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CONTENTS

Editorial

Drug Resistant TB and Bone Marrow Stem Cells ____ 1
Moshin Masud Jan

Original Articles

1. **Comparative Activity of Vaccinium Macrocarpon and Antibiotics in Pregnancy** ____ 2-5
1. Saima Bukhari 2. Wajid Ali 3. Zakia Subhan

2. **Evaluation of Dental Anomalies and its Relationship with Malocclusion and Growth Pattern in Orthodontic Patients Visiting Avicenna Dental Hospital** ____ 6-10
1. Hafsa Gul 2. Shahlisa Hameedi 3. Faryal Ali Syed 4. Muhammad Behzad Salahuddin 5. Sana Jawad 6. Zainia Tauseef

3. **Comparison of Tramadol and Ketorolacin Postoperative Pain After Maxillofacial Surgery** ____ 11-14
1. Kashif Ali Channar 2. Abdul Bari Memon 3. Irfan Ahmed Shaikh 4. Nadir Kalhoro 5. Ajeet Kumar 6. Bashir Ahmed Jalbani

4. **Complications and Risk Factors Associated with Ventriculoperitoneal Shunt Dysfunction: A Systemic Literature Review** ____ 15-19
1. Sumreen Anwar 2. Hassan Nawaz Yaqoob 3. Masooma Ahmad 4. Maria Ilyas 5. Abdul Hanan Jawad 6. Ambreen Anjum

5. **Immediate Dentin Sealing Versus Erbium (Er): YAG laser Dentin Ablation Prior to Composite Inlay Luting Procedures** ____ 20-23
Ola Mohamed Sakr

6. **Preferred Assessment Tools from Medical Students Standpoint: a Comparative Study** ____ 24-28
1. Hina Khan 2. Sadia Sundus 3. Muhammad Sajid Khan 4. Munawar Hussain 5. Nighat Seema 6. Raja Faisal

7. **Refractive Outcomes with Contact Lens Followed by the Procedure of Corneal Cross Linkage** _ 29-33
1. Ikramuddin Indhar 2. Pir Salim Mahar 3. Israr Ahmed Bhutto 4. Mustafa Kamal Junejo 5. Munawar Hussain 6. Umer Kazi

8. **Do Vitamin D Levels Correlate with Stroke Severity? Study on Patients with Ischemic Stroke** _ 34-37
1. Shazia Siddiq 2. Sadia Hanif 3. Jhangir Zaib 4. Muhammad Nadeem 5. Sadiq Hussain 6. Muhammad Fareed Khan

9. **Impact of Denture Cleansing Habits and its Association with Denture Stomatitis among Removable Denture Wearers in Different Clinics of Karachi City** ____ 38-41
1. Sameer Quraeshi 2. Daud Mirza 3. Parveen Memon 4. Abdullah Alarifi 5. Muhammad Shahrukh Khan Sadiq 6. Syed Azhar Matloob

10. **Evaluation of Visual Outcomes with Spectacles After Corneal Cross-Linkage Procedure** ____ 42-46
1. Pir Salim Mahar 2. Ikramuddin Indhar 3. Israr Ahmed Bhutto 4. Mustafa Kamal Junejo 5. Munawar Hussain 6. Hina Khan

11. **Non-Invasive Evaluation of Liver Fibrosis; Diagnostic Performance of Ultrasound Signs** ____ 47-50
1. Muhammad Saulat Nawaz 2. Maria Nawaz 3. Hasham Nawaz 4. Syed Jawad Hussain 5. Syed Amir Gilani 6. Muhammad Usama Faruqui

12. **Abnormal Hemoglobin Identified on High Performance Liquid Chromatography (HPLC) in a Secondary Care Hospital of Karachi** ____ 51-54
1. Nadeem Nusrat 2. Furrukh Ali Khan 3. Salman Zafar 4. Muhammad Rizwan 5. Nazia Qamar 6. Owais Ismail Gadar

13. **Pneumonia is Severe and Complicated in Children with Vitamin D Deficiency** ____ 55-58
1. Sayed Ibrar Hussain 2. Munir Akmal Lodhi 3. Syed Zulfiqar Haider 4. Mulazim Husaain 5. Rabia Aziz 6. Saira Arshad

14. **Detection of Vertebral Level of Origin of Classical Celiac Trunk by Using 3D Multidetector Computed Tomography Angiography in Subset of Karachi Population** ____ 59-63
1. Rosheena Nabeel Khan 2. Sadaf Shaheen 3. Maria Mohiuddin 4. Nabeel Qutub Khan 5. Tahir Hussain 6. Abdul Rehman

15. **Domestic Violence as a Risk Factor for Hypertensive Disorders of Pregnancy** ____ 64-69
1. Sumaira Yasmin 2. Tanveer Shafqat 3. Samina Sabir 4. Wajeeha Syed 5. Nazia Liaqat

16. **Complications of Dengue Fever - Experience in Tertiary Care Hospitals Khyber Pakhtunkhwa.** 70-72
1. Ziauddin 2. Shah Zeb 3. Rehmanuddin 4. Shahabuddin Zia 5. Muhammad Abbas 6. Manzoor Hussain

17. **Incidence of Hysterectomy in Pregnant Women with Diagnosis of Placenta Previa** ____ 73-76
1. Munazza Munir 2. Nadia Taj 3. Afshan Mehvish 4. Muhammad Usman 5. Asma Sajid 6. Saba Javed

18. **Thyroid Dysfunction in Women with Primary Subfertility** ____ 77-81
1. Sadia Saeed 2. Wadiat Khan 3. Abida Rasheed 4. Sadia Nazir 5. Uzma Shaheen 6. Asia Fayaz

19. **Acute Poison-Related Mortality among Adults at a Tertiary Care Hospital Multan, Pakistan – A Cross Sectional Study** ____ 82-86
1. Muzammil Irshad 2. Muhammad Saleem Akhter 3. Muhammad Arif Mahmood 4. Muhammad Imran 5. Muhammad Aftab Akbar 6. Mehboob Qadir

20. **Frequency of Sustained Ventricular Arrhythmias in Non-ST Segment Elevation Myocardial Infarction (NSTEMI) Patients** ____ 87-90
1. Muhammad Zubair Zaffar 2. Syed Naseem Bukhari 3. Liaqat Ali 4. Nasir Ali Zaki 5. Hafiz Muhammad Asif Zarif 6. Muhammad Shehzad Khan Khattak

21. **Functional Limitations and Impaired Quality of Life Among Hypodontia Children** ____ 91-94
1. Qurrat-ul-Ain Fatima 2. Iqra Tariq 3. Mehwish Liaqat 4. Asiyah Ahmad 5. Aman Fatima 6. Wali Dad

22. **Pediatric External Ventricular Drain Infection: Experience from a Tertiary Care Hospital of Pakistan** ____ 95-99
1. Masood Uz Zaman Babar 2. Amjad Qureshi 3. Kamran Ali Shahani 4. Abdul Hameed Radhan 5. Gunesh Kumar 6. Nasrullah Aamer

23. **Relationship of Oxyresveratrol on Expression Levels of Tumor Necrosis Factor Alpha and Interferon Gamma in Isoniazid Induced Hepatotoxicity in Experimental Model in Mice** ____ 100-104
1. Mohammad Abid 2. Muhammad Yaqoob Shahani 3. Syed Azhar Hussain Zaidi 4. Mohammad Anwar Bangulzai 5. Shereen Khan 6. Asma Hameed

24. **Compare the Sublingual and Per Rectal Routes of Misoprostol Administration in Third Stage of Labor in Terms of Average Blood Loss** ____ 105-108
1. Maryam Naeem 2. Memona Latif 3. Faiza Nawaz 4. Munazza Latif 5. Sana Aftab

25. **Patterns and Prevalence of Dyslipidemia in Diabetics Presenting with STEMI VS Non-STEMI in Local Population of Sialkot, Pakistan** ____ 109-111
1. Zeeshan Hassan 2. Muhammad Arsalaan Naveed 3. Ali Javaid Chughtai

26. **Prevalence of Wound Complications Due to Diabetes in Patients Undergoing Abdominal Surgery** ____ 112-114
1. Liaqat Ali 2. Adnan Badar

27. **Use of Chlorhexidine on Umbilicus in Prevention of Neonatal Sepsis** ____ 115-117
1. Abdul Qayyum 2. Shumaila Asghar 3. Saiqa Yaseen 4. Irum Shahzadi

28. **Effect of Thyroxine Replacement on Sertoli Cell Function in Men With Hypothyroidism** ____ 118-120
1. Aisha Rabel 2. Irfan Siddiqui 3. Fatima Abid

29. **Influence of Cavity Depth and Liner on Postoperative Hypersensitivity in Posterior Composite Restorations** ____ 121-125
1. Beenish Abbas 2. Faiza Gulfam 3. Fizza Sahar Anwar 4. Batool Zara 5. Sidra Aamer 6. Saima Zafar

30. **Medicolegal Examination of Sexual Assault Survivors** ____ 126-129
1. Filza Ali 2. Sarba Khalid 3. Pervaiz Zarif 4. Maria Safdar 5. Mazhar Murtaza 6. Fariha Tariq

31. **Frequency of Osteoporosis in Women Having Age ≥ 40 Years (The Multidisciplinary Study) __ 130-132**
1. Faheem Ahmed Memon 2. Siraj Ahmed Butt 3. Muhammad Kashif Shaikh 4. Shakeel Ahmed Memon 5. Aamir Usman Memon 6. Abdul Ghani Shaikh

32. **Vitamin D Deficiency in Patients with Sepsis __ 133-135**
1. Siraj Ahmed Butt 2. Faheem Ahmed Memon 3. Muhammad Kashif Shaikh 4. Santosh Kumar 5. Muhammad Hasnain 6. Abdul Ghani Shaikh

33. **Frequency and Clinical Variants of Oral Lichen Planus Among Dental Patients: A Cross-Sectional Multicenter Study __ 136-139**
1. Daud Mirza 2. Waqas Iqbal 3. Perveen Memon 4. Seema Naz Soomro 5. Khalid Mustufa Memon 6. Shahzaman Memon

34. **Association of Serum Calcium Level and Febrile Fits __ 140-142**
1. Ubedullah Bahalkani 2. Sheeraz Ahmed 3. Bakhtiar Ahmed 4. Mumtaz Ali Bharo 5. Kamran Ali

35. **Antenatal Breast Feeding Counseling of Mother and Family for Early Initiation of Breast Feeding and Improving of Milk Production is a Major Tool __ 143-145**
1. Bakhtiar Ahmed 2. Ubedullah Bahal Kani 3. Mumtaaz Ali Bharo 4. Kamran Ali 5. Sheraz Ahmed

36. **An Assessment of Inheritance Pattern and Gender Wise Distribution of Lip Prints Among Biological Families in Pakistan __ 146-150**
1. Aftab Alam Tanoli 2. Atif Hussain 3. Naila Bangash 4. Qurrat ul Ain 5. Farrukh Iqbal

37. **Lifestyle Intervention on Feature of Polycystic Ovarian Syndrome in Obese Adolescent Girls __ 151-154**
1. Mahwish Pervaiz 2. Shazia Munir 3. Urfa Taj 4. Samreen Shabbir 5. Faheema Rasul 6. Shazia Jabeen

38. **Incidence of Hepatitis in Pregnant Women __ 155-158**
1. Qamoos Razaaq 2. Major Asiya Yaqoob 3. Asma Liaqat 4. Umra Imran

39. **Association of Prolactin with Psoriasis in Out-Patients at a Tertiary Care Hospital __ 159-162**
1. Nadia Rajper 2. Muhammad Suleman Pirzado 3. Hafiz Bashir Ahmed Kalhoro 4.Tanweer Ahmed Shaikh 5. Muhammad Yaqoob Shahani 6. Sanam Pirzado

