminine, depending on the cultural norms. A typical example is driving a car, which is considered a masculine feature in certain Muslim societies while it is considered neutral in the western culture[1].

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Several epidemiological studies and clinical experiences indicate that different lifestyle behaviors are strongly related to different aspects of health. Especially, unhealthy diet and lack of physical exertion are the principal determinants in the etiology of non-communicable (NCD) diseases such as cardiovascular diseases, type 2 diabetes, and cancer[2]. These lifestyle risk factors are mostly acquired early in life and are influenced largely by the factors such as familiar, economic, educational, and social environments as well as by sex. Indeed, the risk of development of NCDs is strongly dependent on gender and sex-related determinants. Moreover, each individual has his own choices for certain foods determined by genetic background, hormonal features and levels, metabolic rates and personal metabolic pathways, and so on[3].

The literature review reveals limited data discussing the gender-related differences in lifestyle behaviors of medical students in our country. The present study aims to obtain preliminary information regarding dietary detail, eating habits, and physical exertion among the medical students in the northwestern part of KP Pakistan which could form the basis for developing interventions and nutrition education programs that may help in improving the nutritional status of this important segment of the population.

MATERIALS AND METHODS

This was a cross-sectional study conducted on male and female medical students (MBBS and BDS programs) studying at Ayub Medical College Abbottabad. The data was collected on a self-designed close-ended questionnaire. The time duration of the study was from March 2022 to April 2022. All the students, from first to final year were included and those who refused to participate voluntarily were excluded from the study. After obtaining informed consent and assurance of maintaining confidentiality, the printed questionnaire was handed over to each student to fill in the information regarding socio-demographic variables, anthropometric measurements, and data about dietary habits, physical exertion, and addiction. The data were analyzed in SPSS version 21.

Definitions

- Underweight was defined as < 18.5 kg/m^2, normal weight as 18.5 to 22.9, overweight as 23 to 24.9, and obese as ≥25[4].
- Moderate exercise was defined as at least 150–300 minutes per week of moderate-intensity aerobic physical activity and strenuous exercise at least 75–150 minutes per week
- Sports activities like badminton and basketball were included in moderate-intensity exercise while running, playing cricket or football were included in strenuous exercise
- Sedentary hours mean no physical activity at all (excluding sleeping hours)
- Sleep hours: normal range 7.00 to 9.00 hours per 24 hours[5].

RESULTS

In the present study, about 300 students participated and only 270 met the inclusive criteria of this study (n=270).

Table No.1: Showing Demographic Variables

variables		Males (n=156)	Females (n=114)	Signifi-cance
Age		22±1.6	21±1.5	0.76
Height in meters		1.7±0.1	1.6±0.1	0.04
Weight in kilogram		66±11	53±9	0.10
Accommo-dation	Campus Hostel	83% (129)	61% (70)	0.000
	Out campus	4% (7)	2% (2)	
	Day scholar	13% (20)	37% (42)	
Monthly income	<75000(poor)	58% (90)	32% (44)	0.013
	1-2Lack(mid)	23% (36)	35% (40)	
	>2 Lack(rich)	3% (5)	7% (8)	
	Not mentioned	16% (25)	19% (22)	

Table No.2: Showing Differences in Dietary Habits of Medical Students

Variables		Male (n=156)	Females (n=114)	Sig
Break-fast	Regularly	65% (102)	67% (76)	0.107
	intermittently	26% (41)	31% (35)	
	Never	08% (13)	2% (03)	
Lunch	Regularly	86% (134)	80% (91)	0.42
	intermittently	13% (20)	18% (21)	
	Never	1% (02)	1.7% (2)	
Dinner	Regularly	92% (144)	81% (92)	0.00
	intermittently	5% (08)	19% (22)	
	Never	2.5% (04)	00% (00)	
Snack 1	Regularly	41% (64)	61% (70)	0.10
	intermittently	4% (06)	6% (07)	
	Never	55% (86)	32% (37)	
Snack 2	Regularly	39% (61)	47% (54)	0.27
	intermittently	13% (21)	15% (17)	
	Never	47% (74)	38% (43)	
Snack 3	Regularly	33% (51)	22% (25)	0.08
	intermittently	15% (24)	13% (15)	
	Never	52% (81)	65% (74)	
Vege-tables	Regularly	12% (19)	6% (07)	0.21
	intermittently	80%(125)	8% (96)	
	Never	8% (12)	10% (11)	
Fruits	Regularly	5.7% (09)	19% (22)	0.00
	intermittently	85%(133)	76% (87)	
	Never	9% (14)	4% (05)	
Nuts	Regularly	5% (08)	7% (08)	0.50
	intermittently	92%(114)	76% (87)	
	Never	22% (34)	17% (19)	
Milk	Regularly	15% (24)	29% (33)	0.01
	intermittently	68%(107)	53% (61)	
	Never	16% (25)	18% (20)	
Carbo nated drink	Regularly	10% (15)	6% (07)	0.42
	intermittently	77%(120)	76% (87)	
	Never	13% (21)	17% (20)	
Bakrie's & sweets	Regularly	10% (15)	13% (15)	0.28
	intermittently	67%(105)	58% (66)	
	Never	23% (36)	29% (33)	
Fast food	Regularly	7% (11)	17% (19)	0.00
	intermittently	77%(120)	82% (94)	
	Never	16% (25)	01% (01)	
Fried food	Regularly	16% (25)	29% (33)	0.06
	intermittently	75%(117)	77% (88)	
	Never	9% (14)	2.6% (03)	
legume	Regularly	13% (20)	3.5% (04)	0.00
	intermittently	72%(112)	92% (105)	
	Never	15% (24)	04% (05)	

Participants were grouped into two categories based on their gender, details of socio-demographic variables are shown in the table 1 and the BMI of both genders is shown in the bar chart.

The detail of the different dietary habits of students is shown in table 2.

Activities and Sleep Habits: Moderate to strenuous exercise was done by 55% of participants while 45% of

participants were not doing any exercise. On a gender basis, 62% of males while only 44.77% of females were doing exercise with a significance of 0.000

The majority of the males did strenuous exercise (74%) followed by moderate exercise (25.7%). In females; half of them (50.9%) did strenuous exercise and another half (49.01%) did moderate exercise. The favorite exercise was cricket for males and running for females. Males were found to be more sedentary (62%) as compared to females (36%) with significance of 0.093. Males were found to sleep more (73.7% of males slept 7 to 9hrs) as compared to females (67.5% of females slept 7 to 9hrs). The early rising habit was found more in females (53% woke up early morning at 6:30 am) whereas only 35% of males woke up early morning; with a significance of 0.016.

Drinking and smoking: Substance addiction was admitted by 7.4% among which 10% (15) were male and 4.3% (5) were female. About the type of addiction in males 7males smoked, 5 used snuffs, 2 took alcohol and 1 used other substances for addiction while in females 3 of them smoked, and 2 used alcohol as a substance addiction.

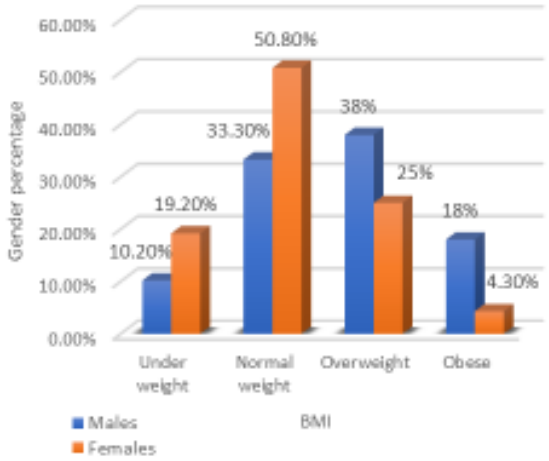

Figure No.1: BMI of Male & Female Students

DISCUSSION

The study presents qualitative and intrinsic features of BMI, dietary habits, financial status, and substances abused among medical students. Simultaneously, a comparative study determines gender differences in diet, attitude toward healthier activities, and addiction.

According to the present study, the prevalence of overweight and obesity among medical students is higher than previously reported by Ahmed U et al[6] and Rafique S et al[7], but the results are in premises with the study done in Lahore by Khan et al[8]. Males are significantly more overweight and obese than females, which is also in accordance with the study conducted in Pakistan by Jamshed S et al, Sajwani RA et al, Khan ZN et al[8,9,10], and studies done in different geographic areas (Greece). M. C. Chourdakis et al[11]. In our study, several significant factors determine the cause of overweight in males. When these factors were compared with previous studies, most of them were found to be linked with obesity among medical students. Males' poor financial status[12], increased sedentary hours[13,14], waking up late and skipping breakfast[15], hostel campus residency[10,15], and decreased activity hours were all factors. A study conducted in Karachi in 2008 by Nisar N et al.[12] states that students with low income have a tendency to become overweight, but the difference in this study was not significant. According to a recent study conducted in both the private and public sectors, Asghar A et al[13] states that the median sedentary hours in medical students is 7.4 hrs. (range 6 to 12 hrs.) This significantly contributes to a sedentary lifestyle among medical students. A majority of males (62%) were waking up late in the morning and were skipping breakfast, which is considered an unhealthy dietary practice associated with obesity[14]. According to Jamshed S.et al[10] and Kabir A et al[15], the majority of males live in hostels, and hostel-dwelling students are more obese than those who live with their parents. The results of underweight individuals are almost consistent with Ahmed U et al[6] and Rafique S.et al[7]. Females are found to be more underweight than males because females are more conscious about their body appearance. N. Nisar et al[12].

The three-time meal pattern was regular in both genders; females were slightly more regular, but the difference is not significant. Breakfast is the most frequently overlooked meal[9,11]. Unhealthy dietary practices were observed in medical students[13]. A decreased daily intake of healthy foods like vegetables, fruits, legumes, and milk was observed[9,11]. The figure for students having decreased healthy food is quite higher than that reported by a study done in Greece[11]. This might be due to the poor financial status of our students and the expensive healthier food, as among those who have never had milk, 26 are poor ($p = 0.04$), and among those who didn't eat fruits, 12 were poor ($p = 0.02$), and among those who had never eaten nuts, 32 are poor ($p = 0.004$). It was also observed that more than two-thirds of students consumed unhealthy foods like snacks, fried foods, fast foods, carbonated drinks, and baked goods[12]. Many studies had found that individuals who used to eat fast food consumed much fewer healthier foods, such as wheat, legumes, grains, milk, etc. Alfawaz HA et al[17]. Al-Rethaiaa AS et al[18]. When the dietary habits of both genders were compared, a significant difference was noted in the use of fruits, legumes, and milk. Females consumed a significantly higher amount of fruit, legumes, and milk as compared to males. The reason for this could be the status of accommodation, as the majority of males resided in hostels, where they faced a lack of readily available fresh food and financial constraints. The

majority of females, on the other hand, were day scholars and consumed healthier foods as compared to males probably because they had easier access to getting healthy food in their home setting. The female gender also prefers more fast food as compared to the male gender. The reason for this can be taste Sajwani, RA et al table2[9]. A study from Faisalabad and an Asian study also reported high consumption of fast food in females, according to Tariq Set al. and Saha S, et al[16,19]. It was observed that 55% of individuals exercised regularly, almost equal to the 48% reported by Asghar A et al.[13], but when corrected by calculating activity hours, only 18% had considerable activity time > 0.5 to 1 hour and only 4% have activity time > 1 hour. This is quite lower than that reported by Khan ZN et al[8]. Nisar N. et al[12]. Males (62%) did exercise more regularly than females (45%), but only 27% of males had considerable activity as compared to females (15%) (p=0.03). The reasons could be a lack of availability of female walking tracks, sports related indoor and outdoor facilities, and cultural norms curtailing the female gender's ability to go outside. When addiction habits were viewed, it was found that 7.4% (20) used substance addiction as compared to Sajwani RA et al.[9], which states 12.9%. The majority of them (75%) were males. Being the primary breadwinner in Asian society, males are subjected to additional pressure in terms of family expectations[20].

CONCLUSION

The study suggested that medical students were practicing unhealthy dietary habits. Regarding gender differences, males were more overweight and obese, and they had poor dietary habits. They woke up late in the morning and had prolonged sedentary hours. Healthy food consumption was not up to the mark for both genders. Males consumed fewer fruits, legumes, and milk than females. There was increased use of fried food, fast food, and bakery items in females. Activity hours were also reduced in both genders while there was a decreased prevalence of substance addiction as compared to medical students of other regions. Keeping this result in mind we concluded that medical students require comprehensive diet and physical fitness planning and counseling at college and university levels. This will improve community health and wellness.

Author's Contribution:

Concept & Design of Study:	Abdul Rauf
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Revisiting Critically:	Abdul Rauf, Mohsin Khan
Final Approval of version:	Abdul Rauf

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

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Original Article

A Common Cause of Aspiration Pneumonia in Stroke Patients: Dysphagia

Aspiration Pneumonia in Stroke

Nighat Jamal[1], Mohsin Khan[1], Abdul Rauf[1], Niama Khan[2], Saif ud Din[1] and Faiza Khan[3]

ABSTRACT

Objective: To estimate the frequency of aspiration pneumonia in post stroke patients with the use of dysphagia screen and to analyze the associated risk factors.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Ayub teaching hospital, Abbottabad from May, 2018 to October, 2018.

Materials and Methods: The study included patients diagnosed with hemorrhagic and ischemic strokes, who developed dysphagia later. The studied population included samples from both sexes (males and females) with the age group of 35 and above. Detailed history and examination findings were recorded, CT scan brain was performed to confirm the diagnosis of stroke. Chest x-ray and complete blood count were performed for the patients who developed signs and symptoms of pneumonia.

Results: A total of 100 cases that developed post-stroke dysphagia were analyzed for the study. Results revealed that 66% of the patients were diagnosed with ischemic stroke, whereas, 34% were diagnosed hemorrhagic stroke. 54% of patients developed aspiration pneumonia during hospital stay. Among patients with aspiration pneumonia 88% (48) had dysphagia.

Conclusion: A high frequency of occurrence of aspiration pneumonia in post stroke patients is observed. Therefore, early assessment of dysphagia before oral intake in all stroke patients is advised to prevent aspiration pneumonia.

Key Words: Aspiration Pneumonia, Dysphagia Assessment, Stroke.

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INTRODUCTION

Stroke is one of the leading causes of mortality and morbidity.[1] A recently published survey on frequency of stroke associated Pneumonia in Pakistan estimated 21.8% cases had a stroke and/or Transient Ischemic attack and stroke-specific fatalities ranged from 7% to 20%.[2]

Lower respiratory tract infections are a frequent cause of stroke complication with adverse effect on the treatment outcome[3].

Stroke Associated Pneumonia (SAP) is a principal cause for aggravation of post-stroke condition and it refers to the infective pulmonary parenchymal inflammation in stroke patients who developed this condition after stroke without any previous pulmonary infection.[4]

Pneumonia is a common medical consequence seen in the majority of patients with supratentorial ischemic infarction within 30 days of the onset of the disease, as well as a common and substantial cause of fever in the first 48 hours after an acute stroke.[5]

Many clinicians wanted to find a way to avoid post stroke pneumonia and its consequences because of high mortality and disability rate linked with SAP. Patients with severe stroke and high handicap, dysphagia, severe dysarthria or aphasia, poor consciousness, pharmaceutical stomach acid suppression, advance age, atrial fibrillation and diabetes mellitus are more likely to develop SAP.[6] In a study conducted on post stroke complications, pneumonia was diagnosed in 6.9% of the patients with a 3-fold rise in 30-day mortality[6]. Dysphagia which facilitates aspiration of ingested food liquids or oral secretions is regarded as the key risk factor for pneumonia following stock. There is also evidence of reduction in the incidence of pneumonia due to the treatment of dysphagia.[7]

Given this, it appears that early fasting and dysphagia screening at admission remain the most effective interventions for avoiding pneumonia in patients with acute stroke, with formal procedures (sheet check and water solubility test) being connected to a 3-fold reduced incidence of SAP[8].

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This a regardless of clinical severity, it is appropriate to test all patients swallowing functions prior to delivering oral drugs or food[9]. There exist several practical methods that can help decrease the complications of dysphagia, for example, viscosity changes to food and liquids, postural adjustments, oropharyngeal exercises, thermal simulation, swallowing maneuvers and enteral feeding, by managing the swallowing dysfunction.

The study on common causes of aspiration pneumonia in stroke patients is of great value because aspiration is most common cause of mortality in stroke patients[10]. This study was conducted to determine the common cause and frequency of aspiration pneumonia in stroke patients.

MATERIALS AND METHODS

It was a descriptive cross-sectional study, carried out in Ayub Teaching Hospital, Abbottabad, from May 2018 to oct 2018. Early onset pneumonia following stroke has been referred to as post stroke pneumonia. we will utilize the progressively infiltrating lesions in post-stroke chest X ray and more than two of the clinical signs of infection listed below are required for this criterion to identify stroke-associated pneumonia (1) Fever of 38°C; (2) recently occurring cough, cough with sputum, or worsening of chest symptoms associated with an underlying respiratory illness (3) signs of pulmonary consolidation and/or wet rales; and (4) WBC more than $10\times10^9/L$[11].

After informed consent, a detailed medical and personal history was taken. In all the diagnosed cases of stroke (both ischemic and hemorrhagic) that developed dysphagia, detailed medical examination was done for signs of pneumonia. Later on, full blood count and serial Chest X-ray was performed on all those patients with signs and symptoms of pneumonia to confirm the diagnosis. On the day of admission, a skilled physician validated the patient's dysphagia by performing provocation test for swallowing[12]. Inclusion criteria were patients both male and female (age 35 and above), diagnosed with hemorrhagic and ischemic stroke, who developed dysphagia. Exclusion criteria were diagnosed cases of stroke (both ischemic and hemorrhagic) who can take orally, without dysphagia, and all those cases with history of recent pneumonia preceding stroke. Moreover, deeply comatose patient with Glasgow coma scale (GCS) less than 7 were not included in study. Data was entered and analyzed using SPSS version 21. Statistical package of social sciences is used to analyze the data, keeping confidence interval of 95% and p-value of <0.05.

RESULTS

A total of 100 cases of stroke were included in the study (n=100). Out of these 52% were males and 48% were females. Age group range was from 35 to 95 years. The mean age of the sample was 50 years. Distribution of stroke by age group is shown in figure 1. Out of all patients 66 patients (66%) had acute ischemic stroke and 34 cases (34%) had hemorrhagic stroke. Number of patients who developed aspiration pneumonia was 54%. On clinical assessment, 90% ischemic stroke patients with aspiration pneumonia had dysphagia while 88% hemorrhagic stroke with aspiration pneumonia had dysphagia as shown in table 1. Conscious level of stroke patients shown in Table 2.