40. **Evaluation of Serum Uric Acid Levels in Idiopathic Lichen Planus Patients __ 163-167**
1. Hira Mughal 2. Saima Liaqat 3. Sana Khan 4. Shakeel Ahmed Sheikh 5. Hafiz Bashir Ahmed Kalhoro 6. Muhammad Suleman Pirzado

41. **Stricture Urethra - Management and Outcome __ 168-171**
1. Zein el Amir 2. Zeeshan Qadeer 3. Umer Javed Chughtai 4. Mirza Hammad Rauf 5. Ayesha Mushtaq 6. Rameez Ahmed Mughal

42. **Echocardiographic Alterations in Liver Cirrhosis __ 172-176**
1. Keenjhar Rani 2. Zaman Baloch 3. Ramesh Kumar 4. Kavita Bai

43. **Compare the Quality of Root Canal Obturation by Intraoral Periapical Radiographs in Single Rooted Teeth Prepared by Manual Technique Versus Rotary Method __ 177-180**
1. Ayesha Khan 2. Fayyaz Alam 3. Osama Khattak

44. **Effectiveness of Magnesium Sulfate for the Treatment of Severe Traumatic Brain Injury __ 181-183**
1. Naeem ul Haq 2. Muhammad Ishaq 3. Musawer Khan 4. Adnan Ahmed

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Editorial

Drug Resistant TB and Bone Marrow Stem Cells

Mohsin Masud Jan

Editor

A person has drug resistant TB if the TB bacteria that the person is infected with, will not respond to, which means that they are resistant to, at least one of the main TB drugs. Drug susceptible TB is the opposite. If someone is infected with TB bacteria that are fully susceptible, if means that all of the TB drugs will be effective so long as they are taken properly. It still means that several drugs need to be taken together to provide effective TB treatment.
Drug susceptibility testing is how you find out which drugs will be effective at treating drug resistant TB.
It is more difficult to cure TB which is drug resistant than TB which is fully susceptible, but it is still possible.
There are two ways that people get it;
Firstly, people get acquired drug resistant TB when their TB treatment is inadequate. This can be for a number of reasons, including the fact that patients fail to keep to proper TB treatment regimens. It can also be that the wrong TB drugs are prescribed, or substandard TB drugs are used for treatment.
Secondly, transmitted or primary drug resistant TB result failure the transmission of drug resistant TB from one person to another. The occurrence and prevention of primary drug resistant TB has largely been neglected during the development of global programs to end TB.
New tools have enabled researchers to investigate this further. They have found that primary resistant plays a much greater role than previously thought.
Our best estimates are that globally at least 75% to 80% is now primarily transmitted, as opposed to primarily acquired during treatment.
So simply doing a better job of treating drug susceptible TB is no longer sufficient for controlling drug resistance. To control it, it is necessary to specifically diagnose and treat it.
There are two main types, MDR TB and XDR TB.
MDR TB is the name given to TB when the bacteria that are causing it are resistant to at least isoniazid and rifampicin, two of the most effective TB drugs.
XDR TB is defined as strains resistant to at least rifampicin and isoniazid. This is in addition to strains being resistant to one of the fluoroquinolones, as well as resistant to at least one of the second line injectable TB drugs amikacin, kanamycin or capreomycin.
MDR TB and XDR TB do not respond to the standard six months of TB treatment with “fresh line” anti TB drugs. Treatment for them can often take two years or more and requires treatment with other drugs that are less patent, more toxic and much more expensive. However, there are now starting to be some shorter regimens for treatment, based on the Bangladesh regimen.
RR-TB is Rifampicin resistant TB. Rifampicin resistant TB requires treatment with second line drugs. Statistically RR-TB includes MDR-TB which is resistant to both rifampicin and isoniazid.
Globally, there were an estimated 465,000 incident cases of rifampicin resistant TB in 2019. 78% are estimated to have had multidrug resistant TB.
By country India had 27%, China 14%, and the Russian Federation 8%.
In 2019 there were an estimated 182,000 deaths from MDR/RR-TB.
The 30 high burden MDR TB countries are:
Angola, Azerbaijan, Bangladesh, Belarus, China, DPR Korea, DR Congo, Ethiopia, India, Indonesia, Kazakhstan, Kenya, Kyrgyzstan, Mozambique, Myanmar, Nigeria, Pakistan, Papua New Guinea, Peru, Philippines, Republic of Moldova, Russian Federation, Somalia, South Africa, Tajikistan, Thailand, Ukraine, Uzbekistan, Viet Nam, Zimbabwe.
There is more about high burden Tb countries and
TB in China
TB in India
TB in Nigeria,
TB in Pakistan
and TB in South Africa.
Patients with potentially fatal “superbug” forms of tuberculosis (TB) could in future be treated using stem cells taken from their own bone marrow, according to the results of an early stage trial of the technique.
The findings, made by British and Swedish scientists, could pave the way for the development of a new treatment for the development of a new treatment for the estimated 50,000 people worldwide who have multi drug resistant (MDR) or extensively drug resistant (XDR) TB.
In a study in the Lancet medical journal, researchers said that more than half of 30 drug resistant TB patients protected with a transfusion of their own bone marrow stem cells wee cured of the disease after six months. “The results show that the current challenges and difficulties of treating MDR-TB are not insurmountable, and they bring a unique opportunity with a fresh solution to treat hundreds of thousands of people who die unnecessarily,” said TB experts Alimuddin Zumla at University College London, who co-led the study. TB, which infects the lungs and can spread from one person to another through coughing and sneezing is often falsely thought of as a disease of the past. In recent years, drug resistant strains of the disease have spread around the world, batting off standard antibiotic drug treatments.
The World Health Organization (WHO) estimates that in Eastern Europe, Asia and South Africa 450,000 people have MDR-TB and around half of these will fail to respond to existing treatments. TB bacteria trigger an inflammatory response in immune cells and surrounding lung tissue that can cause immune dysfunction and tissue damage. Bone marrow stem cells are known to migrate to areas of lung injury and inflammation and repair damaged tissue. Since they also modify the body’s immune response and could boost the clearance of TB bacteria, Zumla and his colleague, Markus Maeurer from Stockholm’s Karolinsha University Hospital, wanted to test them in patients with the disease.

Original Article

Comparative Activity of Vaccinium Macrocarpon and Antibiotics in Pregnancy

Saima Bukhari[1], Wajid Ali[1] and Zakia Subhan[2]

ABSTRACT

Objective: The objective of this study was to assess the in vitro activity of vaccinium macrocarpon in comparison with antibiotics in pregnancy.

Study Design: Experimental study

Place and Duration of Study: This study was executed in the Pathology Department of Ayub Medical College and outdoor clinics of Ayub Teaching Hospital, Abbottabad from May 2020 to December 2020.

Materials and Methods: In this in vitro study, a total of 72 symptomatic pregnant ladies of urinary tract infection were screened and out of these 60 pregnant ladies in their 2nd and 3rd trimester were selected after their positive urine cultures for E-coli. Patients in Group A were given vaccinium macrocarpon for 10 days, while patients in Group B and C were given Cefixime and Co-amoxiclav for the period of 5 days respectively. Sensitivity test of vaccinium macrocarpon and antibiotics was done against the test bacteria for comparison. Zone of inhibition was measured in mm.

Results: The p-values of Shapiro-Wilk tests of Vaccinium macrocarpon, Cefixime and Co-amoxiclav are 0.075, 0.435 and 0.186 respectively, which highlighted the measures following the normal distribution. The mean value presented with Vaccinium macrocarpon was 19.47±1.37. The mean value presenting with Cefixime was 22.41±1.26.The mean value presenting with Co-amoxiclav was 21.75±1.09. The p-value between Vaccinium macrocarpon and Cefixime is 0.000. The p-value between Vaccinium macrocarpon and Co-amoxiclav is 0.000 whereas Cefixime and Co-amoxiclav is 0.08.

Conclusion: The results showed that antibiotics are superior to vaccinium macrocarpon in treating urinary tract infection in pregnant ladies.

Key Words: Urinary tract infection, E-coli, Vaccinium macrocarpon, Cefixime, Co-amoxiclav

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INTRODUCTION

The history of urinary tract infection dates back to same as that of human existence on the ground. It was first acknowledged in Ebers Papyrus, 1550 BC. It is a typical clinical issue that establishes around 1-6 % of clinical referrals[1]. It is a frequent clinical concern, which can involve the urethra, bladder, and kidney. It affects all age groups; however, women are more vulnerable than men, owing to short urethra, nonexistence of prostatic secretion, pregnancy and easy contamination of the urinary tract with faecal flora[2].

Urosepsis accounts for a part of the entire sepsis cases and can be a grave state that must be treated instantaneously. Universally, more than 30 million public suffer from sepsis yearlythrough a mortality rate of 30–40%[3]. Its estimated incidence approaches 150 million new cases per year. The management of urinary tract infection accounts for an estimated 6 billion US dollars of expenses amid cystitis unaccompanied accounts for >10 million hospital visits and 1 million emergency hospital visits[4].

In women urinary tract infection account for approximately 25% of the entire infections consequently being one of the most recurrent clinical bacterial infections[5]. The physiological changes, anatomical changes in the urinary tract, hormonal fluctuations which relax the ureteral muscle, and growing uterus cause accumulation of urine in the bladder, and also immune system changes for the duration of pregnancy increase the prevalence of urinary infection and in some cases leads to the symptomatic infection, resulting in serious risks for both mother and fetus.[6,13]ApproximatelyBeginning in the 6th week, with hit the highest point during 22nd-24th weeks of conception, 90% of the expecting women develop ureteric dilatation thereby increasing the threat of urinary stasis and vesicoureteric reflux.[7] Urinary tract infection is a possibility for pyelonephritis, preterm delivery and miscarriages amid pregnant women, and is linked with impaired renal function and end-stage renal illness among pediatric patients. [8]

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An early recognition and management of asymptomatic bacteriuria may be of great consequence not only to preclude acute pyelonephritis and chronic renal failure in the mother but also to trim down the prematurity and fetal death.[9]Asymptomatic bacteriuria (ASB) is the presence of 1 or more species of bacteria growing in the urine at specified quantitative counts ($\geq 10^5$ colony-forming units [CFU]/mL or $\geq 10^8$ CFU/L), irrespective of the presence of pyuria, in the absence of signs or symptoms attributable to urinary tract infection.[10]

Quite a few features of pregnancy act as predisposing factors for asymptomatic bacteriuria, together with: increased progesterone, slowed peristalsis, urinary stasis in ureters, uterine enlargement and bladder displacement.[11] For the duration of pregnancy, asymptomatic bacteriuria can turn out to be symptomatic and injurious to the unborn child.

The commonest basis of urinary tract infection among pregnant women has been found to be E. coli for the reason of its multidrug resistant strains[12]. Other bacteria include Staphylococcus spp., Klebsiella pneumoniae, Proteus spp., Pseudomonas aeruginosa, Enterococcus spp. along with Acinetobacter[13].

Management of asymptomatic bacteriuria in pregnancy viaeffectual antibacterial treatment lessenhazard of acute urinary tract infection from 40% to 4%. Numerous antibiotics are accessible on behalf of selection for treatment of asymptomatic bacteriuria in pregnancy including, Amoxillin, Ampicillin, Cephalosporin, Nitrofurantoin, Trimethoprim and Sulfamethoxazole. This aims to clear the infection, which is merely possible if the secluded bacterium is susceptible to it. [14]Besides, the surfacing of antimicrobial drug resistance by a good number of uropathogens presents a dare to the treatment of the women affected.

Herbal medicines are used globally for the management and prevention of disease. It is recognized that between 65% to 80% of earth inhabitants uses herbal medicine as prime form of wellbeing. Many clients trust herbal medicines as of “natural” source and consequently are harmless substitute to usual remedies. [15] The expecting women also uses herbal medicine, most frequently ginger, peppermint, thyme, cranberry, chamomile, aniseeds, green tea and raspberry over and over again throughout the three trimesters of pregnancy. [16]

MATERIALS AND METHODS

This in vitro study was executed in the Pathology Department of Ayub Medical College and outdoor clinics of Ayub Teaching Hospital, Abbottabad, from May 2020 to December 2020. A total of 72 symptomatic pregnant ladies of urinary tract infection were screened and out of these 60 pregnant ladies in their 2nd and 3rd trimester were selected after their positive urine cultures for E-coli. Written consent was taken from every patient on the study proforma. Mid stream urine samples were collected in sterile containers from thesepatients, with suspected urinary tract infection. Patients on antibiotics or any associated diseases were excluded. Following the confirmation of the presence of pus cells >5/HPF the samples were inoculated on CLED media and incubated at 37°C for 24 hours. E-coli were recognized on the basis of cultural characteristics and confirmed by API 20E standardized identification system. Sensitivity against vaccinium macrocarpon was performed by putting 100 µg of vaccinium macrocarpon solution in hole punched in nutrient agar. For this purpose a commercially obtainable packet of 250 mg vaccinium macrocarpon concentrate was dissolved in 50 ml distilled water. The antibiotics selected for comparison were those which are generally used in practice for the management of urinary tract infection in pregnant women. These were Co-amoxiclav (30 µg) and Cifixime (5 µg). Sensitivity of these was executed on nutrient agar via the Kirby-Bauer disc diffusion technique. Plates were incubated at 37°C for 24 hours and zones of inhibition were calculated in mm.

Statistical analysis: The data was analyzed by statistical packages for social sciences (SPSS) version 24.0. The antibacterial activity was expressed as mean ± SD.

RESULTS

The distribution of measures of Vaccinium macrocarpon, Cefixime and Co-amoxiclav was explore by using Kolmogorov-Smirnov test, Shapiro-Wilk and Box Plot. Mean and standard deviation were calculated for measures of Vaccinium macrocarpon, Cefixime and Co-amoxiclav. Student t-test for two independent samples was used to establish the comparison between measures of Vaccinium macrocarpon, Cefixime and Co-amoxiclav.

P-values of Kolmogorov-Smirnov and Shapiro-Wilk tests highlighted the measures are following the approximately normal distribution of Vaccinium macrocarpon, Cefixime and Co-amoxiclav.

Table No. 1: Distribution of Vaccinium macrocarpon, Cefixime and Co-amoxiclav

	Kolmogorov-Smirnova			Shapiro-Wilk		
Group	Statistic	df	P-Value	Statistic	df	P-Value
Vaccinium Macrocarpon	0.203	20	0.030	0.914	20	0.075
Cefixime	0.129	20	0.200*	0.954	20	0.435
Co-amoxiclav	0.125	20	0.200*	0.934	20	0.186

The above graphical representation also affirms the approximately normaldistribution of Vaccinium macrocarpon, Cefixime and Co-amoxiclav.

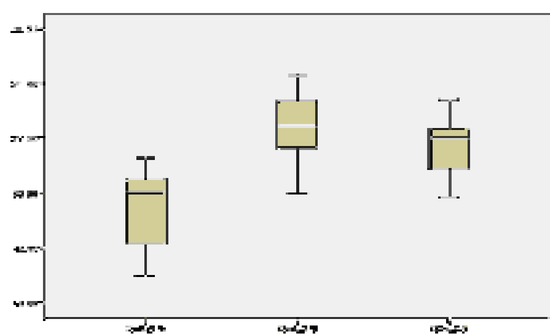

Figure No.1: Graphical Distribution of Vaccinium macrocarpon, Cefixime and Co-amoxiclav

Table No.2: Mean and SD of Vaccinium macrocarpon and Cefixime

Group	N	Mean	Std. Deviation
Vaccinium Macrocarpon	20	19.47	1.37
Cefixime	20	22.41	1.26
Co-amoxiclav	20	21.75	1.09

The highest mean value presented by Cefixime whereas runner up by Co-amoxiclav. It means the highest response given by Cefixime comparatively to Vaccinium macrocarpon and Co-amoxiclav whereas second best response given by Co-amoxiclavthan Vaccinium macrocarpon.

Table No.3: Comparison between Vaccinium macrocarpon and Cefixime

Group	N	Mean	SD	T-test	P value
Vaccinium Macrocarpon	20	19.47	1.37	-7.08	0.000
Cefixime	20	22.41	1.26		

The mean value with less variation seen in Cefixime which comparatively giving better response than Vaccinium macrocarpon and significant p-values also affirms the significant difference between the response of both Vaccinium macrocarpon and Cefixime.

Table No.4: Comparison between Vaccinium macrocarpon and Co-amoxiclav

Group	N	Mean	SD	T-test	P-Value
Vaccinium Macrocarpon	20	19.47	1.37	-5.8	0.000
Co-amoxiclav	20	21.75	1.09		

The mean value with less variation seen in Co-amoxiclav which comparatively giving better response than Vaccinium macrocarpon and significant p-values, also confirms the significant difference between the response of both Vaccinium macrocarpon and Co-amoxiclav.

Table No.5: Comparison between Cefixime and Co-amoxiclav

Group	N	Mean	SD	T-test	P-Value
Cefixime	20	22.41	1.26	1.77	0.08
Co-amoxiclav	20	21.75	1.09		

The mean value with less variationwas seen in Cefixime which comparatively wasgiving better response than Co-amoxiclav and insignificant p-value also sanctions the meaningless difference between the response of both Co-amoxiclav and Cefixime.

DISCUSSION

Expecting women are at a greatthreat of attaining urinary tract infection owing to functional as well as anatomical alterations in pregnancy. If urinary tract infection is not treated, it is linked with 30 % possibility of mounting pyelonephritis.[17] Fair efficacy divergence intervening between various antibiotic treatments for UTI in women. It provides a useful tool for clinical decision making in everyday practice. Ciprofloxacin and Gatifloxacin emerge to be the mainly effectual treatments. On the other hand, Quinolones have escalating resistance rates and are connected with adverse effects.[18]

From the current revise, we conclude that every expectant female should be monitored for bacteriuria once in every trimester, by doing scheduled urine culture. The most predominant organisms causing urinary tract infection, are Staphylococcus aureus and E-coli. Drug of choice for nearly all is Cefixime and Co-amoxiclav. It is suggested to become aware of bacteriuria in pregnant females and take care with suitable antibiotic therapy as this could significantly lessen the undesirable maternal and fetal outcome. Preventive procedures for example, drinking cranberry juice or sanitation measure, like wiping the genitals from front to back etc., are a few of the measures that was recommended in different studies.

As expecting women have high chance of risk of urinary tract infection found in literature and also said infection observed in this study during examination or treatment of expecting patients. Antibiotic medicine (ciprofloxacin or cefixime) gave the significant results and is considered an effectual treatment in the literature and in this study so it's too clear that effectiveness of antibiotic medicine is comparable between literature and findings of this study.

CONCLUSION

In this study, we have made an obvious expression that Cefixime treatment of urinary tract infection in expecting mothers can be considered as one of the finestoption and suggested it for the pregnant ladies.

Author's Contribution:

Concept & Design of Study:	Saima Bukhari
Drafting:	Saima Bukhari
Data Analysis:	Zakia Subhan
Revisiting Critically:	Wajid Ali
Final Approval of version:	Saima Bukhari

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

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Original Article

Evaluation of Dental Anomalies and its Relationship with Malocclusion and Growth Pattern in Orthodontic Patients Visiting Avicenna Dental Hospital

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ABSTRACT

Objective: To evaluate dental anomalies and its relationship with malocclusion and growth pattern in orthodontic patients visiting Avicenna dental hospital.
Study Design: Retrospective descriptive study
Place and Duration of Study: This study was conducted at the Avicenna dental hospital, Lahore from August 2018 to October 2020.
Materials and Methods: Pre-treatment records of 200 patients visiting the orthodontics department of Avicenna Dental Hospital, including history, clinical examination, photos, study casts and radiographs were retrospectively studied to determine the presence and frequency of dental anomalies. Relationship of each dental anomaly was done with malocclusion and vertical pattern was recorded as well.
Results: Mean age of the patients was 12.32 ±5.42 years with more (65%) patients being females. 21% patients exhibited dental anomalies with most showing a single anomaly. Hypodontia (9%) was the commonest followed by impactions (4%), peg laterals (3%), supernumerary teeth (2%), transpositions (2%) and dilaceration (1%). Dental anomalies were most prevalent in patients with Class I malocclusion (57%), followed by Class II div 1 (19%). Most dental anomalies were found in hyperdivergent cases (57%) followed by normodivergent (28.5%) and least in hypodivergent cases (14.2%).
Conclusion: Dental anomalies represent a significant cause of patients reporting to the orthodontics department with most patients suffering from a single dental anomaly. Hypodontia, impactions and peg laterals are the most common dental anomalies in our setup. Dental anomalies were most commonly associated with class I malocclusion and hyperdivergent cases.
Key Words: Dental anomalies, hypodontia, malocclusion, orthodontic, growth pattern

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INTRODUCTION

Dental anomalies in the individuals are caused by genetic or environmental factors.[1,2] They occur due to disturbances in the tooth formation process.[1]
The clinical manifestations of dental anomalies include disturbances in the number, size, shape, position, and structure of the teeth.[3,4] The prevalence of these anomalies has a wide range varying from 4.74 % to 74.7%, depending on the population.[3,5-9]
Dental anomalies usually occur together with dentofacial and occlusal problems.[10-12]These dental anomalies cause disturbances in the arch length of maxilla and mandible. This in turn leads to complexity in the orthodontic therapy[12] requiring a combined orthodontic, restorative, periodontal and surgical approach.[13] Furthermore, dental anomalies also cause esthetic and functional problems[11,14]which impairs the oral health.[15]Once the association of these dental anomalies to malocclusions is known, a better and timely approach to diagnosis and treatment planning can be made.[16]
There are only a few studies regarding associations of dental anomalies to various malocclusions.[4,17-20,28] Some researchers suggest correlation between dental anomalies and growth pattern of the individuals. Peck et al[17] found Class II div 2 malocclusions related to microdontia. Basdraet al[4] also found out close

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association of Class II div 2 malocclusions with various congenital tooth anomalies. Dermauetet al[18] reported the association between tooth agenesis and anteroposterior and vertical growth patterns. Another study found out a high frequency of maxillary canine impaction with the horizontal growth pattern.[19] Ali B et al found out higher frequency of hypodontia in Angle's Class III malocclusion than in other types of malocclusion.[20]

It is important to know the frequency and distribution of the various dental anomalies in a specific population for the purpose of early diagnosis and intervention.[16] Association of various dental anomalies and malocclusions may give us a new approach to the way malocclusions are diagnosed and planned.[14]

Only a few studies have investigated the relationship between various dental anomalies and malocclusions in our population.[20-22]So, the purpose of this study is to calculate the prevalence of various dental anomalies (hypodontia, supernumerary, tooth impactions, transposition, dilaceration) and assess the relationship of these dental anomalies with different malocclusions and vertical growth patterns of the individuals.

MATERIALS AND METHODS

This cross-sectional study was performed retrospectively at the Department of Orthodontics, Avicenna Dental College and Hospital, Lahore from August 2018to October 2020. 200 patients visiting the orthodontic department of Avicenna dental hospital during this period were included in the study. Sample size was formulated by Open- epi software, taking expected frequency of dental anomalies as 59.3%*and confidence interval as 95%. Non-probability consecutive sampling was done.[24] The study was approved by institute’s ethical committee.