Table No.1: Showing Dysphagia Frequency in Pneumonia Patients

STROKE TYPE	FREQUENCY (n=100)	ASPIRATION PNEUMONIA	DYSPHAGIA
Ischemic	66 (66%)	20 (37%)	18 (90%)
Hemorrhagic	34 (34%)	34 (63%)	30 (88%)
Total	100 (100%)	54(54%)	48/54 (89%)

Table No.2: Type of Stroke and Conscious Level of Patients

Conscious level	
Type	**Frequency (%)**
Alert (GCS ≥14)	3
Stupors (GCS 7-10)	44
Drowsiness (GCS 11-13)	53

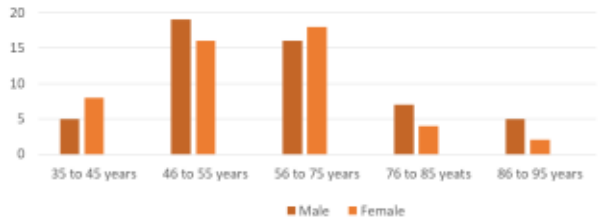

Figure No. 1: Distribution of Stroke according to Age

DISCUSSION

Stroke is the third most leading cause of death worldwide and the most common cause of death in stroke patients is aspiration pneumonia. Approximately 40 to 70% of stroke patients with dysphagia developed silent aspiration, which led to complications like aspiration pneumonia [13,14]. The intrinsic component highlighted by present study is frequency of aspiration and contribution of dysphagia in aspiration pneumonia.

The mean age of patients presented with stroke is 53 years, which is slightly younger than reported by IMRAN M et al, a study conducted in Khyber Teaching Hospital, Peshawer[15]. The difference could be due to selection bias, as comatose patients with GCS less than 7 were excluded from our study because it is difficult to access dysphagia clinically in comatose patients. Male gender slightly predominates over the female gender. In present study about two third cases are of ischemic stroke; these results are in accordance to study done in Iran by Khosravi A et al [10] and by IMRAN M et al. we observed that 54% individuals developed aspiration pneumonia which is quite higher than reported by

IMRAN M et al but an American study reported 40.1% which is near to our observation[16]. In another study of acute stroke patients suffering from dysphagia and requiring tube feeding, the incidence of pneumonia was reported as 44%[17].

Aspiration is most usually induced by dysphagia caused by a stroke and/or reduced degree of consciousness, resulting in an impaired cough reflex and glottis closure[18]. Dysphagia also prolongs the hospital stay as compared to the non-dysphagia group with stroke.[19] The maximum range of dysphagia reported by Sørensen RT et al is 74%[20]. In current study the rate of dysphagia is recorded as 89%, which is quite high and is found to be the most common cause of aspiration pneumonia in stroke patients. The reason for the high prevalence of dysphagia could be the acute phase of stroke as time passed dysphagia resolved in some patients. Another study done at National Taiwan University Hospital also reported 81% cases of aspiration pneumonia in the acute setting of brain stroke[21]. Dysphagia screening at the time of admission in stroke patients can prevent overt and silent aspiration pneumonia[20]. This also reduces hospital stays and mortality in these patients.

CONCLUSION

Frequency of Post stroke aspiration pneumonia is very high in hemorrhagic stroke in acutely hospitalized patients. The majority of stroke patients with aspiration pneumonia have underlying dysphagia on clinical examination. Early dysphagia screening at time of admission can prevent strokes patient from lethal complication of aspiration pneumonia.

Author's Contribution:

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

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Original Article

Predictors of Counterproductive Work Behavior among Nurses: A Case Study of South Punjab

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ABSTRACT

Objective: To investigate the role of burnout in predicting nurses' counterproductive work behavior and to explore the buffering role of forgiveness and emotional intelligence between burnout dimensions and counterproductive work behavior.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the 6 different public and private hospitals of Multan, Pakistan from January 2020 to March 2020.

Materials and Methods: A total 200 nurses (both sexes) with age ranges from 18-44 years participated in the study. After taking informed consent, demographic sheet along with four sets of instruments; Maslach Burnout Inventory (MBI), Counterproductive Work Behavior checklist (CWB-C), Forgiveness scale and Brief Emotional Intelligence scale (BEIS) were distributed among participants for collection of data. Data was analyzed using SPSS-23.

Results: Findings revealed that all dimensions of burnout significantly positively predicted CWB among nurses. No evidence was found regarding the indirect effect of burnout dimensions on CWB through forgiveness. Furthermore, emotional intelligence moderated the positive relationship between two burnout dimensions (emotional exhaustion and personal accomplishment) and CWB but not moderated the depersonalization and CWB relationship.

Conclusion: Findings suggests that emotional intelligence is a personal resource that organizations may foster in nurses to minimize emotional exhaustion and lack of personal accomplishment and its subsequent negative effect on CWB.

Key Words: Burnout, counterproductive work behavior, forgiveness, emotional intelligence, nurses

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INTRODUCTION

Organizations seek highly motivated and dedicated employees who will help them in achieving their stated objectives and goals. Similarly, when employees join an organization, they are expected to have positive attitudes and work behaviors that will improve the organization's effectiveness and maintain its smooth functioning. However, it is not always the case, as employees have tendency to exhibit negative work behaviors known as "counterproductive work behavior" (CWB) [1,2].

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Counterproductive work behavior (CWB) is employees' intentional behavior intended to harm organization and their members. It includes theft, lying, sabotage and verbal abuse [2]. Employees who engage in counterproductive work behaviors (CWB) do it deliberately, not accidently. These behaviors may have detrimental effect on the competitiveness and survival and of an organization. In health care setting, such activities put the wellbeing of an organization and employees in danger. For instance, low patient and employees' satisfaction, high turnover rates and higher hospital expenditures [3]. Despite the fact that many studies on CWB have been conducted in different settings [4,5] but few have attempted to investigate why nurses engage in counterproductive work behavior [6]. One reason that has been identified in recent years behind nurses' engagement in CWB is burnout [7].

Burnout is a concept consists of three dimensions including emotional exhaustion (depletion of emotional resources), depersonalization (callous attitude towards others) and reduced personal accomplishment (tendency to negatively evaluate one's work competency) [8]. Individuals whose job requires giving health support and care to those in need can experience burnout. The nursing profession represents such individuals who are vulnerable to burnout. Nurses are more prone to burnout because of the high physical and

emotional demands of their job [9]. Heavy workloads cause high level of burnout [10], while burnout is positively correlated with CWB [7]. The stressor-emotion model can be used to explain the process that leads to CWB. According to the model, stressful work environment provoke negative emotions and sense of helplessness in employees, which can lead to CWB [2]. In the light of this theory, nurses' exposure to emergency situations, unpredictable working conditions, patients' sufferings and deaths, long shifts, administrative burden, poor work settings and conflicts with coworkers and families of patients can cause them burnout [9,11]. Therefore, if we consider the nurses' experience at their workplace, it is likely that CWB will occur [6]. Given the importance to the CWB of nurses, current study investigated the burnout effect on CWB because in eastern culture this effect has been investigated among teachers, doctors, bankers and police officers but not among nurses.

Positive psychology has recently emphasized on the importance of positive psychological characteristics and capacities on the functioning of human. Furthermore, it affirms that personal resources improve the ability of individual to manage stress effectively help [12]. Similarly, according to conversation of resource theory, personal resources are characteristic of self that help individuals to deal with stress (i.e. burnout)[13]. Supporting these lines using nurses 'case, forgiveness and emotional intelligence as personal resources can help in depleting stress, may moderate the burnout (emotional exhaustion, depersonalization and lack of personal accomplishment) and CWB relationship. Forgiveness is a process in which an individual who has witnessed any offensive act takes deliberate steps to control negative feelings towards wrongdoer and refrain oneself from harm the wrongdoer[14]. It has also a potential to alleviate stressful feelings[15]. Whereas, Emotional intelligence (EI) is the capacity to understand other's feelings, ability to encourage oneself and manage emotions effectively in one's own life and in relationship with the others. It is also essential for reducing work-related stress[16]. Many studies identified that EI has negative relationship with stress[17,18]. Furthermore, employees with high emotional intelligence level tend to exhibit less CWB[19, 20].

MATERIALS AND METHODS

This cross sectional study was conducted at 6 different public and private hospitals of Multan, Pakistan. G power indicated that 176 sample size would be required for small effect size. Total 200 nurses aged between 18 to 44 years of both sexes were recruited by using convenience sampling method. Nurses with at least one year of experience were included in the study. Questionnaires were given to the nurses at their work place after they signed consent form and approval to complete them was taken from head and unit managers of the hospital. Furthermore, nurses' participation was anonyms and no incentives were offered. Nurses' demographic information (age, gender, sector) were collected through self-administrated questionnaire. Data related to nurses' burnout was gathered using 22 items Maslach burnout inventory developed by Maslach and Jackson [21]. The scale has 3 domains including emotional exhaustion (9 items), depersonalization (5 items) and personal accomplishment (8 items). Nurses' negative behavior was assessed using 10 items counterproductive work behavior checklist developed by Spector et al[22]. Forgiveness was assessed using 4 items forgiveness scale by Aquino et al. [16]. Emotional intelligence of nurses was assessed using emotional intelligence scale developed by Wong and Law[23]. Data was analyzed using SPSS version 23. Regression was analyzed to assess the effect of burnout dimensions on CWB. Moderation analysis was performed using Hayes' process macro to test the hypothesis.

RESULTS

The demographics of the sample were captured using descriptive statistics. Out of 200 nurses that took part in the study, 180 (90%) were female and 20 (10%) were male, while 63(31.5%) were from private sector and 137(63.5%) from public sector. The average age of nurses was 24.71 years (SD = 6.219). Correlation among study variables are presented in (Table 1).

Table No.1: Pearson correlation between emotional exhaustion, depersonalization, personal accomplishment, counterproductive work behavior, forgiveness and emotional intelligence

	Variables	**1**	**2**	**3**	**4**	**5**	**6**
1	Emotional exhaustion	1	.713**	.787**	.415**	-.043	-.305**
2	Depersonalization		1	.717**	.348**	-.211**	-.408**
3	Personal accomplishment			1	.407**	-.062	-.236**
4	Counterproductive work behavior				1	-.075	-.426**
5	Forgiveness					1	.400**
6	Emotional Intelligence						1

Results indicates that emotional exhaustion was significantly positively correlated with depersonalization (r=.713, p<.01), personal accomplishment (r=.787, p<.01) and CWB (r=.415, p<.01) while negatively correlated with forgiveness and significantly negatively correlated with emotional intelligence (r-.305, p<.01). Depersonalization showed significant positive correlation with personal accomplishment (r=.717, p<.01) and CWB (r=.348, p<.01) while significant negative correlation with forgiveness (r=-.211, p<.01) and emotional intelligence (r=-.408, p<.01). Results also showed that personal accomplishment was significantly positively correlated with CWB (r=.407, p<.01), negative correlated with forgiveness and significantly negatively correlated with emotional intelligence (r=-.426, p<.01). Furthermore, CWB was negatively correlated with forgiveness and significantly negatively correlated with emotional intelligence (r=-.426, p<.01). However, significant positive correlation was found between forgiveness and emotional intelligence (r=.400, p<.01).

Table 2: Standard Regression model explaining the impact of Burnout dimension on counterproductive work behavior

Predictors	B	S. E	β	T	P
Emotional Exhaustion	.342	.053	.415	6.416	.000***
Depersonali-zation	.505	.097	.348	5.218	.000***
Personal accomp-lishment	.393	.063	.407	6.268	.000***

Results indicate that all burnout dimensions were significant predictors of counterproductive work behavior (p<.001).

Table No.3: Moderation by forgiveness between burnout dimensions and Counterproductive work behavior

		Positive Youth Development	
		95% CI	
Variables	β	LL	UL
Constant	12.83	4.11	21.55
EE	.20	-.12	.53
Forgiveness	-.31	-.87	.23
Emotional exhaustion × Forgiveness	.01	-.01	.03
R^2	.178		
ΔR^2	.002		
F	14.17		
		Positive Youth Development	
		95% CI	
Variables	β	LL	UL
Constant	16.42	6.36	26.48
Depersonalization	.05	-.53	.64
Forgiveness	-.45	-1.07	.16
Depersonalization × Forgiveness	.03	-.01	.06
R^2	.132		
ΔR^2	.011		
F	9.93		
		Positive Youth Development	
		95% CI	
Variables	β	LL	UL
Constant	15.38	7.12	23.65
Personal accomplishment	.12	-.23	.48
Forgiveness	-.46	-1.00	.06
Personal accomplishment × Forgiveness	.01	-.01	.04
R^2	.17		
ΔR^2	.01		
F	14.14		

Results indicate that no moderation effect of forgiveness exists between any dimension of burnout and CWB.

Table No.4: Moderation by emotional intelligence between burnout dimensions and Counterproductive work behavior

		Positive Youth Development	
		95% CI	
Variables	β	LL	UL
Constant	10.40	-9.91	30.76
Emotional exhaustion	1.04**	.31	1.77
Emotional intelligence	-.01	-.31	.27
Emotional exhaustion × Emotional intelligence	-.01*	-.02	-.00
R^2	.287		
ΔR^2	.016		
F	26.37		
		Positive Youth Development	
		95% CI	
Variables	β	LL	UL
Constant	20.93	-4.91	46.78
Depersonalization	1.03	-.43	2.51
Emotional intelligence	-.14	-.50	.21
Depersonalization × Emotional intelligence	-.01	-.03	.01
R^2	.221		
ΔR^2	.003		
F	18.59		
		Positive Youth Development	
		95% CI	
Variables	β	LL	UL

Constant	9.31	-0.16	28.79
Personal accomplishment	1.34**	.50	2.17
Emotional intelligence	-.00	-.28	.28
Personal accomplishment × Emotional intelligence	-.01**	-.02	-.00
R^2	.30		
ΔR^2	.02		
F	28.31		

Results indicate that emotional intelligence buffered the positive effect emotional exhaustion, and personal accomplishment on CWB but not the depersonalization effect on CWB.

DISCUSSION

The purpose of this study was to assess the effect of burnout dimensions (emotional exhaustion, depersonalization and personal accomplishment) on CWB among nurses. Along with that, it also examined the role of forgiveness and emotional intelligence in moderating burnout-CWB relationship.

Results showed that all (three) burnout dimensions positively predicted CWB. This result corroborated with past findings [7, 24, 25]. Thus, it is concluded that job of nurses (e.g. long working- hours and face to face interaction with patients) drains them and this emotional bankruptcy resulting from work overload provides contextual signs that trigger burnout, which contributes to CWB.

No evidence was found regarding the indirect effect of burnout dimensions on CWB through forgiveness. This result contradicts the past findings [15, 26, 27]. However, one study could be the explanation for this result, which revealed that there is no connection between forgiveness behavior and forgiveness cognition. It means that just thinking about forgiveness is not enough to deter anyone from seeking revenge [28].

In terms of emotional intelligence's buffering role, findings showed that emotional intelligence moderated the emotional exhaustion and CWB relationship. This result supports previous finding [29] that emotional intelligence is made up of emotional and social skills, helping people deal effectively with environmental demands. This could also be explained on the grounds that high emotional intelligent people are better at knowing their own and other people's immediate feelings and they are more likely to use their feelings to reinforce positive behavior at workplace. On contrary, low emotional intelligent people behave rashly and unable to anticipate the effects of their actions.

Similarly, results also showed that emotional intelligence did not moderate the depersonalization and CWB relationship. This finding contradicts previous studies, who found negative relationship between emotional intelligence and depersonalization [30].

However, findings revealed that EI moderated reduced personal accomplishment and CWB relationship. This finding supports the previous finding [31]. Thus, it is concluded that emotionally intelligent nurses are more likely to experience positive emotions and develop more empathetic sensitivity, which leads them to deal effectively with patients or understand how they feel about things.

CONCLUSION

Nurses are more likely to develop burnout than other health care workers[32]. Our findings revealed that it a significant positive predictor of counterproductive work behaviors. Nonetheless, emotional intelligence is a personal resource that organizations may foster in nurses to minimize emotional exhaustion and lack of personal accomplishment and its subsequent negative effect on CWB. Findings highlight that nurses' emotions management skills can alleviate the negative effect of burnout on CWB. Therefore, it is recommended to develop emotional intelligence teaching package in an attempt to reduce the detrimental effect of burnout on nurses' behavior (e.g. CWB) as Jung and Yoon[33] said that emotional intelligence can be acquired or modified through training.

Author's Contribution:

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Drafting:	Iram Batool, Huma Batool
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Original Article

Occurrence of Colic and Stomach Pain in Infants; An Observational Study

Colic and Stomach Pain in Infants

Nighat Seema[1], Faiqa Hassan[3], Riaz Ahmed Bhutto[2], Ali Muntazir Naqvi[4], Aymen Arif[4] and Hira Jamil[4]

ABSTRACT

Objective: To investigate the occurrence of colic and stomach pain in infants; an observational study.
Study Design: Observational study
Place and Duration of Study: This study was conducted at the department of Pediatrics and Obstetrics, Al-Tibri Medical College and Hospital of Karachi- Pakistan from February 2022 to April 2022.
Materials and Methods: The study was initiated after taking the Ethical Approval by the Ethical Review Committee (ERC) of the Organization while the participants were asked to duly sign the consent form for ensuring the transparency of the research throughout the process. A total population of 200 participants was evaluated through a well-structured questionnaire which is based on 10 situational items. The demographic data included Age, Educational Status, Nature of job, No. of children, and Financial Stability of the participating mothers of infants undergoing colic and stomach pain in infants. The dependent and independent factors to assess the extent of remedial measures to dismiss colic or stomach pain in infants were statistically analyzed by using analytical software (SPSS; version 20.0).
Results: The use of herbal medicine to relief the colic pain in infant was found statistically significant at P value <0.05. And the ratio is very much higher in mothers of socially deprived areas. Qualitatively most of the mothers need support in care as extract the main theme after the interview.
Conclusion: The herbal medicine is the major remedial action taken by most of the mothers who's infants suffering from colic and stomach pain. It has been also found that the colic and stomach pain is more prevalent in underprivileged areas and most of the mother need support care.
Key Words: Colic, Infants, Prevalence, Pediatrics, Pain.

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INTRODUCTION

Infant colic and stomach pain is the most common problem with few months old infants which is characterized as unnecessary crying of baby with abdominal distress and pain. It occurs in every 1 out of 10 children equally in baby girl and baby boy. Colic pain also termed as Functional Abdominal Pain Disorders (FAPD) which has been reported as the most common disorder in infants, affecting around 25% of all infants globally [1,2].

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Careless nursing while feeding, indigestion of baby's formula milk, gas, acid reflux, and infrequent burping are some reasons which results in infantile colic pain. Whereas, crying with higher pitch, constipation, tight fists, burping are some signs to assess colic pain. In spite of thousands of studies in all over the world, the pathogenesis of infantile colic pain leftovers unsatisfactory and it's supposed to be multifactorial [3,6]. According to a study carried out by Reust & Williams, acute abdominal pain is the main cause of all visits to hospitals and health for infants and children and accounts 9% of total visits [4]. Similarly, Despriee ÅW et. al, reported the highest frequency of abdominal pain (22%) in infants followed by discomfort and colic pain 6% and 3% respectively. According to a study carried out in Sweden reported that abdominal pain is predominant in 26% of all the children [2,5].

In study, Wessels developed some rules to define colic pain according to his rule of three colic is describes as bothering, irritability or crying without any obvious reason for prolong duration at least three hours a day or 3 days a week. But in practice it is very difficult for parents to calculate crying hours [6,9]. For this reason, this rule has been excluded in ROME IV standards to

conclude colic pain. Pediatricians use ROME IV classification for supplement of pathophysiology and treatment of gastrointestinal disorder [5,7]. The modified ROME IV classification has excluded the term discomfort in the diagnosis criteria as it is nonspecific and has been reported to generate ambiguity as it has different sense in different languages. Therefore, after eliminating discomfort only abdominal pain has been included in ROME IV classification and is considered to be the most updated criteria [8,5].