Patients, irrespective of gender, having age between 8 and 30 years of age, visiting the Orthodontics Department of Avicenna dental hospital, were included in the study. Patients without any craniofacial syndromes, absent cleft lip and palate, history of orofacial trauma, previous orthodontic or restorative treatment were excluded from the study to overcome bias and confounding factors.

Pre-treatment records of patients which included complete history, clinical examination, photos, study casts and good quality panoramic and lateral cephalometric radiographs were retrospectively studied to determine the frequency of each dental anomaly. Dental anomalies that were included in this study were hypodontia, peg laterals, supernumerary teeth, impacted teeth, transpositions and dilacerations. Correlation of each dental anomaly with the malocclusion was done. The vertical pattern of these patients was also recorded.

Characterization of Growth Pattern and Classification of malocclusion:

To characterize growth patterns, the values of the mandibular plane angle measured in the cephalometric radiograph (SN-GoGn) were used according to Steiner[23.]

SN-GoGn angle < 32 is hypodivergent,
SN-GoGn angle = 32 is normal,
SN-GoGn angle> 32 is hyperdivergent.

The malocclusions were divided into three classes according to Angle classification of malocclusion[24].

Class I: Normal relationship of the molars, but line of occlusion incorrect because of malposed teeth, rotations, or other causes

Class II: Lower molar distally positioned relative to upper molar, line of occlusion not specified

Class III: Lower molar mesially positioned relative to upper molar, line of occlusion not specified

All clinical data was collected by a single calibrated investigator.

Statistical analysis: SPSS version 22 was used to analyze the data. The frequency and percentage distribution of each dental anomaly among the sample was calculated.

RESULTS

Mean age of the patients was 12.32 ±5.42 years with ages ranging between 08 to 30 years. 130 (65%) of the patients were female while 70 (35%) were male.

Out of the 200 patients that were evaluated, 42 patients (21%) exhibited 48 (24%) dental anomalies.36 patients showed a single dental anomaly whereas 6 patients demonstrated more than one dental anomaly. Hypodontia(9%) was the most common followed by impactions (4%), peg laterals (3%), supernumerary teeth (2%), transpositions (2%) and dilaceration(1%). Amongsthypodontia, the most frequently missing teeth were maxillary lateral incisors (33.3%), out of which 22.2% were unilateral and 11% were bilateral and mandibular lower incisors (33.3%), followed by missing maxillary second premolars (22.2%), with the missing mandibular second premolars (11%) being the least in frequency. Among the supernumerary teeth,mesiodense was the most common. Canines were the most frequently impacted teeth with the prevalence of 4%, with similar frequency for both maxillary and mandibular canines. Transpositions in the maxillary arch were prevalent, with the maxillary lateral incisor canine and maxillary first and second premolars being common (2%). Dilacerations in the maxillary arch was also common, with the maxillary central incisor being the most affected (1%).

In this sample, the total number of Class I cases were 104, Class II div 1 were 64, Class II div 2 were 8 and Class III were 4. Of the total patients, 78 were

hyperdivergent, 98 were normodivergent and 28 were hypodivergent.

Dental anomalies were most prevalent in Class I (57%), followed by Class II div 1 (19%), with the least being in Class II div 2 (9.5%) and Class III (14.2%). Regarding vertical patterns, most dental anomalies were found in hyperdivergent cases (57%) followed by normo divergent (28.5%) and least in hypodivergent cases (14.2%).

Table No.1: Frequency of each dental anomaly and malocclusions

Dental anomaly	No. of patients	Class I	Class II div1	Class II div2	Class III	Vertical Pattern
Hypodontia	18 (9%)	8 (44.4%)	4 (22.2%)	4 (22.2%)	2 (11%)	Hyperdivergent=12(66.6%) Normodivergent=4 (22.2%) Hypodivergent=2 (11%)
Supernumerary	4 (2%)	4(100%)	_	_	_	Normodivergen=2 (50%) Hyperdivergent=2 (50%)
Peg laterals	6 (3%)	2(33.3%)	2(33.3%)	_	2(33.3%)	Hyperdivergent=2 (33.3%) Normodivergent=2 (33.3%) Hypodivergent=2 (33.3%)
Impactions	8 (4%)	8 (100%)	_	_	_	Hypodivergent=2 (25%) Hyperdivergent =6 (75%)
Transpositions	4 (2%)	2 (50%)	_	_	2 (50%)	Hyperdivergent =2 (50%) Normodivergent=2 (50%)
Dilaceration	2 (1%)	_	2 (100%)	_	_	Normodivergent=2 (100%)

Table No.2: Number of cases of malocclusion in patients with these dental anomalies

Number of anomalies	**Number of Patients**	**Class I**	**Class II div1**	**Class II div2**	**Class III**	**Vertical pattern**
48 (24%)	42 (21%)	24 (57%)	8 (19%)	4 (9.5%)	6 (14.2%)	Hyperdivergent=24 (57%) Normodivergent=12 (28.5%) Hypodivergent=6 (14.2%)

Table No.3: Number of cases of malocclusion in patients with these dental anomalies

	Unilateral	Bilateral
Missing maxillary lateral incisors	4=left (22.2%)	2 (11%)
Missing maxillary 2premolars	_	4 (22.2%)
Missing lower incisors	2=right (11%) 4=left (22.2%)	_
Missing lower 2premolars	_	2 (11%)

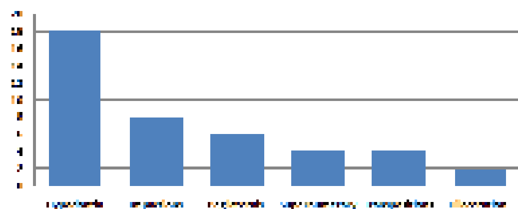

Figure No.1: Frequency of Dental Anomalies

DISCUSSION

Dental anomalies are abnormalities involving the dentition, resulting from genetic, metabolic, biologic, nutritional, or environmental factors. They range from macrodontia (large sized teeth), microdontia (small sized teeth), hyperdontia (increased number of teeth), hypodontia (lesser number of teeth), odontoma (abnormality of calcified dental tissue), peg lateral (small upper lateral incisors with reduced mesiodistal dimensions) or dilacerations (curve in the root or crown).Peg lateral also describes an anomaly.

In our study, 21% of the patients exhibited dental anomalies with hypodontia (9%) being the commonest followed by impactions (4%), peg laterals (3%), supernumerary teeth (2%), transpositions (2%) and dilaceration (1%). Amongst hypodontia, most frequent were maxillary lateral incisors (33.3%) and mandibular lower incisors (33.3%). Canines were the most frequently impacted teeth, with similar frequency for both maxillary and mandibular canines. Among the supernumerary teeth, mesiodense was the most common. Transpositions were most common in the maxillary lateral incisor canine and maxillary first and second premolars being common (2%). Dilacerations was most common in the maxillary central incisor being the most affected (1%).Dental anomalies were most prevalent in patients with Class I malocclusion (57%), followed by Class II div 1 (19%), with the least being in Class II div 2 (9.5%). Most dental anomalies were

found in hyperdivergent cases (57%) followed by normodivergent(28.5%) and least in hypodivergent cases (14.2%).

A prospective cross-sectional study was carried out regarding the prevalence and associations between dental anomalies in a large sample of non-orthodontic subjects.[7] Dental anomalies showed a prevalence of was 20.9% with most frequent anomalies being the displacement of maxillary canine (7.5%), hypodontia (7.1%), impacted teeth (3.9%), tooth ankylosis (2.8%), and tooth transposition (1.4%). Most commonly missing tooth was the lower right second premolar. Mesiodens was the most common type of supernumerary tooth (0.66%). Tooth transpositions were observed in 1.4% while displacement of maxillary canine was recorded in 7.5%.

Another study recorded 43.3% dental anomalies in a sample of population.[25] Class II and Class III malocclusions demonstrated the highest frequency of dental anomalies. The most common dental anomaly was the rotation of teeth followed by hypodontia.

Another similar study was done to calculate the prevalence of dental anomalies in orthodontic patients, showed that 28.4% patients were suffering from dental anomalies presented with at least one anomaly.[26]23% patients exhibited single anomaly while 5.4%showed more than one anomalies. The most common anomalies were impaction (14.32%), and hypodontia (7.03%) followed by microdontia (1.08%), dilacerations (0.27%), and generalised enamel hypoplasia (0.27%). Maxillary right lateral incisors and canines were involved most frequently.

A study was conducted in two health districts in Punjab, Pakistan, to record the frequency of peg laterals incisors amongst orthodontic cases. The frequency came out to be 6%, being more common unilaterally and in females.[27]

The results of the abovementioned researches are in agreement with the results of our study and hence reinforce our study. Few differences in results are observed, which may be due to variation in the sample size or changes in the sample population. The limitation of our study is that this is an institution based study thus; the results cannot be applied at a national level.

CONCLUSION

Dental anomalies represent a significant cause of patients reporting to the orthodontics department with most patients suffering from a single dental anomaly. Hypodontia, impactions and peg laterals are the most common dental anomalies in our setup. Dental anomalies were most commonly associated with class I malocclusion and hyperdivergent cases.

Author's Contribution:

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Original Article

Comparison of Tramadol and Ketorolacin Postoperative Pain After Maxillofacial Surgery

Kashif Ali Channar[1], Abdul Bari Memon[2], Irfan Ahmed Shaikh[1], Nadir Kalhoro[1], Ajeet Kumar[3] and Bashir Ahmed Jalbani[2]

ABSTRACT

Objective: To compare Tramadol and Ketorolac in the management of postoperative pain following maxillofacial surgery.

Study Design: Comparative cross sectional study

Place and Duration of Study: This study was conducted at the Department of Oral and Maxillofacial Surgery, Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro form November 2017 to July 2018.

Materials and Methods: Total hundred patients were recruited. Patients were divided in 2equal groups by random allocation. Group 1 received ketorolac 30 mg (Trometh 30mg) intramuscular I.M. after the surgical procedure and group 2receivedtramal 100mg (Tramadol 100mg) intramuscular. Pain was evaluated using visual analog scale (VAS) during 2nd, 4th, 6th, 12th and 24th hours from the end of surgical procedure and recorded on Performa.

Results: Total 100 patients were included in this study. After receiving tramadol injection, 6% patients felt no pain after 2 hours while only 2% patients felt severe pain after 12 hours**.** While after receiving ketorolac injection, 2% patients felt no pain after 2 hours while in 4% patients felt severe pain after 12 hours. Mean score of pain after 24 hours was 1.09 ± 0.30 in Tramadol group while in ketorolac group is 3.70 ±0.45 Results were statistically significant P value 0.01.

Conclusion: Tramadol is a better pain killer and anti-inflammatory drug having longer duration of action to control post- operative pain and swelling after maxilla-facial surgery and is more effective than ketorolac.

Key Words: Ketorolac, Maxillofacial surgery, Pain, Tramadol

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INTRODUCTION

Surgery in the region of maxillofacial area needs comprehensive knowledge of anatomy, physiology and special training to deal many diseases, defects and maxillofacial trauma. Pain is an unwanted physical and emotional experience linked with tissue injury. Millions of cells are injured during oral surgical procedures which stimulate inflammatory cascade, releasing chemical mediators that activate the pain stimuli.[1] To decrease postoperative pain (POP) in Oral & Maxillofacial surgery analgesics are predominantly prescribed worldwide.

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Analgesics are classified as opioids and non-steroidal anti-inflammatory drugs (NSAID's)[2]. NSAID's act by preventing the cyclooxygenase (COX) enzymes which has key role in the production of prostaglandins but it may cause irritation and bleeding in gastrointestinal tract.[3]Opiod analgesic act by mimicking endogenous endorphins by stimulating opiod receptors in the central and peripheral nervous system which results in relief of pain.[1]

The ideal post-operative medicine is that who have analgesic effect for longer time, easy to use, not dangerous to any organ system and economical. Control of post operative pain is paramount for normal recovery and in post operative hospital stay period but without undesirable side effects such as respiratory distress, Gastro-Intestinal tract, visceral motility, coagulation abnormality, drug tolerance and drug dependence.[1,4,5]

Tramadol drug is a centrally acting analgesic with no relevant effects on respiratory or cardio-vascular system as other opoids. The drug can be safely used in patients with mild cardiopulmonary function, overweight and smokers, or having liver and kidney diseases. Incidence of adverse effect ranges from 1.6 to 6.1%. Nausea, dizziness, drowsiness, sweating, vomiting and dry mouth are and should be avoided in head injury patients. [1,3, 6-8]

Ketorolac is a member of pyrrole group of NSAID's; it acts against pain, swelling and fever. Ketorolac is usually used for moderate to severe postoperative pain. Hypersensitivity is the prime contraindication.[1] But it is well tolerated by patients, minimal amount of metabolism & decrease other side effects which are associated with NSAID's. [9-12]

The common procedures of Maxillofacial surgery are being performed are management of trauma patient , removal of cyst and tumors and ontological surgeries average time needed is between 3–5 hours.[13] Post-operative pain is always felt as acute due to surgical insult to tissue, and duration of surgery. The researchers are continuously in search for many years for the aim to identify a more-effective analgesic for application after surgery.

The purpose of this study was to evaluate the efficacy of tramadol & ketorolac and more suitable for postoperative pain control, cost effective following maxillofacial surgery. The results of this study will help the professional / OMS for better management of post operative pain in Oral & Maxillofacial Surgery patients.

MATERIALS AND METHODS

This study was conducted in the O&MFS Department, LUMHS Jamshoro from November 2017 to July 2018. Total hundred patients were recruited. The simple random technique was used to select the patients for management of pain. The inclusion criteria of study were patient with maxillofacial trauma, patients with age from 12 to 65 and of either gender. Patients with history of hypersensitivity to tramadol or ketorolac, or patients with peptic ulcer, pregnantor breast feeding females were excluded.

Approval was sought from ethical committee. Written informed consent was taken from patients. Patients were divided into 2 groups by even & odd allocation. Group A receivedKetorolac30 mg (Trometh 30mg) intramuscular after the surgical procedure and repeated after 8 hrs and 16 hours from the end of the operation. Group B receivedTramadol100mg (Tramal 100mg) intramuscular after the surgical procedure and repeated after 8 hrs and 16 hours from the end of the operation. Pain assessment was done by verbal rating using Visual Analog Scale.10, 11 [0-1= No pain, 2-4= Mild pain, 5-7= Moderate pain, 8-10 =Severe pain]. Pain was assessed during 2nd, 4th, 8th, 12th and 24th hours after the surgical procedure and recorded on Performa..Data was analyzed by SPSS version 17.0. Frequency and percentage were calculated for categorical variables like gender. Mean + S.D were calculated for continuous variables like age, pain. To compare both groups independent t-test was applied. P value <0.05 was considered as significant statistically.

RESULTS

Total 100 patients were divided equally in 2 groups. One group received tramadol while other group received Ketorolac. Mean age was 33.33± 12.49 years. Males were 71% and females were 29% (Table-1)

The preoperative pain recorded taking the values of Visual Analogue Scale (VAS) as No pain (29%), Mild (59%), Moderate (8%) and severe (4%) (Figur-1)

The comparisons of both groups are illustrated in table 3. All patients were monitored at the 2nd, 4th, 8th, 12th, and 24th post-operatively hour. Tramadol represent promising effect on pain control

Table No.1: Gender Distribution

Gender	Frequency	Percentage %
Male	71	71%
Female	29	29%

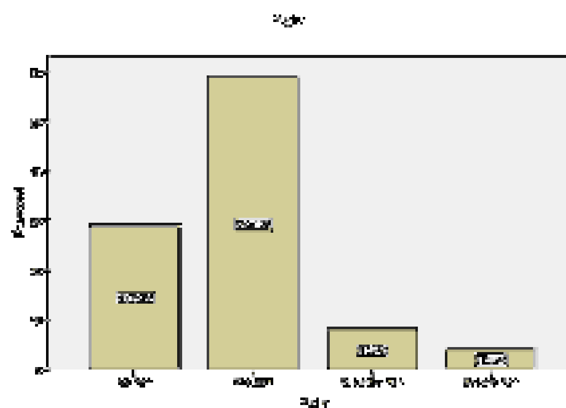

Figure No.1: Descriptive statistics of Pre operative pain

Table No.2: Comparison of post operative pain with treatment groups at different time duration

Group	Ketorolac			Tramadol			P value
Duration	No Pain	Mild Pain	Moderate Pain	No pain	Mild Pain	Moderate Pain	
Pain after 2hours	2 (4%)	30(60%)	18(36%)	3(6%)	40(80%)	7(14%)	0.036*
Pain after 4 hours	1(2%)	40(80%)	9(18%)	1(2%)	46(92%)	3(6%)	0.169
Pain after 8 hours	1(2%)	45(90%)	4(8%)	0(0%)	50(100%)	0(0%)	0.027*
Pain after 12 hours	41(82%)	9(18%)	–	49(98%)	1(2%)	_	0.004**
Pain after 24 hours	46(92%)	4(8%)	–	50(100%)	0(0%)	_	0.017*

DISCUSSION

In spite of advances in medical sciences still not a single drug has ideal post operative analgesic affect. Postoperative pain may have consequences of surgery that ultimately contribute increased in-hospital stay.[14] In this study postoperative pain of maxillofacial surgery was managed with two types of drugs: NSAIDs and Narcotic analgesics.

Par-entral route is more effective & reliable route for pain control in any kind of surgery under general anesthesia. Numbers of studies are published to compare efficacy of different analgesics used to control postoperative pain in maxillofacial surgeries.[14, 16, 19]

The Results of this study suggest thattramdol has adequate analgesic effect and also decreased the intensity and duration pain after maxillofacial surgery, which is an agreement with the study conducted by Shankariah et al[15].

In this study very low moderate and severe pain was found in tramadol group as compare to Ketorolac group on the overall comparison of both groups. Tramadol showing significant better results as compare to ketorolac. Zackova M et al[16] reported that there is no difference statistically between the groups in the pain scores measured. Shankaria et al[16] reported marked decrease in pain intensity on follow up period in these two drugs, Tramadol was better pain control than its counterpart in post-operative hour ($P < 0.050$).

In this study after 2 hours mild pain was 60% and 80% moderate pain was 36% and 14%in ketorolac and tramadol group respectively showed the statistically significant difference of pain and after 4 hours mild pain was 80% and 92%, moderate pain was 92% and 6% respectively in ketorolac and Tramadol group showed the in-significant results. There was no moderate pain in both groups after 12 hours, while after24 hour's there was no mild as well as moderate pain in tramadol group after 24 hours showing the statistically significant reduction of pain. Our results are similar to Shaik MM et al and Degala S, Passi D, et al [1718,19]. Similarly some other studies also stated that Tramadol is better analgesic with little risk of development of tolerance or physical dependence.[20,21]

CONCLUSION

Within the light of limitations of current study, it was concluded that tramadol is better drug in terms of pain relieving and duration of action after maxillofacial surgery as compared to ketorolac

Author's Contribution:

Concept & Design of Study:	Kashif Ali Channar
Drafting:	Abdul Bari Memon, Irfan Ahmed Shaikh
Data Analysis:	Nadir Kalhoro, Ajeet Kumar, Bashir Ahmed Jalbani
Revisiting Critically:	Kashif Ali Channar, Abdul Bari Memon
Final Approval of version:	Kashif Ali Channar

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

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Original Article

Ventriculoperitoneal Shunt Dysfunction

Complications and Risk Factors Associated with Ventriculoperitoneal Shunt Dysfunction: A Systemic Literature Review

Sumreen Anwar[1], Hassan Nawaz Yaqoob[1], Masooma Ahmad[2], Maria Ilyas[4], Abdul Hanan Jawad[5] and Ambreen Anjum[3]

ABSTRACT

Objective: This study aimed at assessing rates of shunt failure and to determine the incidence and causes of VP shunt malfunction to establish firm evidence-based protocols to prevent VP shunt malfunction.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Services Institute of Medical Sciences, Lahore from June 2016 to July 2017.

Materials and Methods: Electronic databases PubMed, NCBI, Elsevier, Up To Date, Research Gate, Medline, Embase, CINAHL, Cochrane and Web of Science were evaluated. The search strategy involved the key terms pertaining to the concepts; to reach maximum sensitivity, a combination of the terms "Ventriculoperitoneal shunt" OR "VP shunt malfunction"; "risk factors of shunt failure" AND "shunt infection"; AND "shunt revision surgery" were considered. Randomized controlled trials, case-control studies, and cohort studies which fulfilled the following criteria were included.

Results: The results showed that the most common causes of VP shunt malfunction were shunt obstruction and infection. This study suggests that VP shunt malfunction is frequent in young individuals, mostly caused by shunt obstruction and infection.

Conclusion: Future researches should focus on techniques designed to prevent these complications or on alternative management for hydrocephalus.

Key Words: Malfunction, infection, obstruction, ventriculoperitoneal shunt

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INTRODUCTION

Ventriculoperitoneal (VP) shunt placement is the most common technique for cerebrospinal fluid (CSF) diversion. In majority of patients who present with hydrocephalus, the primary surgical intervention is the placement of shunt. This is an effective CSF diversion procedure. It shunts CSF in the cerebral ventricles towards the peritoneal cavity.[1]

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The placement and revision of ventriculoperitoneal shunt remains a procedure of choice in surgically managing the hydrocephalus. This procedure is relatively less complicated and can easily be performed on patients of all ages with hydrocephalus due to any cause like meningitis, myelomeningocele, post-operative adhesions, head injury, subarachnoid hemorrhage leading to hydrocephalus, tumor, stenosis of aqueduct, congenital malformations and any other acquired etiologies.[2] The prognosis of hydrocephalus patients after treatment with ventricular shunts is good and majority patients acquire a normal intellectual level.