MATERIALS AND METHODS

Study Design and Study Setting: In the proposed study, the mothers of infants had participated from February 2022 to April 2022. The Al-Tibri Medical College and Hospital in Malir District at Karachi, Pakistan reserves all the rights of conducting this observational study by collaborating with the obstetrical division of the hospital while taking the prior ethical approval from the Ethical Review Board (ERB) of the institute. The study included the infants of just-born babies (i.e., 24 hours) till 2 months.

Population of the Study: The investigations were carried out to study the prevalence of colic and other stomach pain in infants. Recently delivered women i.e., the mothers of infants had participated in the study by random sampling while other pregnant mothers (i.e., of pregnancy less than 35 weeks) or with previous records of severe neonatal infections were excluded from the study.

Data Collection: A total population of 200 participants was evaluated through a well-structured questionnaire. This Questionnaire consisted of 10 well-developed and situational questions. The data collected had been analyzed by using the statistical software (SPSS; version 20.0) to statistically correlate the associated factors with the disease and to determine the prevalence in the studied population. While all the participating mothers were provided free post-delivery consultations for the better handling of colic and stomach pain in infants.

RESULTS

Table No.1: Showed demographic factors
Table No.2: Assessment of extent of remedial measure to dismiss colic or stomach pain in infants
Table No.3: Themes of the response of mother of infants in colic pain
Is has been observed that the use of herbal medicine in found statistically significant in mother from rural areas and socially deprived families.

Table No.1: Demographic factors and their association with the remedial action taken my mothers of infants in colic pain again factors

Variable		Herbal Medicine	P-Value
Age	20-25	2.62 ±0.1	P<0.05
	26-31	4.35±2.5	
	32-36	2.8±0.15	
Residence	Urban	2.54±0.03	P<0.05
	Rural	3.54±0.23	
Economic Status	Low	3.06±0.03	P<0.05
	Middle	3.48±0.4	
	Upper	2.8±0.03	
Educational Status	Illiterate	3.1±1.2	P<0.05
	Literate	3.02±1.23	
Job Status	Housewife	3.24±1.2	P<0.05
	Employer	3.21±1.4	

Table No.2: Assessment of the extent of remedial measures to dismiss colic or stomach pain in infants

Relatable Questions from questionnaire
Do your baby's colic/stomach problems affect you?
How do you provide infant care during the episode of colic or stomach pain?
What measures do you take to solve these colic and stomach pain problems?
As a mother, what do you feel when your baby is in pain?

Table No.3: Responses of mothers of infants in colic pain

Main Themes	Themes	Subthemes
Support needs for care	Lack of trust on doctors	Frequent visit to doctors
		Change doctor
	Full time care	Lack of time for my work
		Put aside all previous work
	Feeling of inadequacy	Feeling confused
		Inability to Care
	Persistent anxiety	Unrest inside
		Child paun anxiety
	Care without help	Feeling lonely
		Inadequate spouse support
	Looking for methods to control pain	Looking for an effective medicine
		Searching of child pain relief
		Use of herbal medicine

DISCUSSION

In the subjective stage, we investigated the encounters of mothers who were really focusing on newborn children with colic irritability. The fundamental subject extricated from the information was mothers support needs for care, which incorporates the accompanying subcategories: "absence of confidence in specialist"; "full-time care," "insecurity," "persistent nervousness, "care without assistance," and "searching for ways of controlling distress." Many guardians, particularly mothers, didn't expect colic irritability in their children, and they were not intellectually prepared to defy what

is happening. Long haul crying of the baby made mothers restless and focused. They need instructive, mental, and profound help for really focusing on their children. That's what daelemans recommends albeit this present circumstance is harmless, the newborn child's folks and family are mentally impacted. Guardians, particularly mothers, as the fundamental parental figures of newborn children, may deal with numerous issues during early stages. Subsequently, giving exact data to guardians and, specifically, mothers can minimize their vulnerability and help them mentally. Giving guardians data on the most proficient method to quiet down a child prior to managing colic irritability can assist guardians with dealing with their circumstance without speaking with individuals with different wellsprings of data and experiences [9,10]. Having sufficient data about infection the executives can work on their self-adequacy and caregiving [11]. The observations of surveys can be useful for mothers. In 2018 Al Saadoon showed that below 30% of the families knew about how to control the colic irritability. The Lack of care information has held them back from managing their infant youngsters [12]. Concerning subcategory of the Lack of trust in the trained professional, Luyckx K showed that constant experiences with subject experts, modifications in the treatment and medications were astoundingly strong in making mental issues in the patient and families [13]. Full-time care is another subcategory. In Pakistani families, mothers are liable for housekeeping and managing family members, which are hard for them Dissimilar to the discoveries of the ongoing Study, Sabzevari discovered that utilized mothers were freer, felt all the more remarkable with expanded responsibility in dealing with youngsters, and they had higher future [14,15]. Additionally, one more review showed that mothers needed to foster their associations with their loved ones [16]. In this study, "mothers' determined nervousness" is another subcategory. By and large, the mother's psychological status influences the nature of care. Likewise, a few examinations considered the mother's psychological status as a persuasive calculate deciding the seriousness of the childish colic. Besides, the mother's day to day environments and, surprisingly, her work position can influence the childish colic [17]. As indicated by studies, mothers with much pressure caused serious childish colic irritability. Mothers are the fundamental wellsprings of a kid. One review suggested mental help for mothers under nervousness and stress [18]. These discoveries showed that mothers had a "deep-seated insecurity "in the consideration cycle. Attributable to the way that mothers didn't accurately comprehend the pathogenesis of colic irritability, its causes, signs, and side effects, they experienced issues in dealing with their babies. In addition, mothers didn't know about the consideration cycle, they utilized mistakes and preliminaries or the experience of different mothers to deal with their youngsters. One investigation discovered that guardians felt restless and unfit to deal with youngster and they had unfortunate self-viability[19]. Ko observed that instructive mediations were a central issue for expanding the nature of taking care of oneself and diminishing nervousness in patients with malignant growth and their families [20]. One review showed that the itemized instructive projects for guardians were useful in the improvement of care and control of sickness [5]. A report on the mothers of youngsters with DM and those with epilepsy showed an elevated degree of tension [21]. In this study, care without a helpline relates to Pakistani culture on the grounds that the mothers had numerous obligations. Their spouses were working external the house, so they needed more opportunity to help their wives. Notwithstanding mothers' diminished nature of care, this issue additionally influences their personal satisfaction. Howard Sharp detailed that mindful alone caused despondency in mothers of youngsters with disease in the long run [22]. Thuy showed that family support related to exhaustion of mothers [23]. Kim showed that family was one of the power hotspots for mothers of sick youngsters [24]. In this review, mothers searched for ways of controlling infants' agony since they attempted to quiet their kids in any capacity. Many mothers had an uplifting outlook toward home grown drugs, yet they were unsure about them. In this review, the mothers asked various individuals for various arrangements. Be that as it may, they couldn't pursue a conclusive choice in view of clashing suggestions. As demonstrated by the expert's experiences, Kermani people routinely use normal drugs, for instance, Teucrium Polium and peppermint for the facilitating of colic torture. One motivation behind why mothers have serious qualms about the use of standard drugs is the dark pathology of the fundamental colic torture [25]. Also, various factors, similar to mother and kid awareness, mother's kind of food, family loaded with feeling status, and the association among mother and father impact the aggregate and reality of colic torture[17]. Today, probiotic drugs are moreover used to reduce colic torture in infant youngsters [26]. This study's cutoff study was the mothers were in difficult situations and required greater chance to converse with; it was attempted to chat with them fittingly. The outcomes of this study showed that despite the fact that we couldn't hinder and puerile colic torture, clinical specialists should work with the thought cycle for mothers with colicky infants. Neighborhood pediatric clinical orderlies can help families by enlightening gatekeepers, conveying the physiological thought of the irritation, having an impact on family members' viewpoints about kid the board, and giving genuine information on the thought of a youngster with colic torture. It is in like manner possible to additionally

foster the family idea of care by offering mental and educational assistance packages and creating commonsense guidelines around here.

CONCLUSION

The herbal medicine is the major remedial action taken by most of the mothers who's infants suffering from colic and stomach pain. It has been also found that the colic and stomach pain is more prevalent in underprivileged areas and most of the mother need support care.

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Original Article

Do Non-Alcoholic Fatty Disease of Liver and Pancreas Have Same Implications / Significance in Type 2 Diabetes and Obesity?

Mohammad Mohsin Rana[1], Burhan Rasheed[2], Zafar Latif Awan[3], Mohammad Saleem Akhtar[1], Muazzam Fuaad[1] and Sajid Rashid Nagra[4]

ABSTRACT

Objective: To check whether Non-Alcoholic Fatty Disease of Liver and Pancreas have same implications / significance in Type 2 Diabetes and Obesity?

Study Design: Observational / cross section study

Place and Duration of Study: This study was conducted at the Department of Medicine,.Rai Medical College, Sargodha from April to December 2021.

Materials and Methods: This study was carried out on the patients presenting in medical College, from 40 to 70 years of age, both genders. Obesity was assessed by the simplest and most practiced parameter of obesity as "Looking Obese" or having a "sacking or protuberant tummy". Type 2 Diabetes Mellitus (T2DM) was confirmed on the basis of available blood sugar and HbA1c record. After applying inclusion (obesity and T2DM) and exclusion criteria, volunteering participants were asked to get an abdominal ultrasound (USG) examination for grading of Hepatic Parenchymal Echogenicity (HPE) Grades (G1-G3) in NAFDL and to measure Pancreatic Parenchymal Echogenicity (PPE), Grades (G0-G3) in NAFDP through the same acoustic window.

Results: 490 females and 217 males who volunteered to participate were included in this study. There were 315 females exhibiting G1 HPE, out of these 27% had G0 NAFDP, 9% had G1 NAFDP, 60% had G2 NAFDP and 4% had G3 NAFDP. There were 175 females exhibiting G2 HPE, out of these 36% had G0 NAFDP, 24% had G1 NAFDP, 32% had G2 NAFDP and8% had G3 NAFDP. No female had G3 HPE. Out of a total of 217 males, there were 119 males exhibiting G1 HPE, out of these 71% had G0 NAFDP, 18% had G1 NAFDP, 12% had G2 NAFDP and none had G3 NAFDP. There were 98 males exhibiting G2 HPE, out of these 50% had G0 NAFDP, 14% had G NAFDP, 29% had G2 NAFDP and 7% had G3 NAFDP. No male had G3 HPE.

Conclusion: USG is most cost-effective due to its wide availability, reliability in diagnosing and reproducibility in following changes both for better or worse, being cheap and non-invasive nature makes it ideal for early diagnosis of HPE in NAFDL and NAFDP. Early detection of HPE changes and sensitization to its future implication as a risk factor for metabolic syndrome (mainly diabetes and obesity), CLD and even HCC among both medical community and general public must be the priority in our professional circles. It shall be highlighted in all clinical conferences because early interventions in terms of lifestyle modifications targeted to not only weight reduction but more importantly weight maintenance have a great potential for reversal of all these changes.

Key Words: Obesity, T2DM, NAFDL, NAFDP, CLD

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INTRODUCTION

Obesity and DM are projected to be the future epidemics consuming a heavy chunk of resources, we are among the top 10.[1] NASH and NAFDL are well related with MS. The pancreatic steatosis and its relationship with obesity and IR is only recently coming to limelight. Obesity or more precisely VAT, NAFDL and FP or more specifically NAFDP are interrelated and are significant mechanism underlying IR characteristic of MS. Literature shows prevalence of FP between 44% and 58% in obese adolescent and adults based on HPE changes on USG.[2-5]

We wanted to study these changes in our local population to highlight the issue and to sensitize both medical community and the general population so that

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early diagnosis and lifestyle modifications can be recommended. Early detection of HPE changes and sensitization to its future implication as a risk factor for metabolic syndrome (mainly diabetes and obesity), CLD and even HCC among both medical community and general public must be the priority in our professional circles.

MATERIALS AND METHODS

DM, Obesity and BMI were defined as per American Diabetes Association (ADA) and World Health Organization.[6-7]

After securing informed consent, basic Bio Data and confirmation of the DM and obesity, B-Mode abdominal USG examination was done to assess HPE Grade (1-3) in NAFDL and to measure PPE Grade (0-3) in NAFDP through the same acoustic window as per standard.[8-10]

Inclusion criteria:

- 10-70 years age, both sexes,
- T2 DM as defined,
- Obesity as BMI above 30

Exclusion Criteria:

- IDDM
- Seriously sick patient or terminally ill patient.
- Untreated Chronic HBV and HCV disease
- Established cirrhosis of liver
- Alcohol use in last 3 months
- Any other cause of hepatomegaly or CLD
- Pregnancy and lactation
- Ascites of any etiology
- Major end organ disease of liver, kidney, heart, lungs
- Active steroid use in last 6 months
- Hypothyroidism

Sample Size and Sampling Technique: A minimum sample size of 285 patients was calculated to maintain a 5 percent margin of error, a 95 percent confidence interval and a 75 percent response distribution, using a Raosoft sample size calculator.

Statistical Analysis: Data analysis was conducted using Microsoft Excel version 2016 and Statistical Package for Social Sciences software version 25. Descriptive statistics (i.e. frequency distribution, percentages, mean and standard deviations) were the primary analytical methods.

RESULTS

490 females and 217 males were included in this study.

There were 315 females exhibiting G1 hepatic parenchymal changes (HPE), out of these 27% had G0 NAFDP, 9% had G1 NAFDP, 60% had G2 NAFDP and 4% had G3 NAFDP.

There were 175 females exhibiting G2 HPE, out of these 36% had G0 NAFDP, 24% had G1 NAFDP, 32% had G2 NAFDP and8% had G3 NAFDP. No female had G3 HPE. In G1 group of HPE changes 26% females and 70% males did not exhibit any change in PPE. Only 8% of females and 17% of males exhibited G1 PPE changes. 60% of females and 11% of females exhibited G2 PPE changes while only 4% females exhibited G3 PPE changes.

Table No.1: Hepatic parenchymal echogenicity grades and pancreatic parenchymal echogenicity grades of fatty changes (NAFDP) on abdominal USG in females (N 490)

Liver Fat Grade	Total Females (490)	Pancreatic Parenchymalse Echogenecity Grades of Fatty Changes (PPE)			
		Grade 0	Grade 1	Grade 2	Grade 3
Grade 1	315	26.67% (SD: ±3.71, Mean: 78.75)	8.89% (SD: ±35.89, Mean: 78.75)	60.00% (SD: ±77.96, Mean: 78.75)	4.44% (SD: ± 45.79, Mean: 78.75)
Grade 2	175	36.00% (SD: ±13.61, Mean: 43.75)	24.00% (SD: ±1.24, Mean: 43.75)	32.00% (SD: ±8.66, Mean: 43.75)	8.00% (SD: ± 21.04, Mean: 43.75)
Grade 3	0	0 (SD: ± 0.00, Mean: 0.00)	0 (SD: ± 0.00, Mean: 0.00)	0 (SD: ± 0.00, Mean: 0.00)	0 (SD: ± 0.00, Mean: 0.00)

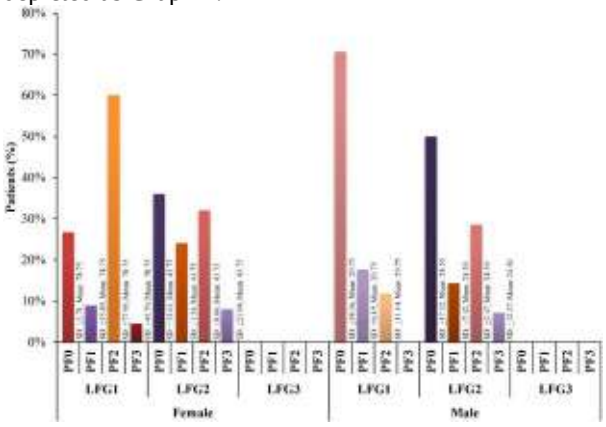
Table No.2: Hepatic parenchymal grades and pancreatic parenchymalse grades of fatty changes (NAFDP) on abdominal USG in males (N 217)

Liver Fat Grade	Total Males (217)	Pancreatic Parenchymalse Echogenecity Grades of Fatty Changes (PPE)			
		Grade 0	Grade 1	Grade 2	Grade 3
Grade 1	119	70.59% (SD: ±38.36, Mean: 29.75)	17.65% (SD: ±6.19, Mean: 29.75)	11.76% (SD: ± 11.14, Mean: 29.75)	0 (SD: ± 0.00, Mean: 0.00)
Grade 2	98	50.00% (SD: ±17.32, Mean: 24.50)	14.29% (SD: ±7.42, Mean: 24.50)	28.57% (SD: ± 2.47, Mean: 24.50)	7.14% (SD: ± 12.37, Mean: 24.50)
Grade 3	0	0	0	0	0

		(SD: ± 0.00, Mean: 0.00)	(SD: ± 0.00, Mean: 0.00)	(SD: ± 0.00, Mean: 0.00)	(SD: ± 0.00, Mean: 0.00)

In G2 HPE group 36% females and 50% males did not exhibit any change in PPE. 24% of females and 14% of males exhibited G1 PPE changes. 32% of females and 28% of males exhibited G2 PPE changes. 8% females and 7% of males exhibited G3 PPE. None of our patient had G3 HPE changes.

Out of a total of 217 males, there were 119 males exhibiting G1HPE, out of these 71% had G0 PPE of NAFDP, 18% had G1 NAFDP, 12% had G2 NAFDP and none had G3 NAFDP. There were 98 males exhibiting G2 HPE, out of these 50% had G0 NAFDP, 14% had G NAFDP, 29% had G2 NAFDP and 7% had G3 NAFDP. No male had G3 HPE. Same is graphically depicted as Graph 1.



Graph No.1: Male female percentage

DISCUSSION

Excess fat deposition was first noticed in autopsies and then it was related with fibrosis and metabolic consequences.[11,12]

Pancreatic steatosis has been defined as nonalcoholic fatty pancreatic disease (NAFPD) due to its close association with NAFDL. It has also been associated with higher risk of post- pancreatoduodenoctomy surgery fistula, severe acute pancreatitis leading to multi-organ failure, mitochondrial fatty acid beta-oxidation linked with carcinogenesis in animal studies and with pancreatic ductal adenocarcinoma in a clinical studies. Both FP or NAFPD and NAFDL have similar risk and association with Obesity, MS and IR.[9]

The excess fat in both organs interfere with cellular functions to induce proinflammatory condition resulting in type II diabetes mellitus (DM), increased cardiovascular disease (CVD) risk and Chronic Liver Disease (CLD).[13]

NAFLD and type 2 DM share multiple metabolic derangements linked with IR. Same is the case with NAFPD, Both prediabetes and DM are much more common in NASH with NAFPD than without it. Waist circumference was consistently found to be higher in patients with NASH + NAFDP.[14]

The relationship of NAFDP with IR becomes even stronger across the board from childhood to pre-adolescent, adolescent and adult obesity, NAFDP is now considered to be an independent predictor of MS, BMI, fasting plasma glucose and total cholesterol being the strongest predictors.[15,16]

DM patients have smaller pancreatic volume reflecting reduced reservoir of beta Islets cell replaced by higher proportion of pancreatic fat.[17]

Chemical shift encoded MRI (CSE-MRI) is an excellent quantitative method to calculate fat in the body. It is robust, accurate, reproducible, vendor and operator independent method that is able to quantify body, pancreatic and hepatic fat content. Very limited studies have examined the relationship among fatty pancreas, other ectopic fat deposition areas in the abdomen and the risk of developing metabolic syndrome and insulin resistance in adolescents using magnetic resonance imaging. Most of the available studies used Ultrasound.[18]

NAFDP is following same trajectory as NAFDL, from an incidental or benign finding on USG to an imaging biomarker of metabolic abnormalities characteristic of MS necessitating early interventional on priority. Targeting obesity shall have a ripple effect on organ fat, notably liver and pancreas. "Screening" by USG is recommended once the waist circumference and BMI cross the normal range. Total cholesterol and plasma fasting glucose shall be part of the same screening. Both NAFDL and NAFDP can be assessed during the same scanning session.[19]

After reviewing the literature and interpreting this study, it is very clear that HPE changes in the NAFLD is not only a simple reflexion of excess fat deposition like in other tissues like subcutaneous tissue and around the abdominal viscera. Though the pattern is not linear from G1 to G3 for HPE changes and there is no clear-cut relationship emerging between HPE and PPE grades from this study, it is very clear that echo-changes do occur in both liver and pancreas. Multiple hormonal and genetic/ epigenetic factors are known to play their role in a complex manner in Obesity and DM. This can reasonably explain this absence of linear trends and can be the subject of future studies. USG is most cost-effective due to its wide availability, reliability in diagnosing and reproducibility in following changes both for better or worse, being cheap and non-invasive nature makes it ideal for early diagnosis of HPE in NAFDL and NAFDP. Early detection of HPE changes and sensitization to its future implication as a risk factor for CLD and even HCC among both medical community and general public must be the priority in our professional circles. It shall be highlighted in all clinical conferences because early interventions in terms of lifestyle modifications targeted to not only weight reduction but more importantly weight maintenance have a great potential for reversal of all these changes.

CONCLUSION

USG is most cost-effective due to its wide availability, reliability in diagnosing and reproducibility in

following changes both for better or worse, being cheap and non-invasive nature makes it ideal for early diagnosis of HPE in NAFDL and NAFDP. Early detection of HPE changes and sensitization to its future implication as a risk factor for metabolic syndrome (mainly diabetes and obesity), CLD and even HCC among both medical community and general public must be the priority in our professional circles. It shall be highlighted in all clinical conferences because early interventions in terms of lifestyle modifications targeted to not only weight reduction but more importantly weight maintenance have a great potential for reversal of all these changes.

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Original Article

Effect of Therapeutic Ultrasound on Histomorphometeric Features of Tibia of Rats

Mahnoor Khursheed[1], Syed Nudrat Nawaid Shah[2], Amna Khan[1], Rehan Ahmed Siddiqui[3], Sumaira Imran Farooqui[1] and Kevin Joseph Jerome Burges[2]

ABSTRACT

Objective: To evaluate the effects of duration of its exposure on healthy bone.
Study Design:
Place and Duration of Study: This study was conducted at the Department of Physiotherapy Ziauddin University, Karachi from April 2021 to June 2021 for a period of 8 weeks.
Materials and Methods: Total of 18 rats were enrolled in this study (6 rats in each group). Group A was the control group, whereas groups B and C were given 10 minutes and 20 minutes of ultrasound at 1.5 MHz frequency respectively for 14 days. All rats were sacrificed next day using standard protocols and data was analyzed using SPSS version 25.
Results: Our study showed statically significant decrease (p-value 0.003) in mean number of osteon per hpf (6 in both group A and B while 2.3 in group C) and in mean number of lamellae (13.1 in group A, 12.8 in group B and 3.3 in group C)as the duration of ultrasound increased. Area of haversion canal and area of osteon showed statically significant increase (p-value 0.027 and 0.002 respectively) as the duration of therapeutic ultrasound increased. Mean area of haversion canal in group A, B and C were 37.6 μm^2, 37.3 μm^2 and 59.3 μm^2 respectively. Mean osteon area in group A, B and C were 311.2 μm^2, 266.9 μm^2 and 230 μm^2 respectively.
Conclusion: Use of therapeutic ultrasound on healthy bone showed damage to bone histology by decreasing the number of osteons, osteon area and number of lamellae and increase in area of haversion canal.
Key Words: Therapeutic Ultrasound, Bone, Osteon

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INTRODUCTION

Therapeutic ultrasound (TUS) is a modality used by physical therapists all over the world for pain management in musculoskeletal injuries as well as in soft tissue lesions such as sprains, tendinitis and bursitis[1] in the clinical setups mostly 1 to 3 MHz frequency of therapeutic ultrasound is used. Although it has a frequency range between 0.75-3.00 MHz but the frequency of 1 MHz is the starting point utilized in the clinical setting for deep tissue injuries due to its penetration (3-5 cm in tissue). On the other hand, 3 MHz frequency is used for superficial injuries as it can go up to 1-2 cm depth.[2]

Therapeutic ultrasound has both thermal and non-thermal effects where non-thermal effects are related to cavitation. Whereas increased metabolism and blood flow are the thermal effects including analgesic effect on nerves[3].

Evidences present in the current literature shows both benefits as well as potential risks of using the therapeutic ultrasound in the clinical settings especially after fractures[4]. Results obtained on rabbits showed damage to the femur bone when applied to the thighs resulting in necrosis and osteocyte damage[5]. On the other hand, therapeutic ultrasound increased osteoblastic activity and accelerated the healing process when applied on tibia of rats[6]. In a similar study on Wistar rats it was reported that application of therapeutic ultrasound on the site of the fracture showed rapid ossification in the early stages of healing[7] It was reported by Miller et al that therapeutic ultrasound treatment showed damage to the femur bone when applied to the thighs of the rabbits including necrosis and osteocyte damage and on the other hand it shows good results when applied to an injured bone.[8] This study aims to evaluate the effects of TUS on histomorphomerty of healthy bone.

MATERIALS AND METHODS

The study was conducted in the Ziauddin University, Karachi, Pakistan, following ethical committee

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approval of Ziauddin University Ethical review committee.

The sample was collected by simple random sampling. The subjects were 18 healthy young male Sprague Dawly Rats (SD) weighing 200-300gms, divided into three groups; 6 were assigned to the control group A with no TUS exposure, 6 to the 10 minutes ultrasound experimental group B and 6 to the 20 minutes ultrasound experimental group C. Both groups B and C were given 1 Hz frequency of ultrasound waves for two weeks. They were housed in individual cages and fed a standard laboratory stock feed and water. Adequate temperature and day night cycles were maintained.

All rats of all three groups were dissected anesthetically and their tibia was harvested to study under the microscope on the 15th day, after which bilateral tibia of all the rats were harvested and the transverse section at the level of mid-shaft of tibia was removed from the bone for histological examination. The harvested bone was kept in formaldehyde solution for few hours and then the process of bone demineralization and dehydration using isopropyl alcohol was followed. After the removal of alcohol using xyelene solution, sample fixation and overnight paraffin embedding was done. Finally, 5 micrometer size sectioning of samples was done. The samples were then stained with hematoxylin and eosin dye. 10 slides were made per mouse tibia. Once the slides were prepared,

Nikon Ts2R-FL Inverted Research Microscope was used to capture images and analysis which included determination of the number of osteons per hpf, number of lamellae, area of haversion canal and osteon area and Nikon NIS Elements-D Software was used For image processing - Adobe Photoshop Version CS2.

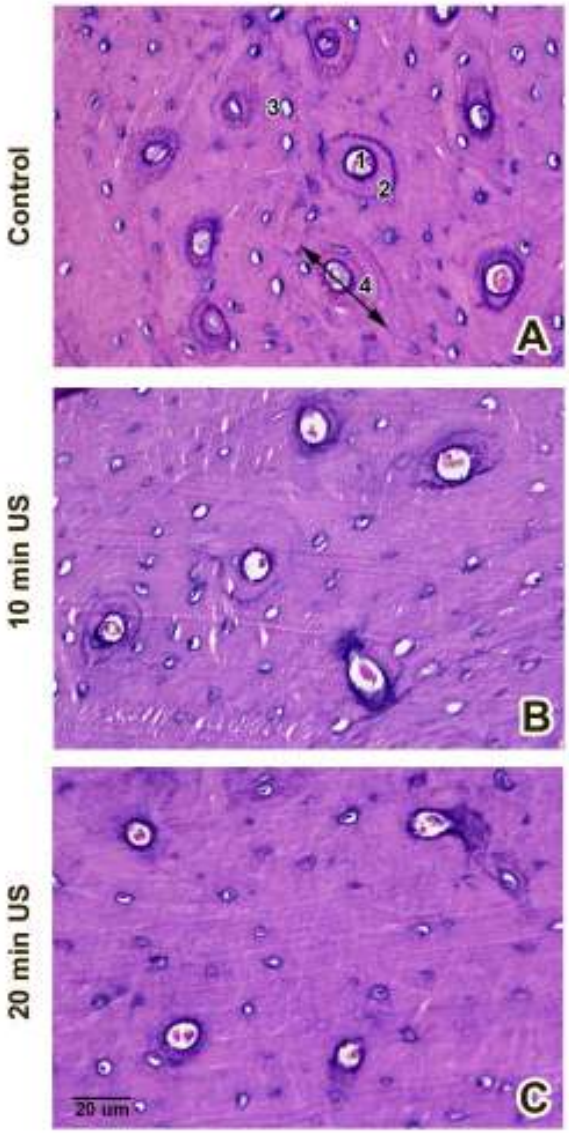
Data was analyzed using SPSS version 25. Shapiro Wilk test was run to analyze the distribution of data, it was found that two variables i.e. No. of osteons and no. of lamellae showed significant p-value <0.05, rejecting the normal distribution, however rest of two variables i.e., osteon area and area of haversion canal showed normal distribution, p-value >0.05. The differences in between the group analyses in normally distributed variables was done using the parametric test ANOVA, however in not normally distributed variables, Kruskal Wallis H test was applied.

RESULTS

After the preparation of the microscopic slides, all groups were studied under microscope to assess the TUS intervention outcomes in experimental and control groups including number of osteons/ Hpf, Osteon area, number of lamellae per osteon and area of Haversian canal. All these morphological differences are shown in in Figure 1 which showed H&E-stained photo-micrographs showing sections of bone.

1A represents control group without any TUS intervention, 1B represents 10 minutes TUS intervention and 1C represents 20 minutes TUS intervention. 1,2,3,4 represent Haversian canal, lamellae, lacune and osteon respectively.

Figure 1 A shows normal bone histology, 1B represents reduced number of lamealle and reduced area of osteon as a result of 10 minutes TUS exposure. 1C represents reduced number of osteons and lamealle, reduced area of osteon and increased area of haversion canal at magnification, 200 X.



Legend: Figure 1: H&E-stained photomicrographs showing sections of bone. **A** control group without any TUS intervention, **B** 10 minutes TUS intervention and **C** 20 minutes TUS intervention. **1** Haversion canal, **2** lamealle, **3** lacune and **4** Osteon. **A** showing normal bone histology, **B** showing reduced number of lamealle and reduced area of osteon as a result of 10 minutes TUS exposure. **C** showing reduced number of osteons and Lamealle, reduced area of osteon and increased area of Haversion canal. Magnification, 200 X.

Comparison of number of osteons, number of lamellae, area of haversion canal and osteon area in between the groups: Comparison of number of osteons and number of lamellae in between the three groups was done using Kruskal Wallis H test and it showed significant difference among the groups in context to number of osteons and lamellae, with the p-value 0.003 and 0.003 respectively. (Table 1)

Table No.1: Comparison of Number of Osteons, Number of Lamellae, Area of Haversion Canal and Osteon area

Variables	Group	Mean ± SD	P-Value
Number of Osteons per hpf*	A	6±0.89	0.003
	B	6±0.89	
	C	2.3±0.81	
Number of Lamellae per hpf*	A	13.1±2.3	0.003
	B	12.8±1.8	
	C	3.3±1.96	
Area of Haversion Canal μm^2**	A	37.6±10.45	0.027
	B	37.3±11.49	
	C	59.3±19.3	
Osteon area μm^2**	A	311.2±31.4	0.002
	B	266.9±32.6	
	C	230±30.4	

*Kruskal Wallis H test for comparison between the groups.

**ANOVA used for comparison between the groups

In our study mean number of osteons in groups A, B and C were found to be 6±0.89, 6±0.89, and 2.3±0.81. This shows a statistically significant (p value 0.003) decrease in number of osteons as the duration of exposure of was increase. Similar results were obtained when numbers of lamellae were compared between the control and therapeutic ultrasound groups. Mean number of lamellae in groups A, B and C were found to be 13.1±2.3, 12.8±1.8, and. 3.3±1.96. This shows statistically significant (p value 0.003) decrease in the number of lamellae as the duration of exposure of therapeutic ultrasound was increase.

The area of haversion canal and osteon area were compared between the groups using ANOVA test. Detailed description is mentioned in (Table 1). The mean area of haversion canal A, B and C were found to be 37.6±10.45 μm^2, 37.3±11.49 μm^2 and 59.3±19.3 μm^2. Which shows a statistically significant increase in the area of haversion canal (p value 0.027) as the duration of exposure of was increase. When Osteon Area was compared between the control and therapeutic ultrasound groups the mean Osteon Area in groups A, B and C were found to be 311.2±31.4 μm^2, 266.9±32.6 μm^2 and 230±30.4 μm^2. It shows a statistically significant decrease in the Osteon Area (p-value 0.002) as the duration of exposure of therapeutic ultrasound was increase.

Comparison of Variables Using Post HOC: Variable was compared with each of the group using post hoc test, it was found that there is no difference in any of two variables (number of osteons and number of lamella) in between the Group A (Control) and Group B (10 min ultrasound) with the p-value >0.005.Whereas, there is significant difference in both variables between Group A (Control) and Group C (20 min ultrasound) with the p-value 0.009 in Number of osteons and 0.007 in number of lamellae.

Similarly, there is significant difference in both variables between Group B (10 min ultrasound) and Group C (20 min ultrasound) with the p-value 0.009 in Number of osteons and 0.013 in number of lamellae. Comparison with respect to each of the group is mentioned in Table 2.

Table No.2: Comparison of variable with each of the group

Difference in Between the Group A & B			
Variables	**Std. Error**		**P-Value**
Number of osteons	3.02		1.0
Number of Lamella	3.04		1.0
Difference in Between the Group A & C			
Number of osteons	3.02		0.009
Number of Lamella	3.04		0.007
Difference in Between the Group B & C			
Number of osteons	3.02		0.009
Number of Lamella	3.04		0.013
Comparison of area of haversion canal and osteon area with each of group			
Difference between Group A & B using Post Hoc Dunnett's test:			
Variables	**Mean Difference**	**Std. Error**	**P-Value**
Area of HC (μm^2)	-0.03	8.26	0.99
Osteon area (μm^2)	-44.3	18.2	0.05
Difference between Group A & C using Post Hoc Dunnett's test:			
Area of HC (μm^2)	21.6	8.2	0.035
Osteon area (μm^2)	-81.19	18.21	0.001

Area of haversion canal and osteon area was compared with each of the group using post hoc Dunnet's test, When Group A is compared to Group C, significant result was found in many of the variables including area of haversion canal with the p-value 0.03 and a mean difference 21.6 and osteon area with the p-value 0.001 and a mean difference -81.19 The comparison with respect to each of the group is mentioned in Table 2.

In our study the number of osteons indicated mean±SD in Group A & B is 6±0.89 with the compared to the Group C who were given 20 minutes of ultrasound, their mean±SD is decreased 2.3±0.81. The Osteon area also showed significant difference in between the three Groups A, B &, 0.002. The mean±SD in Group A is 311.2±31.4 μm^2, 266.9±32.6 μm^2 in Group B & 230±30.4 μm^2 in Group C. The number of lamellae also

showed significant difference, the mean±SD is 13.1 ±2.3 in Group A, and 12.8±1.8 in Group B whereas 3.3±1.96 in Group C. The area of haversion canal showed significant difference in between the three Groups A, B & C, the mean±SD in Group A is 37.6±10.45 μm^2, 37.3±11.49 μm^2 in Group B & 59.3±19.3 μm^2 in Group C, shown in figure 2.

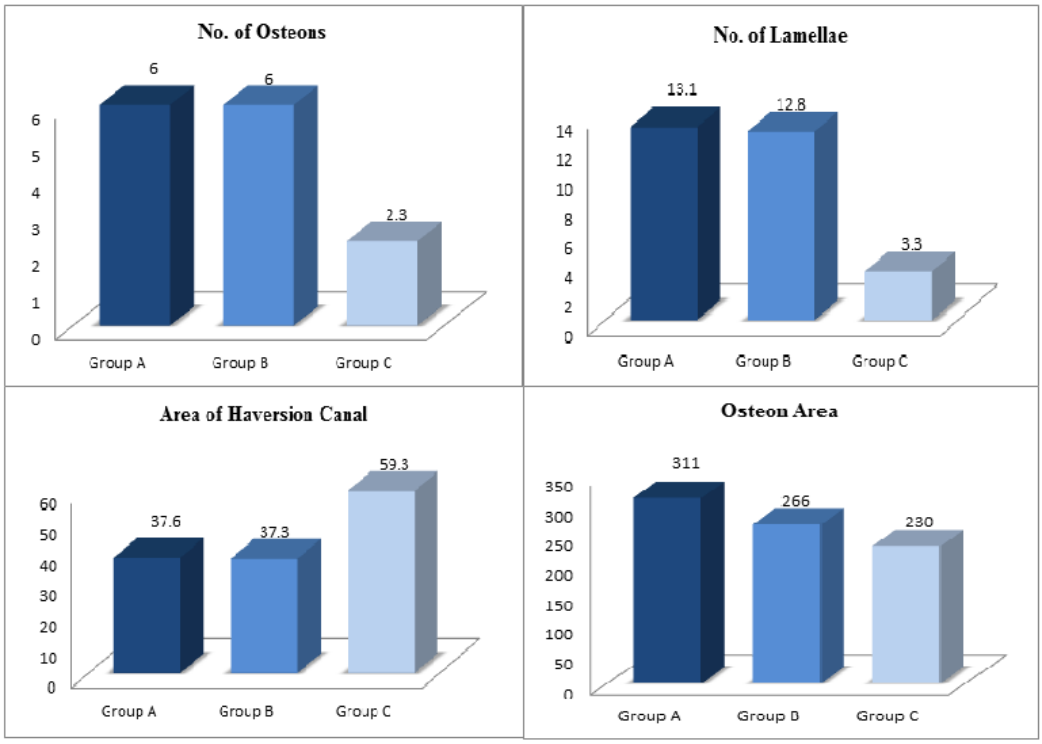


Figure No.2: Representation of No of osteons, No. of lamellae, Area of Haversion Canal and Area of osteons in three groups.

DISCUSSION

All over the world low-intensity pulsed ultrasound has been used to treat the fractured bones. TUS shows promising effect on bone fracture healing[9]. Several studies have found that low intensity ultrasound increases the rate of tissue repair after injuries, especially those related with bone fracture[10,11]. The present study was aimed to analyze the outcomes of exposure of therapeutic ultrasound to the healthy bones. Number of osteons in Group A & B showed no significant difference as compared to the Group C who were given 20 minutes of ultrasound, it significantly reduced the number of the osteon, Area of osteon also significantly decreased with the increased exposure of the Therapeutic ultrasound. These findings are supported by those of Izadifar which highlighted osteon damage and necrosis, characterized by pyknotic cells and empty lacunae, occurred within the ablation area extending through the bone after the exposure to the therapeutic ultrasound[12]. Palanisamy also in their studies documented that heating in the biological tissues including bone was caused by the higher ultrasound intensity as the therapeutic ultrasound increases the heat in the body tissues[13]. Another important observation was significant decreased number of lamellae per osteon after exposure to the therapeutic ultrasound. It has been implicated by studies carried out previously that tensile strength of bones is directly proportional to the number of lamellae.[14 15] The lamellar structure may contribute to bone toughness by acting as delamination barriers, causing crack deflections. Decreased number of lamellae represents weak bone and porosity [16].