Despite a higher success rate, Shunt malfunctioning is still an important factor in causing increased patient morbidity, mortality and higher procedure costs. In previous decade, overall shunt survival in patients with shunt-dependent hydrocephalus has increased only slightly, despite recent advancements in shunt valves, techniques and imaging procedures. In many healthcare facilities, the proportion of shunt placement to later surgical revision is 1 to 2.5.[3]The failure rate of shunt in the first year after implantation is approximately 25 to 40%. The 10-year actuarial survival rate of VP shunt is documented to be only 30 to 37%.[4]

In majority of the population main cause of shunt failure is the proximal shunt malfunctioning. It is caused by obstruction of the shunt tip by choroid plexus, glial or connective tissue, and any other tissues both natural and pathologic.[5] It is observed that placement of the shunt in the anterior horn of the lateral ventricle and anterior to the foramen of Monro decreased the chances of shunt obstruction and later shunt malfunction. Regardless of the extensive usage of radiological imaging techniques including the endoscopy, ultrasonography, and contrast guidance, the failure rate within few years of the techniques exceeds only 30%.[6]Other reasons of shunt malfunction can be shunt infection, fracture, shunt displacement, shunt migration, or its over-drainage. Some cases of shunt malfunctioning involve distal shunt migration in which the peritoneal portion of the shunt is withdrawn from the peritoneal cavity towards the subcutaneous soft tissue.[7]As a result of this, CSF is collected in the subcutaneous tissue, developing a rising pressure and ultimately distal shunt malfunction. Fatal outcomes of shunt failure are more prominent in children than adults. Factors responsible for the overall success rate of a shunt surgery also include the surgical procedure, surgeon’s expertise, post-operative wound care, nature and type of shunt used, and general wellbeing of the patient.[8]

Infection of the wound or the shunt is quite a common cause of shunt malfunction, which causes significantly a higher mortality and morbidity. In many recent studies, the case incidence of shunt infection has increased from 8% to 40% and the postoperative incidence has ranged from 2.8to 14%. Early postoperative period is more prone to infection presentation. This clearly indicates that the perioperative infection from the patient's skin during the surgical procedure could be a causative mechanism. [9, 10]

This systematic literature review aimed at assessing the rates of VP shunt dysfunction, main causes of its failure and to assess the frequency and etiology of ventriculoperitoneal shunt failure in general population. It will be helpful to establish stable evidence-based guideline to help prevent shunt failure. We also conducted a review to identify the high risk factors predisposing to recurring CSF shunt malfunction and to evaluate if subsequent shunt malfunction are associated to earlier episodes of failure.

MATERIALS AND METHODS

Review Construction: PRISMA protocol was utilized to ensure a standardized approach to develop this review.[10] This review takes the form of a descriptive analysis, as the studies present epidemiological data, of a cross-sectional design.

Data Sources and Searches: Electronic databases PubMed, NCBI, Elsevier, Up to Date, Research Gate, Medline, Embase, CINAHL, Cochrane and Web of Science were evaluated. The search strategy involved the key terms pertaining to the concepts; to reach maximum sensitivity, a combination of the terms “Ventriculoperitoneal shunt” OR “VP shunt malfunction”; “risk factors of shunt failure” AND “shunt infection”; AND “shunt revision surgery” were considered. Studies were retrieved and included after interpretation of the title and the abstract of the study. Authors further went through the reference lists of identified studies to evaluate any additional studies.

Study Selection: The study used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines as basis of selection criteria using the PICO (P Populations/People/ Patient/Problem, I - Intervention(s), C - Comparison, O - Outcome) worksheet and search strategy as shown in Table 1.

Randomized controlled trials, case-control studies, and cohort studies which fulfilled the following criteria were included:

1. English language
2. Studies from the last 10 years
3. Studies conducted on Humans only
4. Report of any considered outcomes (mortality, complications, and need for further intervention).

Only the most recent and complete trial or study was included, if numerous trials or studies were published by the same centre.

Exclusion criteria:

1. Studies with more than 10 years of publication (unless publication has extreme relevance up to this day).
2. Non relevant articles by abstract and content.
3. Case reports, editorials, letters, and studies comprising duplication of data or previously published data.

Data Extraction, Quality Assessment and risk of bias: Studies generated by the search were assessed for relevance and were selected. Potentially relevant papers were retrieved in full and evaluated by the author to minimize the risk of developing bias to the results reviewed. The complete literature of the articles included was reviewed thoroughly to assess the relevance and quality of the study. Studies that were not in the public domain were not included. Risk of bias evaluation was considered according to the Newcastle–Ottawa Quality Assessment Scale criteria.

Statistical Analysis: Data was combined into an overriding odd ratio and 95% CI using meta-analysis. All studies with retrievable data for Odds Ratio measure were considered. Data was retrieved from tables and from the related text which described the incidence of every major risk factor and shunt malfunction. The similarity of odds ratio was evaluated using Cochran's Q statistics. Publication bias was evaluated by measuring the standard errors of the odds ratio from each study and constructing funnel plots for each risk factor.

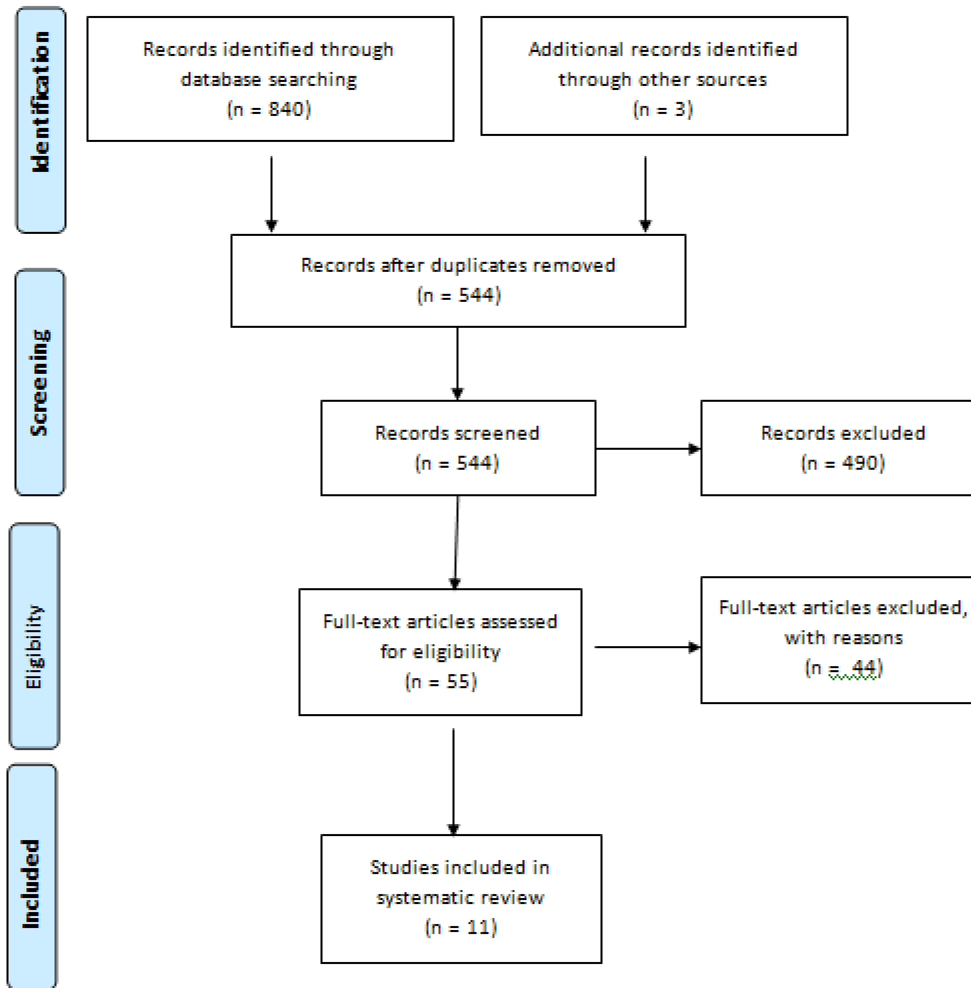

Chart:

RESULTS

Table No. 1: Patients, Intervention, Comparison, and Outcome (PICO) worksheet

Population	Patients with VP shunt failure
Intervention	Ventriculoperitoneal shunt
Comparison	Direct comparison with other management methods.
Outcome	Shunt failure due to any cause and whether need for further management; with no time limitation.

A total of 55 studies were retrieved that provided answers to the targeted questions. 44 of them were excluded after abstract re-evaluation. Exclusion was either due to insignificance to the study topic or lack of clear data required in this study's inclusion criteria. Thus, eleven researches were selected to be included in the final review (Table 2). These eleven articles were arranged in table which was formulated to aid data analysis and review. Data analysis was performed. The conclusion and implications for future research were made based on the review.

Table No. 2: List of researchers included in study

First Author	Year of Publication	Study Popu-lation(n)	Study Design
Khan et al.	2013	40	Prospective, randomized comparative trial
Kestle et al.	2011	344	Randomized controlled trial
Warf	2005	189	Prospective, randomized study
Turhan et al	2012	38	Single center, retrospective review
Mangano et al.	2005	66	Retrospective cohort review
Bakhsh	2007	100	Single center, retrospective review
Shannon et al	2014	237	Single center, retrospective review
Beez et al.	2012	23	Single center, retrospective review
Miranda et al.	2011	29	Retrospective review
McGirt et al.	2010	253	Retrospective cohort review.
Tuli et al.	2013	101	Prospective cohort study,

DISCUSSION

Shannon et al.[9] included 237 individuals in the study who underwent shunt placement procedure. It was reported that about half of these patients experienced shunt malfunctions within a follow-up time of two years.[9] Major causes of shunt malfunctions were either infection or a proximal occlusion. Beez et al, [11] evaluated shunt malfunction in thirty six individuals. He reported shunt failure in Twenty-three patients (64%) patients. Garber et al, evaluated the VP shunt functioning of patients who have undergone a fourth ventricle shunt insertion via trans-tentorial or sub-occipital stereotactic methods. It was reported that shunts malfunctioned in eighty two percent of the patients.[4] The causes included proximal obstruction, shunt infection and distal obstruction. It was the largest malfunction rate identified in this review and considers the impact of poor entry points and shunt-tip sited on VP shunt dysfunction. Miranda et al, [12] reported VP shunt malfunction in 103 patients due to post-hemorrhagic hydrocephalus. They documented that approximately forty two VP shunts (40.8%) led to an initial proximal obstruction within first few months of follow-up. Eight of these malfunctioning happened due to earlier shunt infections and very few cases (10%) developed occlusion without a prior infection. Turhan et al, evaluated thirty eight in whom multiple shunt malfunctions were developed. Infected shunt was found to be the most common etiology of shunt malfunction. Other causes included a distal or a proximal obstruction, valve malfunctions and pseudo-cysts. [13] Complete displacement of the VP shunt was reported in two patients. In one patient it was reported that the ventricular catheter was incorrectly placed. Bakhsh et al, studied a hundred cases of infantile hydrocephalus among which a total of 14 patients (14%) presented with shunt infection (including 4 with acute shunt infection), 10 patients (10%) developed shunt obstruction (4 within the first few months and 6 within the second year after procedure). This review assessed that the maximum cases of VP shunt failure were caused due to shunt obstruction and infection. [14]

A study conducted by Tuli et al, reported that there is no link between the type of valve and shunt malfunction in a post hoc analysis of a prospective cohort of patients who experienced basic shunt placement procedures. According to this report there is no association between malfunctioning of the shunt and any constituent of the shunt hardware.[15]

Retrospectively, McGirt et al studied 279 patients who underwent shunt placement surgeries. The authors described that programmable positioning of the valve was associated with a decreased risk of both complete shunt revision and proximal shunt obstructions.[17]

CONCLUSION

The danger of shunt malfunction is at its peak during the first few months after placing a VP shunt. There are many factors which contribute in having a direct effect on shunt malfunction, the most common one of which include VP shunt obstruction and shunt infection.

Mechanical malfunctions of VP shunt include proximal obstructions of catheter tip, distal obstructions, disconnections, kinking, disruptions, displacement and valve-malfunctions. Shunt malfunction was more frequent due to proximal or distal occlusion of catheter rather than valve related problems.

Shunt infection is the second most frequent cause of VP shunt malfunction, and this complication is most commonly observed in young individuals. Despite continuous efforts to reduce the incidence of shunt complications, including improved sterile techniques, use of antibiotic impregnated catheters, and programmable valves, VP shunt dysfunction still remains a huge problem.

Ongoing and future researches related to shunt malfunction should focus on preventing the two main etiologies of shunt malfunctions that this review has pointed out to alleviate the frequent hospital visits and the psychological effects on the young patients and their parents, as well as the frequent use of medical personnel and resources.

Limitations of the Study

The study comprises some limitations.