In our study evidence of porosity after TUS exposure was also supported by area of haversion canal, which showed significant difference in between the three Groups A, B & C. In 10 minutes TUS group Area of haversion canal decreased slightly and in 20 minutes TUS group area of haversion canal significantly increased, which again show pores in cortical bone. These findings are supported by those of Miszkiewicz[17] that increase in the area of haversion canal represents porosity in a bone.

There are many studies on the effect of ultrasound on the bone after fracture with and without other therapies in combination[18] but very little evidence is present on the effect of therapeutic ultrasound on healthy bone tissues and different studies shows different results on healthy and injured bone.

CONCLUSION

In our study therapeutic ultrasound on healthy bone showed damage to the bone by decreasing the number of osteons, area of osteon and number of lamellae. It suggests that Therapeutic ultrasound is harmful for healthy bone tissues with more than 10 minutes exposure. It was also observed that exposure to the therapeutic ultrasound increases area of the haversion canal which represents porosity in bone.

Author's Contribution:

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

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Original Article

Frequency of Epulis Fissuratum in Denture Wearers Visiting Punjab Dental Hospital, Lahore

Gulzaib[1], Muhammad Waseem Ullah Khan[2], Momina Akram[1], Hamna Khawaja[3], Hafiz Nasir Mahmood[4] and Hafiz Muhammad Jawaad Manzoor[4]

ABSTRACT

Objective: The objective of this study was to evaluate the frequency of Epulis Fissuratum in denture wearers visiting Punjab Dental Hospital,Lahore.

Study Design: Experimental study

Place and Duration of Study: This study was conducted at the Punjab Dental Hospital, Lahore from August 2020 to January 2021.

Materials and Methods: After meeting the inclusion criteria 100 patients were enrolled. Informed consent and demographic information was taken. After this, oral cavity examination was done to determine the presence or absence of Epulis Fissuratum as per-operational definition by the researcher himself.

Results: The mean age of the patients was 63.60±8.64 years. There were 37(37%) female patients. In this study complete dentutre wearer patients were 80(80%), there were 38(38%) patients who were smokers. There were 92(92%) patients with good oral hygiene. The mean duration of denture wearing of the patients was 6.99±4.014 years with minimum and maximum duration of 2 & 23 years respectively. The Epulis Fissuratum was noted in 18(18%) patients.

Conclusion: This study concluded that the frequency of Epulis Fissuratum was 18% in denture wearers visiting Punjab Dental Hospital, Lahore.

Key Words: Epulis Fissuratum, Denture Wearers

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INTRODUCTION

Epulis Fissuratum is an oral mucosal hyperplastic condition caused by low-grade chronic trauma from ill-fitting dentures.[1]It is an oral mucosal lesion which occurs in reaction to excessive mechanical pressure .[2] The denture borders become overextended due to the residual alveolar ridge resorption, causing chronic irritation of the oral mucosa in the sulcus area. On examination, a distinctive fissure surrounded by hyperplastic soft tissue is visible.[3,4] It is chronic in nature and the discomfort is mostly not prominent, therefore the patient may not feel any discomfort and continue to wear the ill-fitting denture. This may lead to development of hyperplastic lesions of large size. However, when ulceration occurs+ the lesion may be associated with pain and discomfort.[5] Denture related hyperplasia is more commonly seen in older people than in younger people because the tissue reaction to local irritant is higher in older individuals.[6,7]

A study conducted in non-randomized groups of population in Saudi Arabia Epulis Fissuratum among denture wearers was found 4.21%–10%.[4, 8, 9] A study conducted in Indian population, Epulis Fissuratum was found in 30.0%.- 41.6% denture wearers.[10-12]

In another study conducted in Iranian population, Epulis Fissuratum was observed in 16.4% denture wearers.[13] In a study conducted in south America, Epulis Fissuratum was found 4.3%.[14]

As there is variation in frequency of Epulis Fissuratum in different populations in previously described studies, so there is a need to evaluate the frequency of Epulis Fissuratum in denture wearers in local population. As Punjab dental hospital is a tertiary care hospital where patients come from all over the Punjab, the sample will

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be representative. This study will provide us the local data of the problem which will help us to increase public awareness to improve denture hygiene and prevent denture related hyperplasia.

MATERIALS AND METHODS

100 patients visiting the Department of Prosthodontics, Punjab Dental Hospital, Lahore, fulfilling the Inclusion criteria were selected for this descriptive cross sectional survey. Approval from ethical review committee was taken before conducting the study. Informed consent was taken from each case for inclusion in study. After this, oral cavity examination was done in each case and presence or absence of Epulis Fissuratum was noted as per-operational definition by the researcher himself. All these data (age, gender, duration of denture wearer, denture wearer (complete/partial), smoking (yes/no), denture hygiene (yes/no), oral hygiene (yes/no) and Epulis Fissuratum (yes/no)) was recorded on a predesigned proforma.

Data Analysis: Statistical analysis was done with SPSS version 20.0.Age of the patient, and duration of denture was presented as mean and standard deviation. Gender, denture wearer (complete/partial), smoking (yes/no), denture hygiene (yes/no), oral hygiene (yes/no) and Epulis Fissuratum (yes/no) was presented as frequency and percentage. Stratification was done for age, gender, duration of denture, denture wearer (complete/partial), smoking (yes/no), denture hygiene (yes/no) and oral hygiene (yes/no). Post-stratification Chi square was applied to see their effects on the denture related hyperplasia and the p value ≤ 0.05 was considered as significant.

RESULTS

In the present study total 100 patients were included and the mean age was 63.60±8.64 years. Moreover, the minimum and mximum ages of 50 & 70 years respectively. Among 100 patients 37(37%) patients were females and 63(63%) patients were male. Fig 1The mean duration of denture of the patients was 6.99±4.014 years with minimum and maximum duration of 2 & 23 years respectively. In this study complete dentutre weearer patients were 80(80%) and partial denture wearer patients were 20(20%). Fig 2Out of 100 patients the oral hygiene was found in 92(92%) patients. In our study there were 38(38%) patients who were smokers. Table 1According to this study denture related hyperplasia (Epulis Fissuratum) was noted in 18(18%) patients. Fig 3The study results showed that among patients having age between 50-60 years the epulis fissuratum was noted in 1(2.2%) patients and in patients having age >60 years the epulis fissuratum was noted in 17(31.5%) patients. The difference was significant statistically i.e. p-value=<0.001. Table 2

Among male patients the epulis fissuratum was noted in 14(22.2%) patients and in female patients the epulis fissuratum was noted in 4(10.8%) patients. This difference was statistically insignificant.

Table No.1: Frequency distribution of smoking

		Frequency	Percent
Smoking	Yes	38	38.0
	No	62	62.0
	Total	100	100.0

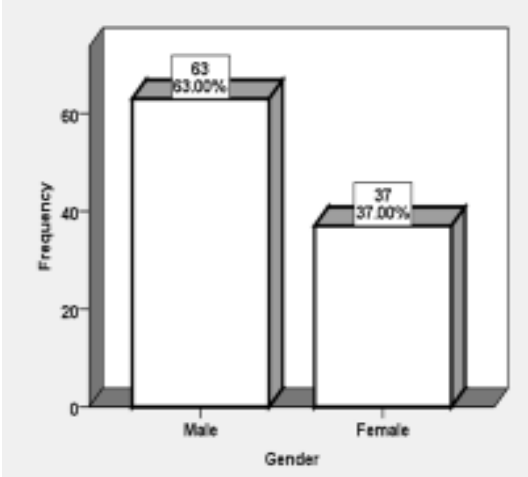

Figure No.1: Frequency distribution of gender

Table No.2: Comparison of Epulis Fissuratum between age groups

		Epulis Fissuratum		Total	p-value
		Yes	No		
Age (years)	≤ 60	1	45	46	<0.001
		2.2%	97.8%	100.0%	
	>60	17	37	54	
		31.5%	68.5%	100.0%	
Total		18	82	100	

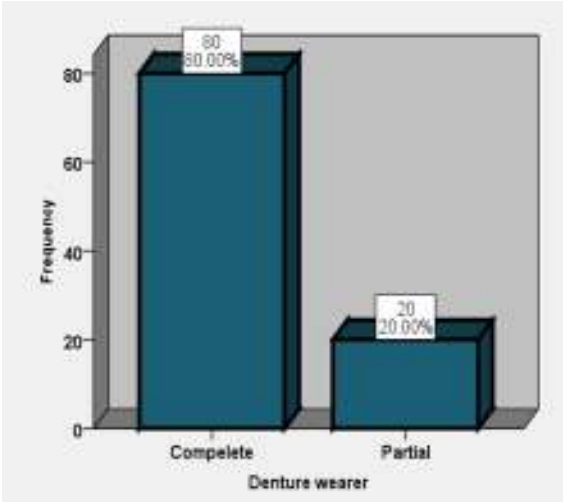

Figure No.2: Frequency distribution of denture wearer

I.e. p-value=0.152. Table 3The results of study revealed that among patients having duration of denture ≤ 10 years the epulis fissuratum was noted in 11(12.4%) patients and in patients having duration of denture >10 years the epulis fissuratum was noted in 7(63.6%) patients. This difference was significant statistically i.e. p-value=<0.001. Table 4Among complete denture wearer patients the epulis fissuratum was noted in 18(22.2%) patients and in partial denture wearer patients the epulis fissuratum was noted in 0(0.0%) patients. This difference was significant statistically i.e. p-value=0.020. Among patients with good oral hygiene the epulis fissuratum was noted in 14(15.2%) patients and in patients poor oral hygiene the epulis fissuratum was noted in 4(50%) patients. The difference was significant statistically. I.e. p-value=0.033. In smoker patients the epulis fissuratum was noted in 10(26.3%) patients and in non-smoker patients the epulis fissuratum was noted in 8(12.9%) patients. This difference was insignificant statistically. I.e. p-value=0.090. Table 5.

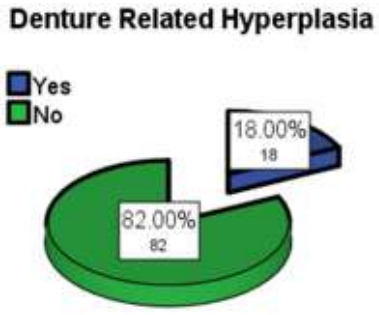

Figure No.3: Frequency distribution of denture related hyperplasia (Epulis Fissuratum)

Table No.3: Comparison of epulis fissuratum between genders

		Epulis Fissuratum		Total	p-value
		Yes	No		
Gender	Male	14	49	63	0.152
		22.2%	77.8%	100.0%	
	Female	4	33	37	
		10.8%	89.2%	100.0%	
Total		18	82	100	
		18.0%	82.0%	100.0%	

Table No.4: Comparison of epulis fissuratum with duration of denture

		Epulis Fissuratum		Total	p-value
		Yes	No		
Duration of Denture	≤10	11	78	89	<0.001
		12.4%	87.6%	100.0%	
	>10	7	4	11	
		63.6%	36.4%	100.0%	
Total		18	82	100	
		18.0%	82.0%	100.0%	

Table No.5: Comparison of epulis fissuratum with smoking

		Epulis Fissuratum		Total	p-value
		Yes	No		
Smoking	Yes	10	28	38	0.090
		26.3%	73.7%	100.0%	
	No	8	54	62	
		12.9%	87.1%	100.0%	
Total		18	82	100	
		18.0%	82.0%	100.0%	

DISCUSSION

Epulis fissuratum is a hyperplasia of mucosa caused by chronic low-grade trauma from a denture flange. Epulis fissuratum is similar to skin acanthoma fissuratum. Typically, epulis fissuratum patients have hyperplastic mucosal folds that are surrounded by border of the denture flange. The denture's flange boundary usually fits into a groove between the folds. The lesions are usually found on the denture's facial aspect. It is unusual to see this lesion on the lingual surface. They are more commonly found in the anterior part of the jaws.[15]

In this study the complete dentutre wearer patients were 80(80%), there were 38(38%) patients were smokers and the denture related hyperplasia (Epulis Fissuratum) was noted in 18(18%) patients.

A study conducted in Indian population, Epulis Fissuratum was found in 30.0%- 41.6% denture wearers.[10-12] In another conducted in Iranian population, Epulis Fissuratum was found in 16.4% denture wearers.[13] In a study conducted in south America, Epulis Fissuratum was found 4.3%.[14]

Suhayla Mubarak et al[8] carried out study and demonstrated in their study results that fibrous hyperplasia induced by denture was the frequently detected lesion (41.9%). In this study author found a significant correlation (P = 0.004) between the type of denture and oral lesions.

In study conducted by Parsa Atashrazm et al, they examined total 674 patients; out of that complete denture wearers were 201patients. In study the researcher observed the prevalence of epulis fissuratum 16.4 %. Moreover, the researcher observed significant relationship among the prevalence of epulis fissuratum with gender, denture quality and denture wearing habit ($p < 0.05$).[13]

Epulis fissuratum has been observed in 5 to 26% of denture wearers.58-60[16-18] It is less frequent in men than women and is typically found in the mucolabial or mucobuccal folds.[19,16,20] Dweiri et al. (2012) found that the prevalence of fibrous hyperplasia induced by the dentures among females (23.1%) was only slightly more than among males (18.6%).[21]The mean age of the patients was 63.60±8.64 years, 37(37%) patients were females and 63(63%) patients were male. Complete denture wearer patients were 80(80%).

A study by Zaid Al Zoubi et al63[22] showed lower prevalence of Epulis fissuratum. The author documented in their study that prevalence of Fibrous Hyperplasia caused by dentures was 8% among denture wearers, most common in females than in males, , and that the majority of lesions were observed in the age group of 34-60, more frequently found in the anterior area rather than the posterior area, and more common in the lower jaw rather than the upper jaw.

In another study the prevalence of oral mucosal lesions in different age groups the Denture-induced hyperplasia was found in 6.3 percent of subjects aged 55–64 and 11.5 percent of subjects aged greater than 65,.[23]

In another study of mucosal lesions in oral cavity in the elderly,[24] 52 percent of complete and removable partial denture wearers had proliferative or ulcerative lesions. The fact that a total prosthesis covers more of the oral mucosa than a partial denture prosthesis, it may be a contributing factor to this increase in full denture wearers. The irritant effect of denture base materials on these patients' tissue changes should not be underestimated.[25] The relationship between denture related lesions and poor oral hygiene is complex, and not well established. According to the literature, defective dentures provide more opportunities for food to become lodged and limit the natural cleaning action of the tongue, cheeks, and lips.[20,24,26] In future further studies should be done to evaluate the findings of our study with larger sample size.

CONCLUSION

This study concluded that the frequency of Epulis Fissuratum was 18% in denture wearers visiting Punjab Dental Hospital, Lahore. Now in future, on the basis of findings of this study, we can help to increase the public awareness that regular dental care and improved denture hygiene can prevent denture related hyperplasia.

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Final Approval of version:	Gulzaib

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

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Original Article

Pregnancy Outcomes in Obese and Non-Obese Females

Sadia Rashid, Shazia Kadri, Safia Izhar and Asma Abdullah

ABSTRACT

Objective: To study the Pregnancy outcomes in obese and non-obese female and association with ultrasonographic measurements.

Study Design: Comparative Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Radiology, Medicare Cardiac and General Hospital, Karachi from July 2021 to December 2021.

Materials and Methods: In this study total 200 women of body mass index (BMI) 20-35 were included in this study. Among them 100 women had BMI between 20-24.9 and 100 women had BMI 25-30 kg/m2.

Results: Out of 100 obese women, 74 babies were spontaneous vaginally delivered, 13 were assisted delivered through instrument (i.e. vacuum and forceps) and 13 women underwent LSCS. On other hand in 100 non-obese, 88 were spontaneous vaginally delivered, 7 were assisted instrumental deliveries and 5 underwent LSCS. This data revealed significantly higher rate of instrument and operative delivered in obese group (p=0.038). There were 4 (4%) fetal mortalities, 3 neonatal deaths 3 (3%) and 1 still birth in obese group and 2 (2%) fetal mortality in non-obese group. On Ultrasound imaging Expected fetal weight of obese group found to be higher than non-0bese group. 10 neonates of obese group and 3 (3%) of non-0bese group were found macrosmic (Birth weight 4000 gm or above), however, this difference of proportions of macrosomia between two groups was statistically insignificant.

Conclusion: Obesity during pregnancy is associated with adverse maternal and fetal outcomes like significantly higher rate of instrumental vaginal delivery, caesarian section and fetal birth asphyxia. Obese pregnant women should be considered high risk and recommended to maintain weight to reduce any complications.

Key Words: obese, non-obese, ultrasound

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INTRODUCTION

Obesity is a growing epidemic[1]. It is a contributory factor to the development of chronic disease as well as complicated pregnancies affecting the well-being of not only mother but also the baby. The prevalence of obesity is rising making pre-gravid overweight one of the most common high risk obstetric situation[2,3]. Pregnancy with obesity is associated with the significantly increased risk of antepartum, intrapartum, postpartum and neonatal complications[4].

Physiologic changes during pregnancy result in ideal weight gain for women with a normal BMI from 11 to 16 kg[5]. Whereas body mass index (BMI), defined as weight (kg)/height (m^2). It is used as a marker of obesity[6]. The World Health Organization (WHO) recommended guidelines to establish optimal pregnancy outcomes but still there is a need to determine the appropriate relevance of these recommendations[7]. Maternal obesity impacts on Fetal growth and ultrasonography plays a significant role in obese and non-obese pregnant female to rule out Fetal growth. Sonography of obese pregnant female is technically difficult because of increase adipose tissues and needs multiple scan as compare to non-obese pregnant female to find out any abnormality and Fetal growth[8]. Obesity may increase a steady degradation in Fetal scan quality and poor visualization of vital structures[9,10].

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MATERIALS AND METHODS

Study Design: Comparative Cross-sectional study.

Study Place and Duration of Study: This study was conducted in Medicare cardiac and general hospital from 1st July 2021 to 31st December 2021.

In this study non-probability, purposive sampling technique was used to select the women. 200 women were included in this study in whom 100 women were obese and 100 were non obese. All booked (more than three antenatal visits) primi and multigravida, Women with previous normal vaginal deliveries, Singleton pregnancy and women having Fetus with cephalic

presentation were included in the study. However, the Women with associated medical disorders like diabetes, hypertension and endocrine disorders, bad obstetrical history i.e. intrauterine dead baby, history of congenital malformed baby and History of Preterm baby were excluded.

Data was collected and Statistical analysis was performed through SPSS version- 10.0.All categorical variables like parity status, mode of delivery, intrapartum complications, postpartum complications, fetal outcome, neonatal birth weight and neonatal complications were presented by frequencies and percentages; chi-square test was applied to compare the above mentioned categorical variables between obese and non-obese groups and Fisher's Exact test was applied according to the condition of Pearson's Chi-square test that if any cell count is less than 5, where it was needed.

Numeric response variables like age and neonatal apgar score were presented by Mean ± SD; Students t-test (unpaired) was applied to compare the means of these numeric response variables between obese and non-obese groups.

Statistical significance was taken at $p \leq 0.05$.

RESULTS

Mean age of 36 Obese of severe obstetric morbidities was 25.4 ± 3.9 years and of 36 non-obese was 24.8 ± 4.5 years. The difference of mean age between two groups was statistically insignificant (p=0.260).

Majority of obese and non-obese group were primiparous i.e. 58% and 64% respectively, followed by multiparous 37% and 35% and grand multiparous were 5% and 1% respectively. Data revealed insignificant difference of parity staus between obese and non-obese groups (p=0.221).

Significantly high number of women in obese group involved intrapartum complications (17% vs. 4%, p=0.025) than non-obese group, as shoulder dystocia was observed 8% vs. 2% followed by non-progress of labor 7% vs. 2% and failed instrument 2% vs. 0% comparing obese and non-obese groups respectively (Table-1).

Out of 100 obese women, 74 were spontaneous vaginally delivered, 13 were assisted delivered through instrument (i.e. vacuum and forceps) and 13 women underwent LSCS. On other hand in 100 non-obese, 88 were spontaneous vaginally delivered, 7 were assisted instrumental deliveries and 5 underwent LSCS. This data revealed significantly higher rate of instrument and operative delivered in obese group (p=0.038) as shown in figure-1.

There were observed 41 (4%) fetal mortalities in obese group and 2 in non-obese group. Number of neonatal deaths were 3 (3%) in obese group and 2 (2%) in non-obese group. Only one fresh still birth was observed in obese group. Healthy take home baby rate in obese group was 96% and of non-obese group was 98% that revealed insignificant difference regarding fetal outcome in both groups (Table-2).

Ten neonates of obese group and 3 (3%) of non-0bese group were found macrosmic (Birth weight 4000 gm or above), however, this difference of proportions of macrosomia between two groups was statistically insignificant (Figure-2).

Proportion of postpartum complications in obese group was significantly higher than non-obese group (17% vs. 5%, p=0.011). Postpartum haemorrhage was the commonest postpartum complications that was higher in obese versus non-obese groups (Table-3).

Table No.1: Comparison of Intrapartum Complication between Obese and Non-Obese

Intrapartum Complications	Group	
	Obese (n=100)	Non-Obese (n=100)
Shoulder Dystocia	8 (8)	2 (2)
Non-progress of labor	7 (7)	2(2)
Failed Instrument	2(2)	0 (0)
None	83 (83)	96 (96)

Table No.2: Comparison of Fetal Outcome between Obese and Non-Obese Groups

Fetal Outcome	Group	
	Obese (n=100)	Non-Obese (n=100)
Alive	96	98
Neonatal Death	3	2
Fresh Still Birth	1	0

Insignificant difference between two groups (X^2=1.221, p=0.543)

Table No.3: Comparison of Postpartum Complications between Obese and Non-Obese Groups

Postpartum Complications	Group		p-value
	Obese (n=100)	Non-Obese (n=100)	
Postpartum Hemorrhage	12	4	0.065
Need of Blood Transfusion	6	2	0.279
Wound Infection	5	1	0.212
Nil	83	95	0.011

Note: Six obese women and 2 non-obese women had more than one postpartum complication.

Apgar score at 1 minute and 5 minutes was found significantly high in non-obese group (p=0.042 and p=0.037 respectively), that revealed significantly good apgar score in non-obese group than obese group.

Total 7 neonates out of 100, were found with complications in obese group as compared with non-obese group were only two out of 100 neonates

were found with complications. The difference of proportions of neonatal complications between two groups was statistically insignificant (p=0.325).

By maternal obesity status, there was no significant difference in AC, HC/AC ratio, or BPD on ultrasound imaging. The estimated foetal weight (EFW) of obese women's foetuses was considerably higher at 30 weeks and beyond. Neonatal weight was over 100 grammes greater in fat women's babies than in non-obese mothers' babies.

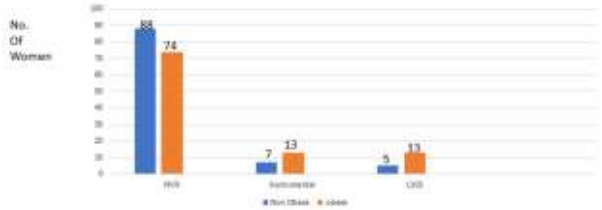

Figure No.1: Comparison of Mode of delivery between Non-Obese and Obese groups

NVD –Normal vaginal delivery

Instrumental –vacuum or forceps assisted delivery

LSCS- Lower segment caesarian section

Significant high rate of caesarian section in obese group X^2 =6.56, P=0.038

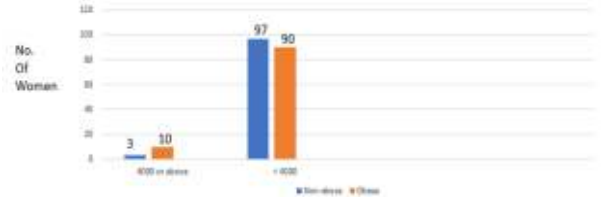

Figure No.2: Comparison of Neonatal birth weight between Non-Obese and Obese groups

Neonatal birth weight (grams)

Insignificant difference between 2 groups(Fisher's exact test, p=0.082)

DISCUSSION

Obesity is characterized by excess of body fat and woman with body mass index is in the range of 30.0–34.9 kg/m^2 [11]. It is not only a social concern worldwide but also contributory factor to the development of chronic disease as well as complicated pregnancies[12,13]. The prevalence of obesity is rising making pre-gravid overweight one of the most common high risk obstetric situation. Pregnancy with obesity is associated with the significantly increased risk of antepartum, intrapartum, postpartum and neonatal complications.

Maternal obesity impact on Fetal growth which can be assessed by ultrasonography. A population based study done to compare outcomes of pregnancies of obese and non-obese and found no statistical difference between obese and non-obese regarding maternal age and parity[14].

The result of our study showed an significant increased risk of intrapartum complications in obese women as compared to non-obese women (17% vs. 4%, patient value=0.025). Shoulder dystocia was the commonest followed by non-progress of labour and failed instrumental delivery.

Indarti et al also studied that the rate of maternal and perinatal complications in obese women is greater and requires proper handling of the pregnancy[15].

Li Li et al conducted a study suggested that maternal obesity was associated with a significantly higher risk of caesarean delivery [16]. Results of our study also showed an increased risk of assisted vaginal delivery in women with obesity 13% vs. 7% in non-obese women. Majority of the instruments were applied due to prolonged second stage of labour.

Zhou L. et al [17]conducted retrospective study of 6786 pregnant women in Beijingl from September 1st, 2014 to August 31st, 2015 and found that prepregnancy BMI and gestational weight gain affects labor duration and CS prevalence during delivery.

Al-Kubaisy, et al[18] also found that Obese women with or without a prior history of Caesarian section should be considered as high risk and managed appropriately during pregnancy. Weight management prior to or during pregnancy could help reduce the need for CS. The result of our study showed a significant increased risk of post-partum complications in obese women as compared to non-obese women (17% vs. 5%, p-0.011). Postpartum hemorrhage was the commonest postpartum complication in obese women (12% vs. 4%) in non-obese women.

Heslehurst, N.[19] also highlighted the adverse outcomes of obesity which increases with increasing maternal BMI.

The result of our study showed significant increased risk birth asphyxia in neonates of obese women as compared to non-obese women. Apgar score at 1 minute and 5 minutes was found significantly high in non-obese group (patient=0.042 and p=0.037 respectively), that revealed significantly good apgar score in non-obese group than obese group.

Alfadhli, E.M at al[20] studied that Maternal obesity associated with a high birth weight and a greater risk of macrosomia resulting in cesarean delivery.

The result of our study showed macrosomia in ten neonates of obese group and 3 (3%) of non-obese group. (Birth weight 4000gm or above), however this difference of proportions of macrosomia between two groups was statistically insignificant (p value=0.082). Our study results also showed that there were 4% fetal mortalities in obese group and 2 % in non-obese group. Healthy take home baby rate in obese group was 96% and on non-obese group was 98% that revealed insignificant difference regarding fetal outcome in both groups. Total 7% neonates were found with complications in obese group as compared to 2% in non-obese group. The difference of proportions of neonatal complications between two groups was

statistically insignificant (9=0.325). This could be due to small sample size.

The strength of this study is that exposure information (weight and height) was recorded in early pregnancy and therefore prospective regarding the pregnancy outcome variables. Recall bias was thus avoided. A number of confounding factors (gestational diabetes and hypertension) associated with maternal obesity were adjusted for this study.

The problem concerning studies in this field is the definition of obesity. Different values for defining obesity were used in different studies, which make it difficult to compare risk estimates. To facilities such comparisons, we present risk estimates in group with BMI > 25 kg/m² as obese group.

The drawback of the study are as the BMI was calculated using weight at booking and weight increases with advancing pregnancy, late bookers may potentially have artificially contributed to an increase in the numbers in the raised BMI group. Some studies used maternal memory of pre-pregnancy weight, we aimed to use a simple measure applicable in the antenatal clinic to predict adverse pregnancy outcome. Greater understanding is needed of the pathophysiological link between obesity and various adverse outcomes of pregnancy so that effective and safe management strategies can be devised.

CONCLUSION

The pregnancy with obesity is a high risk pregnancy and associated with several maternal and fetal complications.We found that foetuses born to fat mothers had high weight , larger bone lengths and head circumference than those born to non-obese women. The processes behind the changes' long-term health effects are unclear. Further research work and long-term follow-up is the requirement of time as this will be useful in developing gestation-specific therapies for obese mothers in order to improve foetal development and health outcomes.

Author's Contribution:

Concept & Design of Study:	Sadia Rashid
Drafting:	Shazia Kadri, Safia Izhar
Data Analysis:	Asma Abdullah, Safia Izhar
Revisiting Critically:	Sadia Rashid, Shazia Kadri
Final Approval of version:	Sadia Rashid

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

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Original Article

Effects of Depression Screening on Quality of Life after Diagnosis of Acute Coronary Syndrome, Single Center Experience

Abubakr Ali Saad[1], Munir Ahmed Rashid[1], Saima Dastgeer[2], Zahid Iqbal[1], Muhammad Hussan Raza[1] and Imran Javaid[1]

ABSTRACT

Objective: To verify whether analytically finding depression in survivors of an ACS increases the standard of life and depression compared to the accustomed concern.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the DG Khan Medical College, DG Khan from September 03 2021 to 02 March 2022.

Materials and Methods: 450 ACS patients were enrolled. ACS patients who had been admitted to the hospital in the past 2 to 12 months without a prior history of depression were eligible for the study. The analyses were conducted based on intention-to-treat.

Results: Patients with ACS received (1) systematic depression screening utilizing the eight-item Patient Health Questionnaire, with notification of crucial care physicians and stipulation of centralized, patient-performed, gradual depression care for those with depression, Patients with a positive screening result (8-Item Patient Health Questionnaire score >10: Screen, notify, and treat); 2) systematic depression screening with notification of primary healthcare providers for those with a positive finding result (Screen and notify); and (3) normal care with no finding. A quality attuned life-year change was the crucial upshot. The second effect was the number of days with no depression. Patients' interviews and hospital minutes were used to evaluate adverse effects and death.

Conclusion: Organized depression screening with or lacking depression cure had no influence on quality-adjusted life years or tribulations in ACS patients with no record of depression.

Key Words: Depression Screening, Quality of Life, Acute Coronary Syndrome, Single Center Experience

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INTRODUCTION

About 10 percent of patients with ACS suffer medically significant major depression symptoms. Depression doubles the mortality rate in ACS patients due to high treatment costs and poor life quality.

Many associations of professionals recommended screening of depression in patients with ACS, it was preceding the inclusive handling after diagnoses of depression[1,2].

Screening of depression in ACS patients is controversial. Studies showing the effect of depression treatment have registered only the patients who asked for treatment which confines the general idea about the detection of depression[3]. According to our findings, no such series of treatments have been made for the screening of depression symptoms. Some experts are of the view that the recommendations are impulsive till the demonstration of a randomized diagnosis of depression[4,5]. At the same time, heart care treatment and primary care providers are sure to detect depression symptoms in patients of ACS. Screening causcausesairment and deficiency of substantiation from randomized trials are the prime reasons cited for delaying execution[6]. The expenses of depression tests are compounded by the unsympathetic biological effects of augmented use of antidepressant prescription by those whose test results are up[7].

The study is based on CONDIACS-QoL (Companion of Depression Interventions after Acute Coronary Syndrome: Quality of Life), a depression diagnoses

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study of 450 cases with ACS from 4 different health heed systems.

Three groups of people with ACS were generalized: (1) with no depression diagnoses, (2) diagnoses with a warning to the PCP, and (3) screening with a warning to the PCP and stipulation of worse depression conduct that formerly were analyses to be effectual in patients with ACS, but not amongst those with depression diagnoses. The study aimed to examine whether depression diagnoses augmented with quality-adjusted life years and days free of depression.

MATERIALS AND METHODS

Among the 3 groups of the single centered randomized controlled trial conducted at DG Khan Medical College & Teaching Hospital, there were the following: (1) methodical depression test with warning of PCPs and stepped-care depression handling based on a patient penchant for those with positive diagnoses results (screen, advise, and delicacy group); (2) organized depression test with PCP warning only (screen and alert group); and (3) customary concern (no screening group). Participants were chosen September 03 2021 to 02 March 2022. The institutional review board permitted the study,dated 24th August 2021 (Copy attached). Each member signed a consent form. After being randomized, those who were assigned to the screen warn, and cure group were asked to endow within black and white assent.

An age of 21 or more was suggested for the patients with ACS speaking Urdu, Saraiki, Punjabi, Baloch, and Pashtu. Patients were enrolled on the bases of the International Classification of Diseases, Ninth Revision, or international statistical classification of disease regarding Health disorders, 10th Revision, discharge code for severe cardiovascular disease, with a 2 to the 12-month history of ACS. Eligibility was testified through clinical reports. Patients with continued clinical treatment of depression, 1 year or low expected life, patients with bipolar diseases, suicide threat, repeated substance abuse, dementia, pregnancy, acute arthritis liver disorders, with frequent clinical visits, advanced cardiovascular diseases, AIDS, and with cancer of any stage were excluded.

Participants were arranged in 1:1:1 proportion in 3 groups. An incorporated hit and miss number generator generated a block randomization assignment inside strata of 3, 6, or 9 erratically elected sizes. Once all basic data had been inserted through the web-based computer algorithm, an unblinded controller could see the randomization assignment. Afterward, unblinded coordinators accomplished depression tests, warnings, and recommendations for healing if instructed by group assignment and the depression diagnoses upshot. Afterward, unblended coordinators completed depression finding, notification, and recommendation to cure if shown by category assignment and the depression screening outcome. All concluded assessments were executed by blinded coordinators conveyed to group allotment.

Intervention and Control Procedures: The 8-item Patient Questionnaire (PHQ-8), a research-grade affirmed, perceptive and precise depression evaluation tool was used to screen patients allotted for screening, forewarn, and deal factions for depression grade. Patients with major depressive symptoms (PHQ-8>10) were alerted by letters of their inflated depressive symptoms by their general practitioner and/or treating healthcare professional. Unblinded site coordinators educated patients about depression possible treatments. Depression therapies were offered first without mandating a medical assessment of severe depression, and even sub-syndrome anxiety and depression have been associated with a higher risk for poor prediction.

Data Collection: After mandatory conditions, the patients fulfilled the consent process, including the basic evaluation and telephone overview. The evaluation comprised on the bases of gender, age, race, ethnicity, education, originality, marital status, job and employment, the 10-Interner for Epidemiologic Studies Depression scale (CESD-10), and also a quality of life measure regarding health (the 12-item short-Form Healthy Survey, version 20). After basic evaluation, telephone calls had been made at 6, 12, and 18 months to follow-up data compilation. Completion of CESD-10, the 12-Item Short-Form Health Survey, Version 2, a list of symptoms evaluating the potentially fatal effects due to depression and cure; and factors evaluating receipt of depression treatment were considered as the priority for a study tour. The patient completed the PHQ-8 after a completion period of 18 months.

Statistical Analysis: Baseline characteristics were measured as means (SD) and percentages through random evaluation to calculate a reasonable assignment. A two-step gate-keeping was used to make the key connection of change in QALYs in 3 groups. 3 groups were compared using an omnibus F test through variance analysis and a two-sided t-test in pairs for comparison at 5 percent nominal importance if the omnibus F Test had a P-value not greater than .05. This process was expected to control group-wise control type-1 error ratio at 5 percent. The gate-keeping process was used to compare depression-free days of 3 groups in the second result study.

An intention to treat faith was in mind for the whole study. Process for calculations of QALYs, CESD-10, and PHQ-8 at every follow-up was evaluated to examine if they come up with the idea of mislaid at hit and miss by using the Little Test. On fulfilling this idea, mislaid facts and figures were treated using several imputations, through point estimate deriving 5 data sets and pooled variance determined by (1) worst result imputation and (2) last study brought forward. These

results were also calculated using the sex-stratified study method.

Exploration study of variability in utility scores all the time was practiced in the process of liner mixed design along with general seize to know interactions among the patients. These designs comprised time and generalization groups as major impact and time-by-group correlation.

Variance in QALY was calculated using the size of the sample that was clinically significant. It was studied that a sample with a strength of 150, having a 5% decline to follow-up would have 80 percent strength for a 2-sided t-test at the 5% standard. These results were deducted assuming SD for QALYs of 0.17 expecting occurrence of diagnoses depression of 20% and also assuming net enhancement in QALYs of 0.155 for one and half years for the patients diagnosed with depression who were treated for depression in the test, warning, and cure group.

Analysis was conducted in R, version 3.4.3 (R foundation for statistical computing). Values of P were derived through 2-sided tests, considering findings statistically important at p <.05. Multiple comparisons were avoided for primary and secondary results keeping in view the 2-step gate-keeping process.

RESULTS

Table No.1: Basic characters

Characteristic	**Screen, Notify and Treat Group (n = 150)**	**Screen and Notify Group (n = 150)**	**No Screen Group (n = 150)**
Age	62.1 (11.3)	64.2 (11.7)	63.7 (11.7)
Married	83 (55.3%)	89 (59.3%)	86 (57.3%)
Employed	52 (34.6%)	48 (32%)	56 (37.3%)
PHQ-8 score ≥10	12/150 (8)	10/501 (6.6)	NA
CESD-10 score, mean (SD)	4.9 (5.1)	4.8 (4.8)	4.7 (4.6)
CESD-10 score ≥10	22/150 (14.6)	18/150 (12)	24/150 (16)
SF-12 Mental score, mean (SD)	18.0 (4.2)	20 (4.3)	16 (3.9)
SF-12 Physical score, mean (SD)	13.6 (3.8)	14.0 (3.9)	16 (4.1)

450 patients were found to fulfill the required criteria for depression diagnoses after ACS considering clinical reports. The mean age was calculated to be 65.9 (11.5) years. The people of the 3 groups were almost the same based on demography, depression, or health condition. 150 patients were allowed to screen, notify, and treat the group, 7.7% had been diagnosed with depression (i.e, PHQ-8 score>10), and twenty-eight positive screened cases showed their assent for stepped care intervention, four choose anti-depression medicine, 14 preferred problem-solving treatment while 10 selected both. Out of 150 patients diagnosed and reported faction, (6.6) were detected positive depression results.