First of all, the retrospective nature of the studies which were included leads to a predictable selection bias.

Secondly, the collection or retrieval of data was based on searching all available clinical databases and electronic records. This excluded the potential for operations which were falsely coded and consequently may have been overlooked from the analysis.

Thirdly, concerning the complications, only a limited no. of studies showed a complication rate for the investigated procedures.

Lastly, decision of choice of shunt failure was made on an individual case-by-case basis by the attending physician, which made group allocation and randomization process difficult to achieve. It can cause reduced external validity.

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Original Article

Dentin Sealing Versus Erbium

Immediate Dentin Sealing Versus Erbium (Er): YAG laser Dentin Ablation Prior to Composite Inlay Luting Procedures

Ola Mohamed Sakr[1,2]

ABSTRACT

Objective: The aim of the study was evaluation of the effect of different dentintreatment using immediate dentin sealing or Er: YAG laser on adhesion of prefabricated resin composite inlay.

Study Design: Comparative Study

Place and Duration of Study: This study was conducted at the College of Dentistry, Qassim University, Kingdom of Saudi Arabia from November 2018 till December 2020.

Materials and Methods: The study teeth comprised 45caries free molars which were divided into three equal groups. The occlusal third of the crowns were cut with a slow-speed diamond saw. The groups were classified as follows: group A, dentin etched with 35% phosphoric acid for 10 s directly prior to luting procedures. Group B, immediate dentin sealing is done directly after cavity preparation. Group C, dentin surface treated with 100 mjEr: YAG laser directly prior to luting procedures. The resin composite inlays were adhered to different treated dentin surface using adhesive resin cement. The specimens with their adhered inlays of each group were subjected to shear bond strength testing. Analysis of the recorded shear bond strength values (Mpa) were done using one-way analysis of variance and Tukey post hoc test. Statistical analysis was performed using Graph pad Prism-6 statistics software for Windows P values ≤ 0.05 are considered to be statistically significant in all tests.

Results: Shear bond strength mean values for Group B>Group C >Group A.

Conclusion: IDS and Er:YAG laser improve the shear bond strength of composite inlays to dentin

Key Words: Immediate dentin sealing -Er: YAG laser - Delayed dentin sealing Composite inlay.

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INTRODUCTION

Laboratory fabricated indirect restorations are need at least two appointments:

First appointment for tooth preparation and impression taking ended with temporary restoration fabrication and luting and second appointment for final restoration luting procedure[1].

Two appointment inlay technique or delayed dentin sealing (DDS), dentin sealing and hybridization is applied after removal of temporary cement. Immediately after tooth preparation, the exposed essential dentin is susceptible to insult from bacterial infiltration and micro-leakage during the temporalization process. Penetration of bacteria and fluids through the exposed dentinal tubules can result in microorganism colonization, post-operative sensitivity, and the potential for subsequent pulp irritation. Residual temporary cement can remain on the surface of the tooth even after mechanical surface cleaning, and the tooth surface is possibly penetrated by certain cement ingredients, altering features such as touch angle and permeability of dentin. In this manner, the definitive restoration is not related to freshly prepared dentin, but rather to contaminated dentin, which can result in failure of hybridization and decreased bond strength[2,3].

In order to prevent these potential sequelae, local application of a dentin bonding agent is suggested when a large accessible area of dentin has been exposed during tooth preparation for indirect bonding restorations[4]. Since the early 1990s, this immediate dentin bonding application prior to the temporalization stage for indirect bonded restorations was proposed[5-8]

There have been comprehensive so-called immediate dentin sealing IDS[8].

IDS Studied and greatly enhanced over the years with good findings with regard to the strength of bonds, void formations, bacterial leakage, and post cementation hypersensitivity. In this step a dentin bonding agent is

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applied to the freshly prepared dentin before the placement of the temporary cement. Immediate dentin sealing requires hybridization of the exposed dentin surface immediately after tooth preparation and during final cementation procedures.[8,9]

Many advantages of IDS technique as it prevents the dentin sensitivity and bacterial invasion during the temporalization stage with subsequent increased bond strength, the dentin bonding agent thickness is considered before tooth preparation Impression[10].

Erbium-YAG (Er-YAG) lasers emit a 2.94 µm wave length which coincides with the major water absorption band. Hydroxyapatite absorbs this emitted energy well and has been shown to remove dental hard tissue more effectively than other laser systems[11 -13]. Many studies reported dental tissue little thermal damage especially when laser is irradiated in conjunction with a water spray.[14,15]

The Er-YAG laser has been used clinically for dental hard ablation, caries removal and cavity preparation.[16]

Lased dentin showed many specific characters which as advantageous for resin bonding. It showed the formation of a microscopically rough substrate surface without surface demineralization, open dentinal tubules with no smear layer formation, and sterile dentin surface[17,18].

Er-YAG laser dentin ablation showed improved hard dental tissues bond strength results[19,20].

The aim of this study was to investigate the effect of immediate dentin sealing and Er-YAG laser dentin ablation prior to composite inlay luting procedures.

MATERIALS AND METHODS

I-Preparation of the teeth specimens: Forty five specimens of caries-free human molars which were extracted for periodontal reasons. Any residual soft tissue on the tooth surfaces was removed, and the teeth were preserved at room temperature in distilled water. In auto polymerizing acrylic resin (Meliodent; Bayer Dental, Newbury, UK), the teeth specimens were mounted vertically. The occlusal enamel was removed using a slow-speed diamond saw sectioning machine under water cooling(Isomet; Buehler, Lake Bluff, IL). Randomly teeth samples were divided into three groups. Guided grooves were made to a depth sufficient to expose 0.5 mm dentin depth below dentinoenamel junction. Under water-cooling, the dentin surfaces were abraded with decreasing grits of silicon carbide (SiC) paper (from #800 to #1200) for 30 seconds per paper. A standard superficial dentin surface of about 0.5 mm from the dentinoenamel was formed, along with a standard smear layer.

An adhesive tape punched with a modified Ainsworth rubber-dam punch to provide 3 mm diameter holes was used to determine the dentin surface area for testing. Finally, each group received fifteen dentin samples.

Before the luting techniques, all perpetrated teeth specimens were placed in water at 37°C for five days.

The treatment groups were as follows:

Group A: Dentin etched with 35% phosphoric acid for 10 s directly prior to luting procedures.

Group B:Immediate dentin sealing is applied directly after cavity preparation.

Group C: Dentin ablated with Er: YAG Laser at100 mJ for 12.5 secdirectly prior to luting procedures.

The treatments of dentin were as follows:

Group A-Acid etching: using colored gel of35% phosphoric acid (Scotchbond etchant gel,3M,USA) was applied for 10 sto the dentin surface, followed by copious rinse with water for 10 s and gentle indirect air drying 5 s, followed by luting cement.

Group B-immediate dentin sealing:

Immediately following tooth preparation, the IDS was achieved.

With 35% H3PO4 (Scotchbond etchant gel,3M, USA) for 10 s, Dentin was washed with copious amount of water for30 seconds.

Primer and adhesive resin are then applied (Optibond FL, Kerr, USA), indirect air-thinned then 10 s photopolymerized using halogen curing light (3 M ESPE, St Paul, USA) with a light output of 1000 mW / cm2.Thin layer of Glycerin gel was applied and, the surface was photopolymerized for 40s.

Group C- Laser pretreatment:

Er: YAG dental laser (BURANE XLER: YAG laser 1243, Germany). Its wavelength, in infra-red region, was 2.94 µm . Spot size was 3 mm and pulse duration 250µ m. The beam was applied perpendicularly to the specimens at 100 mJ. A pulserepetition rate was 4 HZ. The number of pulses delivered for each specimen was constant 50 pulses as the duration was 12.5 sec.

II-Preparation of the composite inlays: Resin composite discs with 4 mm thickness and 5mmin diameter were prepared by layering 2-mm-thick per increment of a nanohybrid resin composite ((Filtek Z350XT, 3 M ESPE, St Paul, USA) into a silicone mold. Eachincrement was photopolymerized using halogen curing light (3 M ESPE, St Paul, USA) with a light output of 1000 mW / cm2 for 40 seconds.

Fitting side of the resin composite discs was abraded ,underwater cooling system, with 600-grit SiC paper to standardize the surface roughness.

III: Luting Procedures: Before starting luting procedures, ultrasonic cleaning, for 10 minutes, of theresin compositediscs with distilled water. Discs were dried with air, and silanated with (Scotchbond, Universal Adhesive, 3M ESPE) for 20 sec., air dried foe 5 sec.

Dentin Specimens were gently dried using cotton pellets. Laser ablation for group C. Acid etching with 35% phosphoric acid gel (Scotchbond etchant gel, 3M, USA) was applied for 10 s to the dentin surface, followed by water rinsing for 10 s and 5 s gentle

indirect air drying. Dentin specimens were rubbed with (Scotch bond, Universal Adhesive, 3M ESPE) for 20 sec. According to the manufacturer's instructions, luting agents (RelyX, Ultimate Adhesive Resin Cement, 3M ESPE)were applied. Digital pressure was used to press resin composite discs onto the cement, which was persist until20 s/surface, light curing was applied from the buccal, lingual, and occlusal sides. For 24 hours, cemented specimens were maintained in distilled water.

IV- Measurement of shear bond strength: The specimens of each group were subjected to shear bond strength testing. The cemented specimens were clamped to a universal testing machine (LLOYD Universal Testing Machine LR5R series UK) . Each specimen in its resin block was hold in the lower jaw of the testing machine. In the upper jaw, a knife edge chisel was attached and allowed force application on interface between the test material and the dentin surface, the test machine was run at a constant speed of 0.5 mm/min and until the inlays separated. Shear bond strength values were registered in Newton and transformed into Mpa by dividing the maximum load by the surface area. One-way study of variance and the Tukey post hoc test were used to examine the shear bond strength values (Mpa). Statistical analysis was performed using Graph pad Prism-6 statistics software for Windows P values ≤ 0.05 are considered to be statistically significant in all tests.

RESULTS

Mean shear bond strength values are presented in Table1: The shear bond strength values (Mpa) were analyzed using one-way analysis of variance and Turkey post hoc test and were revealed a significant influence of the Main groups type tested (p=0.0001 < 0.05) on shear bond strength mean values (Group B> group C > group A).

Table No.1: Shear bond strength results (Mean ± SD) for all groups with different surface treatment of the dentin

	Shear bond strength	P value
Group A	3.89±0.72	0.0001*
Group B	6.198±1.15	0.0277*
Group C	5.06±1.1	0.0001*

Different letters indicating statistical significances P≤ (0.05) *; significant (P≤0.05)

DISCUSSION

Dentin preparation technique plays a major role in success of adhesive procedure of indirect bonded restorations.[8,9]

A contaminant-free substrate, such as that obtained at the time of preparation when dentin is freshly cut and clean, is a primary prerequisite for optimum bonding[2, 21]. The conventional method of tooth-colored inlays luting procedures is performed after a period of temporary restoration with possibility of the dentin surface contamination with remaining of temporary restorative material[22].

The results of this study showed that immediate dentin sealing specimens had the highest bond strength. In order to decrease bacterial infection and tooth sensitivity during the provisionalization process, the immediate dentin sealing protocol was proposed as an effective technique of sealing the dentinal tubules. The application of dentin bonding agent to freshly prepared dentinled to influence of the retention and placement of the indirect inlay restoration.[8,9,23]

The optimum conditions were presented by the delayed dentin sealing procedure even on contaminated dentin surfaces. The primary issue of decreased shear bond strength correlated with provisional treatment. The creation of an effective bond between the existing resin coating and the new luting resincement is a key element of IDS[8,9].