Change in QALYs: There mean of the 3 groups was almost the same with an insignificant difference (1) screen, notify and treat, -0.06 [0.20], (2) screen and notify, -0.06[0.02], (3) no screening, -0.06[.18]; P=.98). QALYs decreased normally from the beginning to the end of 18 months. Imputation of mislaid facts and figures showed constant outcomes while performing analyses for sensitivity in worst result imputation and final inspection brought ahead.

Utilities were found steadily declining when examined utility turnout obtained through quality of living standards at all 4 assessments. All three groups showed the same trend. Even no difference was found in all in the whole duration of 18 months while using a mixed design of the study (secondary study).

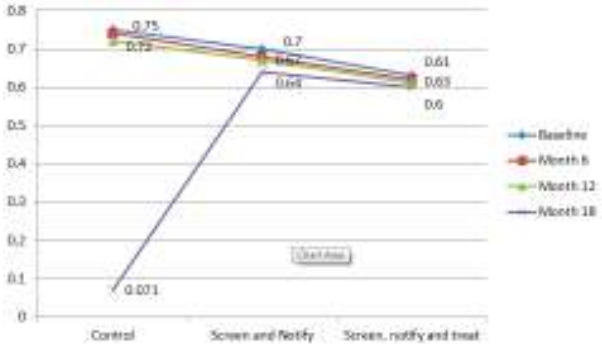

Figure No.1: Quality-of-Life Utility Score

Change in Depression-Free Days and Depressive Symptoms: The calculation of cumulative mean for 3 groups showed the same results in days without depression as (1) screen, notify and treat, 78.2 [31.0] days, (2) screen and notify, 75.7 [30.7] days, (3) no screening, 79.0[32.0] days'=.63 even in sign if depression in CESD-10 in this duration. The mean (SD) PHQ-8 score at 18 months did not change involving screening, notifying and treating, screening and notifying, and no screening (all 3.69 [4.21]; P=.99). Stratifying analyses by sex revealed nothing distinctive in depression-free days or depressive signs. In follow-up check-ups, no changes had been found in the proportion of people who took anti-depressant drugs or visited a mental health provider.

DISCUSSION

No distinction had been detected in QALYs between cases with ACS who had been assigned to depression

screening and notification having or having no stipulation of increased depression and a control class who suffered depression screening in this 3-group, depression screening randomized clinical study[8]. There's no variation in depressive signs, depression-free days, or cases of diagnostic hazards seen between the three groups. Strong data depicts that depression is a cardio-toxic major danger in individuals with ACS, and so it is linked to the health-related standard of living. Patients diagnosed with depression, for example, have double the risk of angina, triple the risk of observed physical constraints, and nearly triple the risk of a poor standard of life following an ACS[9,10]. Depression was by far the most significant predictor among the several variables contributing to 1-year excellence of life in research of patients with cardiovascular including socio-demographic indicators, the extent of disease, and other factors. Regardless of the risk of depression, our research shows that monitoring patients with ACS for depression frequently rarely results in significant demographic added benefits of enhanced quality of life or depression-free days[11] .

Depression screening may not have improved depression signs or quality of life for several reasons. A minor percentage than anticipated of study participants had positive results for depression during screening. Participants who had a background of depression were deliberately debarred; either no treatment was given for depression currently. Since depression is declining and abating and undertreated, mounting depression evaluation to take in patients with ACS with a background of depression may aid in case-find supplementary patients with ACS who may advance from improved depression cure[12-14] . In the screen, alert, and treat cluster, apropos 25% of those with positive test fallout decreased the better depression care treatment, which may have limited the effectiveness of this screening room. Even in those who started depression cure; those who have been diagnosed with depression through screening may have been less aggravated or interested in treatment, thereby being less betrothed, reducing treatment effectiveness. In terms of the fraction of cases receiving depression treatment in each group after six months, no differences were found. Studying the differences in concentration, rendezvous, devotion, and/or compliance in cases with depression found through screening and those looking for treatment may prove useful in the future[15].

Many expert societies have suggested depression tests suffered through ACS. Depression is generally screened for people with ACS and is related to inferior health effects, a shoddier feature of life, and greater medical treatment expenses, as suggested by advisories. Nevertheless, proved instructions rank the potency of the verification for clinical suggestions, with the high prescription kept for meta-study of general trials. The study shows strong evidence against depression diagnoses in ACS patients. The analysis stresses the importance of further research needed to be re investigated for patients with ACS[16-18].

The study also provides the same result for diagnoses of depression in other contextual aspects. The study measured the impact of a point-of-care electronic promotion encouraging general physicians to find outpatients with osteoarthritis for depression, angst, and twinge, as compared to pain only. This showed no low signs of depression. During the UK Quality and Outcomes Framework, methodical depression diagnoses were economically incentivized in basic care patients with ACS from 2006 to 2013. In total, it is guessed that 976 cases must be tested for a new screening of depression, and 687 people must be tested for a new prescription for an antidepressant. It was ended in the UK as a quality meter due to low outcomes[19].

CONCLUSION

The results of the survey show that primary care did not change the standard of life, days without depression, signs of stress and anxiety, death, or reported damages for the patients facing ACS providing global screening and notification treatment for depression.

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

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Original Article

Multi Center Computer Guided Analysis of Site Distribution in Isolated Mandibular Fracture

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ABSTRACT

Objective: To determine the site distribution in isolated mandible fracture using multi center computer guided analysis among patients presenting at tertiary care hospital of Karachi, Pakistan.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at multicenter Tertiary Care Hospitals in Karachi from 1-1-2021 to 1-7-2021.

Materials and Methods: Data was collected after obtaining ethical approval from institutional ethical review committee. Verbal informed consent was obtained. Total of 500 OPGs (Orthopantomagram) from various tertiary care hospitals in Karachi were collected. Data was collected in the form of radiographs or soft copies in a removable storage device. Computer based analysis of OPGs were done. The collected OPGs were assessed for lines of propagation of fracture and pattern of mandibles fractures. All data were collected and noted on a pre-designed profarma by researcher.

Results: Average age of patients was 30.37±12.37 years. Out of 500 patients 344(69%) were male and 156(31%) were female patients. Most common sites of mandibular fracture were parasymphysis 118(23.6%), body 79(15.8%), sub-condyle 70(14%), angle 48(9.6%) while in multiple site fractures symphysis/parasymphysis was the frequent combination 37(7.4%).

Conclusion: Majority of young male patients suffered from mandibular fractures. RTA (road traffic accident) was the most prevalent cause of mandibular fracture, followed by falls. Parasymphysis, body and sub-condyle were the most frequently fractured sites.

Key Words: Isolated mandibular fracture, site distribution, etiology, RTA, fall, trauma.

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INTRODUCTION

The mandible is the lowest facial bone that is important for both functional and anatomical structure.[1] The 'parasympysis', 'symphysis', 'body',' condyle', 'angle', 'ramus', 'coronoid', and 'alveolus' are anatomic segments of the mandible.[2] Mandible fractures is 2nd most common fractures caused by trauma.[3]

These fractures are prevalent in young males due to more taking part in outside activities[4], and account for 36 to 59% of all maxillofacial fractures, as per evidence. it is the 10th most often damaged bone in the human body and it is broken two to three times more frequently than other facial bones.[5] Vehicle accidents and violent confrontations are the leading causes of mandibular fractures worldwide, followed by work injuries, sporting activities, or falls/crashes. Mandible fractures are three times more common in males than women, The majority of these cases occur in the 2nd or 3rd stones of life. More than 50% of the patients had multiple fractures, because of its ring-like shape. A parasymphyseal region with a sub-condylar or contra lateral angle fracture is the most prevalent combination of injuries. Mandibular fractures are generally caused by trauma. This might include a chinstrap fall or a side collision. The condyle, body, angle, and symphysis are the most frequently fractured areas.[6] The most common fracture location in vehicle accidents was the condyle, in motorcycle accidents was the symphysis. The most commonly broken location in assault situations is the angle.[7] Whereas an X-ray can be used to offer a good diagnosis in some cases, modern CT scans are more accurate and consistent.[6] Greenstick fractures are the most common type of fracture.[3,8] A prior research in Pakistan found that 43% of patients had isolated

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mandibular fractures, with the parasymphysis 35% and condyle being the most common sites of fracture.[9]

Due to limited recent evidence available on the site of mandibular fractures in the Pakistani population, therefore the target of present research is to determine the sites distribution in isolated mandibular fracture by multi-center computer-guided analysis among patients presenting at Karachi Tertiary Care Hospital, Pakistan. This study will be beneficial in assessing the quality of patient treatment and developing preventive strategies.

MATERIALS AND METHODS

Descriptive cross-sectional study was conducted at (multicenter) tertiary care hospital of Karachi, Pakistan from 1-1-2021 to 1-7-2021 after the approval of synopsis from institutional research ethics committee.

The sampling technique was non-probability convenience sampling. Sample size was estimated using Open Epi online sample size calculator by taking statistics of Symphysis site of fracture as 3.8%(38), bond on error as 1.7% and 95% confidence level. The estimated sample size is 486≈500.We included Patients of age 15-60 years, either gender, edentulous patients presenting with isolated mandibular fracture and willing to take part in the study and were excluded those Patients with pre-existing pathology, Patients with hematological discrepancies, Patients undergoing radiotherapy/chemotherapy.

The data was collected through pre-designed profarma after getting verbal informed permission from eligible patients, in the form of radiographs or soft copies in a removable storage device. The collected OPGs were assessed for lines of propagation of fracture and pattern of mandibular fractures (i.e. sites, causes and nature of fractures). Data regarding age, gender, anatomical location, number of fracture, degree of fracture fragment displacement, localization and charter were also be collected.

Data was analyzed using SPSS version 24. Mean and standard deviation were computed for quantitative variables. Frequency and percentage were computed for qualitative variables. Effect modifiers were addressed through stratification. Post stratification Chi square test was applied. P-value less than or equal to 0.05 was considered as statistically significant.

RESULTS

Total 500 OPGs of patients with isolated mandible fracture were evaluated for fracture sites distribution. Comparisons of sites of fracture were done with age, gender and etiology. The association found highly significant with P-value 0.000

Table 1 demonstrates the comparison of gender with etiology of fracture that majority of patients with mandible fractures were male 69% and 31% were female patients. Etiological distribution showed that RTA was the most frequent cause 44.6% of fracture among these patients followed by fall 38%. Less frequent causes were sports related injuries 10.2% and assaults 7.2%. Comparison of gender with etiologies done; most of the male patients 66.8% were with RTA and 33.2% were female. Similarly for fall, sports injuries also dominant for male gender 96.1%, there was no major difference found in assault proportion with respect to gender. The comparison showed significant difference with P-value: 0.000.

Table No.1: Comparison of gender with etiology of fracture

Etiology	Gender		Total	p-value*
	Female	Male		
Assault	17(47.2%)	19(52.8%)	36(100%)	0.000
Fall	63(33.2%)	127(66.8%)	190(100%)	
RTA	74(33.2%)	149(66.8%)	223(100%)	
Sports	2(3.9%)	49(96.1%)	51(100%)	
Total	156(31.2%)	344(68.8%)	500(100%)	

*Chi square test

Table 2 showed the comparison of site of fracture with age groups and gender. Average age of patients was 30.37±12.37 years with range of (15-60) years. Most of the subjects 54.6% age was 25 years or less, and 27.6% were 26-45 years of age, and very few were belong from older age group (more than 45) 17.8%. Among younger 25 years or less than 25years of patients most frequent fracture site were Parasymphysis 27.1%, sub-condyle 19%, angle 12.1%, and body 8.8%. In middle age group 26-45 years most common sites were reported body 14.5%, symphysis 13%, sub-condyle 13%, angle 10.9%. In older age (more than 45 years) patients frequent facture reported were body 39.3% and parasymphysis 33.7 %. The comparison showed significant difference with P-value: 0.000.

Table 2 also explains the distribution of sites of fracture with gender. The most common site of mandible fracturein both male and female was parasymphysis 23.6%, followed by body 15.8%, sub-condyle 14%, angle 9.6% while in multiple site fractures symphysis/ parasymphysis was the frequent combination 7.4% other less frequent sites and combinations were stated in table 2. Male gender had the following frequent fractures parasymphysis 26.7%, sub-condyle 18% and body 12.8% while in female patients body 22.4% parasymphysis 16.7% and angle 15.4% were the most common affected sites. The comparison showed significant difference with P-value: 0.000.

Table 3 demonstrates the comparison of site of fracture with etiology. In patients with RTA sub-condyle 20.6%, parasymphysis 16.6% and body 15.7% were the common sites affected. Patients with the history of fall showed the frequent fracture sites; body 18.9% and angle 12.6%, Symphysis/parasymphysis 30.6% were the most common sites of fracture result in assaults, and sports injury patients had sub-condyle 47.1%, condyle 33.3% and angle 19.6%. The comparison showed significant difference with P-value: 0.000

Table No.2 Comparison of site of fracture with age groups & gender

Site of fracture	Age groups in years n(%)			Total n(%)	*p-value	Gender n(%)		Total n(%)	*P-value
	25 or less	26-45	>45			Female	Male		
Angle	33(12.1)	15(10.9)	0(0)	48(9.6)	0.000	24(15.4)	24(7)	48(9.6)	0.000
Body	24(8.8)	20(14.5)	35(39.3)	79(15.8)		35(22.4)	44(12.8)	79(15.8)	
Condyle	18(6.6)	4(2.9)	9(10.1)	31(6.2)		13(8.3)	18(5.2)	31(6.2)	
Coronoid	5(1.8)	0(0.0)	4(4.5)	9(1.8)		4(2.6)	5(1.5)	9(1.8)	
Parasymphysis	74(27.1)	14(10.1)	30(33.7)	118(23.6)		26(16.7)	92(26.7)	118(23.6)	
Sub- Condyle	52(19)	18(13)	0(0.0)	70(14)		8(5.1)	62(18)	70(14)	
Symphysis	18(6.6)	18(13)	0(0.0)	36(7.2)		10(6.4)	26(7.6)	36(7.)	
Symphysis/ Parasymphysis	18(6.6)	8(5.8)	11(12.4)	37(7.4)		12(7.7)	25(7.3)	37(7.4)	
Body/ Parasymphysis	13(4.8)	0(0.0)	0(0.0)	13(2.6)		9(5.8)	4(1.2)	13(2.6)	
Condyle/ Parasymphysis	0(0.0)	2(1.4)	0(0.0)	2(0.4)		2(1.3)	0(0)	2(0.4)	
Condyle/ Sub-Condyle	0(0.0)	8(5.8)	0(0.0)	8(1.6)		4(2.6)	4(1.2)	8(1.6)	
Ramus/ Parasymphysis	0(0.0)	15(10.9)	0(0.0)	15(3)		0(0)	15(4.4)	15(3)	
Ramus/ Symphysis	0(0.0)	14(10.1)	0(0.0)	14(2.8)		5(3.2)	9(2.6)	14(2.8)	
Angle/ Sub-Condyle/ Symphysis	10(3.7)	0(0.0)	0(0.0)	10(2)		1(0.6)	9(2.6)	10(2)	
Condyle/ Symphysis/Parasymphysis	0(0.0)	2(1.4)	0(0.0)	2(0.4)		0(0)	2(0.6)	2(0.4)	
Ramus/ Symphysis/Parasymphysis	8(2.9)	0(0.0)	0(0.0)	8(1.6)		3(1.9)	5(1.5)	8(1.6)	
Total	273(100)	138(100)	89(100)	500(100)		156(100)	344(100)	500(100)	

*Chi square test

Table No.3: Comparison of site of fracture with etiology

Site of fracture	Etiology				Total n(%)	p-value*
	Assault	Fall	RTA	Sports		
Angle	0(0%)	24(12.6%)	14(6.3%)	10(19.6%)	48(9.6%)	0.000
Body	8(22.2%)	36(18.9%)	35(15.7%)	0(0%)	79(15.8%)	
Condyle	0(0%)	14(7.4%)	0(0%)	17(33.3%)	31(6.2%)	
Coronoid	0(0%)	9(4.7%)	0(0%)	0(0%)	9(1.8%)	
Parasymphysis	5(13.9%)	76(40%)	37(16.6%)	0(0%)	118(23.6%)	
Sub-Condyle	0(0%)	0(0%)	46(20.6%)	24(47.1%)	70(14%)	
Symphysis	0(0%)	16(8.4%)	20(9%)	0(0%)	36(7.2%)	
Body/ Parasymphysis	4(11.1%)	0(0%)	9(4%)	0(0%)	13(2.6%)	
Condyle/ Parasymphysis	0(0%)	0(0%)	2(0.9%)	0(0%)	2(0.4%)	
Condyle/ Sub-Condyle	8(22.2%)	0(0%)	0(0%)	0(0%)	8(1.6%)	
Ramus/ Parasymphysis	0(0%)	0(0%)	15(6.7%)	0(0%)	15(3%)	
Ramus/ Symphysis	0(0%)	0(0%)	14(6.3%)	0(0%)	14(2.8%)	
Symphysis/ Parasymphysis	11(30.6%)	6(3.2%)	20(9%)	0(0%)	37(7.4%)	
Angle/ Sub-Condyle/Symphysis	0(0%)	1(0.5%)	9(4%)	0(0%)	10(2%)	
Condyle/ Symphysis/ Parasymphysis	0(0%)	0(0%)	2(0.9%)	0(0%)	2(0.4%)	
Ramus/ Symphysis/ Parasymphysis	0(0%)	8(4.2%)	0(0%)	0(0%)	8(1.6%)	
Total	36(100%)	190(100%)	223(100%)	51(100%)	500(100%)	

***Chi square test**

Table 4 elaborates the characteristics of fracture in study participants. The most common type was impacted fracture in 40.4% patients, greenstick was found in 22% patients, complex fracture was found in 19.4% patients, comminuted fracture alone found in 8.4% while with complex fracture found in 2% patients. Most of the patient's status of fracture was unfavorable 69.4% and only 30.6% patients had favorable status. Almost half of the patients 48.8% had simple fractures while 33.6% patients had compound fractures, 10.4% patients had comminuted fractures and only 7.2% had closed fractures. Direction of fracture were horizontal and vertical both direction's proportion was equal with 48% remaining 3% patients had direction horizontal to vertical and only 0.4 patients had direction was vertical to horizontal.

Table No.4: Characteristics of fractures among participants

Characteristics of fracture	n(%)	Total n(%)
Types of fractures		
Impacted	202(40.4%)	
Green stick	110(22%)	
Complex	97(19.4%)	500(100)
Comminuted	42(8.4%)	
Depressed fracture	37(7.4%)	
Comminuted/Complex	10(2%)	
Impacted/Complex	2(0.2%)	
Status of fracture		
Unfavorable	347(69.4%)	
Favorable	153(30.6%)	500(100)
Severity of fracture		
Simple	244(48.8%)	
Compound	168(33.6%)	500(100)
Comminuted	52(10.4%)	
Closed	36(7.2%)	
Direction of fractures		
Vertical	243(48.6%)	
Horizontal	240(48%)	500(100)
Horizontal /Vertical	15(3%)	
Vertical/ Horizontal	2(0.4%)	
charter distribution of fracture	317(63.4%)	
Fracture with dislocation	183(36.6%)	500(100)
Fracture without dislocation		
Laterality status of fracture	350(70%)	500(100)
Unilateral	150(30%)	
Bilateral		
Number of fracture in a patient	275(55%)	
Single	142(128.4%)	500(100)
Double	83(16.6%)	
Multiple		

Charter distribution showed that 63.4 patients were with dislocation and 36.9% patients were without dislocation. 70% patients were with unilateral fracture and 30% patients had bilateral fracture. Most of the patients had single fractures 55%, 28.4% patients had double and 16.6% patients had multiple fractures.

DISCUSSION

In this study, we investigated isolated mandibular fractures treated in Karachi at several tertiary care hospitals. The purpose of this research is to provide in-depth details concerning fracture sites, as well as etiological aspects and other fracture-related features reported. The findings of this research are consistent with earlier publications, especially in terms of patient age, gender, and etiology.[10,11] Mandibular fractures are most common in those aged 15 to 25 years old, according to our research 54.6 %. This may be due to increased usage of two- wheelers, inexperienced riders, poor safety precautions such as helmets, and poor road conditions may all be contributing factors in our geographic region, given the majority of fractures in this category are RTAs. Despite the male dominance, the distribution of gender in our analysis indicated a male to female ratio of about 7:3, which is consistent with other studies. This indicates that female involvement in maxillofacial trauma is on increasing might be due to increased female mobility and social involvement. The exact cause of maxillofacial trauma differs dramatically between developing and developed countries. In underdeveloped nations, RTAs are the most prevalent etiology, whereas assault is the most common cause in developed countries. RTA was the cause of injury in 44.6% of our patients, which was comparable to the existing literature.[12,13] When age and gender were taken into account, patients with mandible fractures in our research were predominantly young men, which matched the findings in the literature.[12,14,15] The most prevalent locations of mandibular fracture, according to the present research were Parasymphysis region 118(23.6%). The type of trauma and etiologic variables are essential in determining the location of mandible fractures. In traffic accidents, on the other hand, the Parasymphysis region is the most affected.[5,12,13,16] Fridrich et al indicated that mandibular fractures site Symphysis and Parasymphysis are mostly seen in the motor vehicle accidents. Moreover, Mandibular fractures induced by assault were most commonly found in the angle. The most common fracture locations were the symphysis and parasymphysis, accounting for 39% of all fractures, these evidences are consistence with our research.[7,17] Females are more likely than males to suffer a mandibular angle fracture (47.9% vs. 23.6%), and this difference is statistically significant $P< 0.001$.[4]. Another research reveals that female patients with mandibular injuries had a greater rate of angle involvement than

male patients.[19] On the other hand, Patel et al.[19] Males are more likely than females to experience from mandibular angle fractures, according to the study. In this research analysis, male patients had 26.7% Parasymphysis whereas female patients had the Body 22.4% body fractures.

When the anatomic distribution of fractures is examined independently of the type of trauma, the most frequent sites are the Condyle, Angulus and Symphysis/parasymphasis region.[20,21] It's important to note that the Condyle and sub-condyle areas of the mandible are the most difficult to analyze, and fractures in these locations can be difficult to diagnose, similar to our study. The commonly affected site found was Parasymphysis.[13] The researches were carried out by Barde D et al[10] & Adi et al[22] also agree with our finding.[22]

CONCLUSION

The majority of patients who had mandibular fractures were young male. RTA was the most prevalent etiological cause, and the Parasymphysis was the most commonly fractured site. In underdeveloped nations like Pakistan, RTAs are still responsible for a significant incidence of mandibular fractures. The current mandibular fracture assessments were useful to government organizations and health-care professionals designing future preventive and treatment initiatives.

Recommendation: It is imperative to begin public educational programmes on the traffic rules, wearing a helmet etc. to reduce the RTAs, according to our data, RTAs are the leading cause of maxillofacial fractures. In compared to other injuries, mandibular fractures can cost a lot of money in terms of medical expenses.

Author's Contribution:

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Original Article

Frequency of Interictal Epileptiform Discharges in Patients with New Onset Epilepsy

Asad Ullah Khan, Muhammad Zaheer and Mehtab Alam

ABSTRACT

Objective: The rational of this study to determine the frequency of inter-ictal epileptiform discharges and its various forms in new onset epileptic patients.

Study Design: Descriptive / cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Neurology, Lady Reading Hospital Peshawar from 14 January 2021 to 14 June 2021.

Materials and Methods: In this research one hundred and seventy-seven patients participated, after taking detailed history, examination and routine investigations were carried out, Electro-encephalogram (EEG) was performed in all participants, CT scan Brain or MRI brain with or without contrast, lumbar puncture and other specific investigations were performed to exclude causes of provoked seizure. The EEG machine manufactured by: BIO-LOGIC, model**:** Ceegraph EEG System was used in this study to record abnormal electrical activity.

Results: In this study mean age was 35 years ± 13.28. Sixty four percent patients were male while 36% patients were female. Interictal epileptiform discharges was found in 66% in which 41% were sharp's, 23% spikes, 15% spike and wave activity, 11% polyspikes and polyspike and slow waves discharges in 10%.

Conclusion: Our study concludes that the frequency of interictal epileptiform discharges was 66% in patients with new onset epilepsy Interictal epilepticform discharges.

Key Words: EEG (Electro-encephalogram), Interictal epilepsy, Epilecticticform discharges

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INTRODUCTION

The International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE) have proposed a definition for epilepsy that describes it as a brain disorder characterized by an enduring propensity to cause epileptic seizures as well as the neurobiological, cognitive, psychological, and social consequences of this condition[1]. At least 2 unprovoked seizures must occur in a span of 24 hours for epilepsy to be diagnosed[1,2]. When a patient experiences one unprovoked seizure alongside an inter-ictal discharge, some doctors are additionally diagnosing epilepsy[1].

The median incidence of epilepsy was 51 per one million per year, however it was 42.0 for developed countries and 82.0 for low to middle-income countries[3]. In Pakistan the prevalence of epilepsy is estimated to be 10 per thousand population[4].

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Studies carried out in various settings have reported misdiagnosis rates of between 5% and 29%[5,6,7]. The most crucial component of the diagnostic evaluation is an accurate and thorough explanation of what happened from a witness, although this may not be possible. When an adult presents with an apparent unprovoked first seizure, electro-encephalography (EEG) should be taken into consideration as part of the routine neuro-diagnostic assessment (Level B). It can support the epilepsy diagnosis and help to categories the underlying epileptic illness[8,9]. Epilepsy is frequently linked with various EEG abnormalities. Epileptiform and non-epileptiform EEG abnormalities are categorized. Inter-ictal epileptiform discharges (IEDs), periodic lateralized epileptiform discharges (PLEDs), and generalized periodic epileptiform discharges (GPEDs) are a few types of epileptiform activity[10,11]. In PLEDs and GPEDs, acute symptomatic seizures can happen in 88% and 40% percent of cases, respectively, but there is little correlation between them and epilepsy[12,13]. Inter-ictal epileptiform discharges (IEDs) have twenty to fifty percent sensitivity and 98 to 99 percent specificity in adults and in children (96-97%) for epilepsy. There are many types of IED and in one of study in children these were found to be, fifty-three percent sharp, 13-14% spike, spike and slow wave in 6-8%, polyspikes in 13% and 21% have variable electrical discharges.[2] EEGs were reported as abnormal in 13 percent to 72 percent (average yield 54 percent) and as considerably abnormal in 6 percent to 49 percent

(average 30 percent) of the one Class I and ten Class II publications assessed (with a total of 1,756 patients) 12-25 examining the yield of EEG[14]. A regular EEG for people who had their first seizure revealed epileptiform abnormalities (IEDs) in about twenty-three percentage of patients, and they were indicative of seizure recurrence. Inter-ictal abnormal electric discharges (IEDs) were discovered in 42% of the youngsters in a research. The justification for the current study is that, as previously mentioned, data on the frequency of abnormal EEG activity in the form of (IEDs) varies widely. Most prior studies determined this frequency after a single unprovoked seizure, but we will do so after two unprovoked seizures that are separated by 24 hours, which will be more specific for epilepsy. In the majority of earlier investigations, the ratio of various IED was not provided.

In order to test the diagnostic value of this investigation in epilepsy and to aid us in the future diagnosis of this condition, which is a challenging and significant disease to diagnose, we will count the number of patients who have inter-ictal epileptiform discharges (IEDs) and the proportion of its various types in patients with new onset epilepsy. The findings of this study assist the neurologist in interpreting the EEG of a patient with newly developed epilepsy by letting them know what type of IED discharges to look for most frequently and least frequently.

MATERIALS AND METHODS

This is a cross sectional study conducted at department of Neurology, Lady Reading hospital Peshawar, duration of study was six months from 14 January 2021 to 14 June 2021. Sample size was 177, using 8%[2], proportion of spike- wave among patients with interictal epileptiform discharges, 95% confidence interval and 4% margin of error under WHO sample size calculations. Sampling technique was consecutive (Non Probability) sampling

Inclusion Criteria: All the patients with unprovoked generalized seizures, patients with 18-60 years, either gender.

Exclusion Criteria: In Children: parasomnias, breath-holding spells, vasovagal syncope, benign paroxysmal vertigo, staring spells, tic disorders and stereotypies, by history and examination. In young adults: Narcolepsy, periodic limb movements of sleep, sleep starts, paroxysmal dyskinesia, tic disorders, hemifacial spasm, stiff person syndrome, migraine, psychogenic non-epileptic pseudoseizures by history and examination. In older Adults: Cardiogenic syncope by ECG, Echo and if required holter monitoring. Transient ischemic attack, drop attacks, transient global amnesia by history, CT scan or MRI brain. Rapid eye movements sleep disorder by history. Past history of epilepsy. For provoked seizure Non contrast CT brain or MRI brain with and without gadolinium contrast to exclude structural pathology like, head injury, stroke, CNS infections (neurocysticercosis, tuberculoma, encephalitis, abscess, neurosurgical intervention). Lumber puncture to exclude CNS infection. Liver, renal function test, serum electrolytes, calcium and glucose, and toxic screen to exclude metabolic and toxic causes. These all conditions act as confounders and would introduce bias in the results if included in study.

Data Collection Procedure: Approval was sought from hospital ethical committee. All patients meeting the inclusion criteria were included in the study throughout patient department (OPD) and emergency and were admitted if required in the neurology ward for further evaluation. The diagnosis of epilepsy was based on criteria mentioned in operational definition. The inclusion and exclusion criterion was strictly followed to control confounder bias in study results. The purpose and benefits and risks of the study were explained to all patients' relatives and they were assured that the study was done purely for data publication and research purpose, and if agreed upon an informed written consent was obtained from all patients. After taking detailed history, examination and routine investigations were carried out, Electro-encephalogram (EEG) was performed in all participants, CT scan Brain or MRI brain with or without contrast, lumbar puncture and other specific investigations were performed to exclude causes of provoked seizure. The EEG machine manufactured by: BIO-LOGIC, model: Ceegraph EEG System was used in this study to record abnormal electrical activity, 25 to 30 minutes EEG was recorded digitally with a standard protocols and to increase its yield activation methods were used like hyperventilation, photic stimulation, after sleep deprivation and during sleep. The EEG was interpreted by expert fellow Neurology and neuro-electro-physiologist. Data was being recorded in a Proforma, as attached.

Data Analysis: SPSS version 10 was used to store and analyze all of the data. For numerical variables like age, mean and standard deviation were determined using descriptive statistics. For categorical variables like sex, inter-ictal epileptiform discharges, and its variants, frequencies and percentages were determined (spikes, sharp waves, spike & slow wave discharges, polyspike and polyspike & slow wave complexes). Age, sex, and time of onset were used to stratify IED and its many kinds in order to observe changes. The chi square test was applied in which P value ≤ 0.05 was considered as significant value. All results were presented in the form of tables.

RESULTS

Table No. 1: Interictal epileptiform discharges (n=177)

IED	Frequency	Percentage
Yes	117	66%
No	60	34%
Total	177	100%

In this study age distribution among one hundred seventy-seven patients was analyzed as 108 (61%)

patients were in age range 18-35 years, 62(35%) patients were in age range 36-50 years, 7(4%) patients were in age range 51-60 years. Mean age was 35 years ± 13.28, Male patients were 113(64%), while 64(36%) patients were female. Time of presentation was analyzed as 164(93%) patients presented within 24-48 hours, 9(5%) patients within 48-72 hours, and 4 (2%) patients presented within 72-1 week. Mean time of presentation was 24 hours ± 2.13. Inter-ictal epileptiform discharges was found in one hundred and seventy-seven (66%) and no abnormal electrical activity recorded in 60(34%) of patients (Table 1). Type of IED was analyzed as the sharp waves were present in 48(41%), spikes in 27(23%), spike & wave in 17(15%), Polyspike in 13(11%), and Polyspike & slow wave discharges in 12(10%) of patients (Table 2).

The Inter-ictal epileptiform activity and its variants were also stratified among age, gender and time of presentation to see the effect modifications as shown in (Table 3-5).

Table No. 2: Types of Interictal Epileptiform Discharges (n=117)

Variants of IED	Frequency	Percentage
Sharp's	48	41%
Single spike	27	23%
Spike & wave	17	15%
Polyspike activity	13	11%
Polyspike & slow wave discharges	12	10%

Table No. 3: Stratification of Types of Interictal Epileptiform Discharges W.R.T Age Distribution (n=177)

Types of IED		18-35 years	36-50 years	51-60 years	Total	* P value
Sharp activity	Yes	29	17	2	48	0.9929
	No	79	45	5	129	
Total		108	62	7	177	
Intermittent Spike	Yes	16	9	2	27	0.6057
	No	92	53	5	150	
Total		108	62	7	177	
Spike & wave	Yes	10	6	1	17	0.9085
	No	98	56	6	160	
total		108	62	7	177	
Poly-spike	Yes	8	4	1	13	0.7524
	No	100	58	6	164	
Total		108	62	7	177	
Poly-spike & slow wave discharges	Yes	7	4	1	12	0.7226
	No	101	58	6	165	
Total		108	62	7	177	

***Chi Square test was applied in which P value**

Table No. 4: Stratification of Types of Interictal Epileptiform Discharges w.r.t Sex Distribution (n=177)

Subtypes of IED		Male	Female	Total	* P value
Sharp activity	Yes	31	17	48	0.9003
	No	82	47	129	
Total		113	64	177	
Spike's	Yes	17	10	27	0.9177
	No	96	54	150	
Total		113	64	177	
Spike & wave	Yes	10	7	17	0.6505
	No	103	57	160	
total		113	64	177	
Poly-spike discharges	Yes	8	5	13	0.8574
	No	105	59	164	
Total		113	64	177	
Poly-spike & slow wave complex	Yes	8	4	12	0.8329
	No	105	60	165	
Total		113	64	177	

***Chi Square test was applied in which P value**

Table No. 5: Stratification of Types Of Interictal Epileptiform Discharges W.R.T Time Of Presentation (n=177)

Multiple Variants of IED		24-48 hrs	48-72 hrs	72hr-1wk	Total	* P value
Sharp activity	Yes	45	2	1	48	0.9386
	No	119	7	3	129	
Total		164	9	4	177	
Spike's	Yes	25	1	1	27	0.8133
	No	139	8	3	150	
Total		164	9	4	177	

Spike & wave	Yes	15	1	1	17	0.5612
	No	149	8	3	160	
total		164	9	4	177	
Poly-spike discharges	Yes	12	1	0	13	0.7769
	No	152	8	4	164	
Total		164	9	4	177	
Poly-spike & slow wave complex	Yes	11	1	0	12	0.7560
	No	153	8	4	165	
Total		164	9	4	177	

*Chi Square test was applied in which P value

DISCUSSION

The morbidity and fatality rates associated with epilepsy are high. Better quality of life for these people is a result of early diagnosis and rapid treatment. In our study, there were one hundred and seventy-seven patients, 64% of whom were men and 36% were women. In 66 percent of patients, IED were aberrant, while in the remaining 34%, EEG results were normal. According to a cross-sectional study by Chowdhury-RN et al. at the electrophysiology laboratory of the Dhaka hospital, which had 767 patients, the overall sensitivity of EEG in detecting aberrant IED was 62.7 percent[15]. Inter-ictal epileptiform activity on the EEG was present in 52% of the first record, in eighty five percent by the third record, and in 93 percent by the fourth in another international study that examined data from 1,202 EEGs on 428 adult patients, the majority of whom had definite epilepsy that first manifested in adulthood. Beyond this limit, serial EEG output is rather low[16]. The sensitivity of a single EEG has been reported in one research by Edward B. Bromfield to be in the range of 52%, however estimates have fluctuated from as low as 9% to as high as 76 percent[17]. Similarly, EEGs taken for newly developing seizures in a research by Wirrell et al. revealed epileptiform discharge in roughly 17 to 54 percent of children and 14 to 52 percent of adults. In individuals whose conventional EEG findings were normal, an EEG performed after sleep deprivation increases detection of epileptiform abnormalities and reveals discharge in 12 percent to 33 percent of cases[18]. According to the AAN meta-analysis, EEGs were reported as abnormal in 13 percent to 72 percent of the one Class I and ten Class II articles reviewed (with a total of 1,756 patients), with an average yield of 51 percent, and as significantly abnormal in 6 percent to 49 percent of the cases. IEDs were discovered in 66 percent of the study participants, which is alarmingly high. This was accomplished through patient selection, as opposed to the previous research where EEG was performed after a single unprovoked seizure, we chose individuals for whom EEG was performed after two unprovoked seizures, increasing the possibility that IEDs would be discovered in our patients. In our study the intermittent sharp activity was present in (41%) spike's in (23%), spike & wave in (15%), Poly-spike discharges in (11%), and Poly-spike and slow wave discharges in (10%). This is supported by a study conducted in Taif, Kingdom of Saudi Arabia, in this study (IEDs) were found in 62% among abnormal EEGs. Among IEDs there are various sub types and they occur in the following frequency, sharp activity in 52%, spikes in 14-15%, and spike & wave in 6%, polyspike in 13% and polymorphic waves 21%. In another study conducted in Brazil by Raquel Rego et al. included thirteen to sixteen years (mean of 6.5 years and median 4.0 years), 405 were female (59%). Sharp activity found in 78 cases (42%), spike in 22 (11%), polispikes in 15 (7.8%), spike-wave in 18 (10%), polispike-wave in 22 (12%) and variable discharges in 33 (17.5%)[19]. In our theses, among the patients with IEDs in their EEG records, 67.7% appeared between 24–48 hours, 5 (55.6%) within 48–72 hours, and 1 (25.0%) within 72–1 week. Since clinical seizures are temporally linked to more frequent IEDs, early presentation following a seizure increases the likelihood that IEDs will be evident in the EEG record. A study that found an elevated incidence of IED when an EEG study was conducted within two days or within seven days of a recent seizure supported our findings[20]. In a different study by King et al., epileptiform anomalies were found in 52% of patients in whom EEGs were taken within 24 to 48 hours of their first seizure, as opposed to just 35% of those who's EEGs were taken later[21]. In a different case series, an early EEG within 48 hours appeared to produce epileptiform abnormalities in a manner comparable to a later sleep-deprived study[22]. According to the findings, young people with newly diagnosed epilepsy are more likely than the elderly group to have an abnormal EEG. Our research findings indicated a younger age at the time of EEG, a longer duration of epilepsy, and an earlier age at epilepsy beginning were all associated with the occurrence of IEDs in people with epilepsy[23].

CONCLUSION

Our study concludes that the frequency of inter-ictal epileptiform discharges was 66% in patients with new onset epilepsy and epileptiform discharges were more common in young and middle age patients with new-onset epilepsy. IED aids physicians in predicting the onset of a future epileptic syndrome, as well as the type, location, and intensity of seizures.

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