Suggesting that bond strength can begin to decrease after 7 days after the IDS procedure.[24]

The Er:YAG laser was chosen for the study as many researchers believe it is a promising form of laser for treating hard dental tissues with minimal pain and thermal impact. This was presumed as its wave length 2.94 µm matching with the absorption peak of the collagen fibrils, hydroxyaptite crystals and water which are the major components of dentin[25,26]. Also, some researches have shown that its wave length stimulated reparative dentin formation[27].

In this study the Er: YAG laser dentinablated showed significantly high bond strength than total acid etched dentin surface. Many studies explained that t the low-energy Er: YAG laser can modify the dentin surface. The recommended Er: YAG laser output for conditioning is inferior to 200 mJ[28].

It was found that the Er: YAG dentin ablation produces microexplosions within the dentin. Dentin organic and inorganic tissue particles are ejected as a result of these microexplosions. Surface irregularities created on the ablated dentin surface without smear layer[29].

CONCLUSION

1. Immediate dentin sealing improved the shear bond strength of composite inlays to dentin.
2. Er: YAG laser with low intensity pulses modify dentin surface with subsequent positive response of shear bond strength records of composite inlays to dentin.

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

Preferred Assessment Tools from Medical Students Standpoint: a Comparative Study

Hina Khan[1], Sadia Sundus[4], Muhammad Sajid Khan[5], Munawar Hussain[2], Nighat Seema[3] and Raja Faisal[1]

ABSTRACT

Objective: To evaluate the preferred method of assessment from medical student's perspective.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the Al-Tibri Medical College and Hospital, Isra University-Karachi Campus from March-2020 to October-2020.
Materials and Methods: A valid questionnaire was adopted for the evaluation of the preferred method of assessment. Data was collected after the institutional ethical approval, and verbal consent was taken from the respondent. A total of 150 undergraduate students were included through a snow ball sampling method from the 2nd, 3rd, and 4th year of MBBS. Data were analyzed through SPSS version 21.0 and showed in the form of frequency and percentage. The chi-square test was applied to assess the qualitative data and level of significance was taken P =<0.05.
Results: Out of 150 medical students, the mean age of 2nd-year students was 20.36± 4.00, 3rd-year students with 21.36 ± 0.95, and the mean age of 4th year was 22.87± 2.97. Male students' frequency was 75(50%), and female participants were 75(50%) of the total numbers of respondents. Numbers of students preferred MCQs a quality choice for assessment in comparison to essay questions. Maximum respondents preferred that MCQs give brief understanding and a wide range of course coverage, while essays enhance the written expression.
Conclusion: Following the present study results concluded that MCQs are a more preferred assessment tool among the students of medical sciences compared to the essay question. MCQs cover more content areas in a limited period and assess the higher level of cognition; the level of competency depends on MCQ's quality structure.
Key Words: Assessment, MCQs, Medical Sciences

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INTRODUCTION

The word assessment and achievement both are important in the life of students because of its relativity. The objective of the evaluation is to evaluate the learning outcome of students. The main goal is to assess the improved learning abilities including student's competencies and student's versatile approaches based on skills relevant to their curriculum.

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The evaluation of learning outcomes is relatively difficult since the attributes are mental representations rather visible. Assessment already plays a role in the learning process throughout the curriculum focused on the students learning goals and achievements[1]. For their completion several types of assessment are relevant and available. Briefly, the five levels of measurements are required to accomplish the assessment validation. Evidence-based tools evaluate the general objectives of students while Formative assessment estimates students' psychomotor skills by means of standardized quizzes, MCQs, questionnaires etc[2]. Since assessment measures the quality of the curriculum by focusing on its strengths and goals therefore, it should motivate and reflect the capability of a learner. It can justify the role of facilitator and student, and provide a way to improve the quality of learner[3]. Validity and reliability of assessment methods like MCQs and short answer questions are still controversial. Assessment strategy must be aligned with the educational goals, and should work efficiently with the simultaneous shift of curriculum from traditional system to the integrated system. This enables the self-directed learning approach of a learner autonomous. This divine shift of education

tract favors the well-constructed context rich MCQs, validity, reproducibility, and cost effectiveness. The cost-effectiveness questions are entrenched in a clinical vignette. MCQ's helps in building the critical thinking of students[4-5].

To assess the cognitive and analytical capabilities of a learner, Evidence-based tools must be implemented such as well-structured MCQ paper. Because, it analyses different concepts of students in a short time while discriminates the upper and low achievers. Flaws lead to affect the students' performance[6]. Open-ended questions are also incorporated, like the long and short essays that recall the basics. Essays are invalid components to evaluate the higher level of cognition, because differences of written expression can change student performance[7]. Our education system requires the similar approach to examine the factual and reason based learning[9]. This study was designed to evaluate the underlying factors to choose the assessment tool, either MCQs or essay type questions. The study's observation helps in the development of effective curriculum considering the student perception to aid the learner-centered approach in our integrated and community-oriented curricula.

MATERIALS AND METHODS

A cross-sectional study was designed at Al-Tibri Medical College and Hospital, Isra University Karachi Campus, from March-2020 to October-2020 after the ethical approval of the concerned institute's Institutional ethical review committee. A total of 150 numbers of students from 2nd, 3rd, and 4th-year MBBS were included through a snow ball sampling technique without gender differentiation, students were selected by choosing two different colours paper one was red and other was green, and students those pick up green colour paper included in the study. After taking verbal consent, the well-designed questionnaire was adopted to evaluate the assessment tools' student perception. Students from 1st and final year, non-medical disciplines, and allied sciences were not included in this study. A questionnaire was well explained to the respondent and was inquired using 5 points Likert scale. The data was kept confidential, and students were asked not to mention their name and roll number over the questionnaire. Data were analyzed through SPSS version 21.0, and responses were displayed in the form of frequency and percentage, considering the level of significance P=<0.05 and applied the Chi-square test.

RESULTS

Out of a total 150 medical students, the mean age of 2nd-year students was 20.36± 4.00, 3rd-year students with 21.36 ± 0.95, and the mean age of 4th year was 22.87± 2.97. The frequency of Male students was 75(50%), and female participants were 75(50%) of the total numbers of respondents.

Table: 1 shows the frequency and percentage of preferred assessment tool among the participants

Table: 2 shows the frequency and percentage of participants according to their level of education.

Table: 3 shows the frequency and percentage of respondents about the reason behind the choice of an assessment tool that they preferred.

Table No.1:Shows frequency and percentage of preferred assessment tool among the participants

		Preferred			Total	P-Value
		MCQs	Essay	Both MCQs & Essay		
Groups	*2nd Year*	44	6	2	52	≤ 0.001
	3rd Year	23	2	25	50	
	4th Year	12	13	23	48	
Total		79	21	50	150	

Table No.2:Shows frequency of preferred assessment tool among the participants . (S.A=Strongly Agree, Ag=Agree, N=Neutral, D.A=Disagree and S.A.D=Strongly Disagree) P=<0.05

		2nd year					3rd year					4th year					P value
	Questions	S.A	Ag	N	D.A	S.DA	S.A	Ag	N	D.A	S.DA	S.A	Ag	N	D.A	S.DA	
1.	MCQ exam having a chance to achieve a correct answer	50	2	0	0	0	27	23	0	0	0	0	37	4	5	2	≤ 0.001
2	MCQ comprises of Q&A, thus, keywords can stimulate the memory rather than recall as in case of essay writing	28	16	6	2	0	21	23	4	2	0	20	18	8	2	0	0.652
3	MCQs are not stressful, and it takes less time to complete	29	16	7	0	0	20	22	5	1	2	21	24	3	0	0	0.193
4	MCQs not just to hit the learning facts and figures and no critical thinking required, which I find mind-numbing	0	11	13	22	6	0	2	19	24	5	1	3	16	21	7	0.131
5	I don't like to write an essay and select to answer a question in front of me in	10	16	16	10	0	0	19	16	12	3	4	19	13	9	3	0.067

	someplace.															
6	MCQ assessment be likely to examine the topic extensively	28	20	4	0	0	28	15	6	1	0	23	21	4	0	0	0.652
7	MCQ is an effective assessment method that can evaluate students' academic capabilities in their relevant course content	28	19	5	0	0	25	22	3	0	0	15	24	7	7	0	0.113
8	Essay questions cannot effectively do not assess the level of cognition, only show the written expression.	15	30	7	0	0	19	26	4	1	0	15	21	9	1	2	0.033
9	MCQ can effectively assess the recall knowledge related to the relevant content area	15	30	7	0	0	19	26	4	1	0	15	21	9	1	2	0.335
10	The lecturers and tutors outlined precisely what is to be read to pass the exam successfully.	10	26	10	6	0	19	19	7	5	0	11	17	16	4	0	0.128
11	In MCQs assessment, because choices are given, you could judge that what can be right/wrong, whereas in the essay you might be followed the incorrect track	17	19	4	7	5	7	27	8	8	0	3	25	14	6	0	≤ 0.001
12	The MCQs preparation required a small duration of time and included fewer efforts.	2	13	18	19	0	13	17	0	12	8	3	15	8	19	3	≤ 0.001

Table No.3: Shows frequency of respondent about the reason behind the choice of assessment tool that they preferred

		2nd year		3rd year		4th year		P=value
	Which of the following reasons indicate the preference of essay questions for assessment among medical students?	yes	NO	Yes	No	Yes	No	
1	MCQ exam is just an assessment to assess that, and you can choose an answer "most" correct, dictated to you by someone. It is neither intellectually stimulating nor challenging	2	48	4	47	8	42	≤ 0.001
2	Essay raise your spirits of competent reader and critical thinker	7	43	7	43	3	47	0.043
3	The MCQ is limiting, imposing certain clarifications onto students	4	48	4	46	2	46	0.070
4	Essays give you time to recall critically and efficiently about the content given for assessment	2	50	16	34	16	32	≤ 0.001
5	Searching, reading and using other resource materials further one's	44	8	41	9	38	10	0.778
6	knowledge and understanding of the course rather than trying to memorize	37	15	40	10	43	5	0.071

P=<0.05 *Respondent may choose more than one reason*

DISCUSSION

In Pakistan, medical educationists are constantly trying to implement the modern standardized education system from the last five years. Cognitive skills assessment can be tested through multiple-choice questions (MCQs) or short written examination (essays). Similarly, in the present study, the quality of assessment and curriculum is improved by medical students' feedback. Most medical students give importance to multiple-choice questions due to their higher level of achievement, infect they enhance the learner competencies of analysis, synthesis, and develop a better level of critical thinking [10]. According to the present study results, the student favors the role of MCQs in making skills of a critical thinker and problem solver, especially the one best question that triggers the clinical implementation of the knowledge and covers all vital aspects of the curse contents. Whereas the majority of the students also favor that essay question helps understand the content because of a wide range of reading [11]. Following the study evidence the student experiences regarding the assessment methods, the respondent highly remarks on MCQs' strength both in superficial and deep thought of learning. They also incorporate that deep learning favors the better outcome. Similar in the present scenario, the participants openly support the MCQs

compared to essay-type assessments and oblige the deep understanding of the topic and mention the weakness of written expression required to attempt the essay type questions[12]. One of the studies that were done on dental students' preference of assessment method with their impact on learning outcomes, the results reveal the significant effects of MCQs and its influence over the learning approach. Two hundred sixty students responded to the 67 open-ended questions, and the most preferred method for assessment was MCQs. As per the study, results confirm the learner approach towards the MCQs as an important tool for assessing medical education due to its higher order of cognition and deep understanding of the contents[13]. A study was designed to assess students' competency level with the application of MCQs as an assessment tool to achieve the learner approach. The results established that good quality of MCQs plays an important part in obtaining a higher quality of assessment and building the learner's desired competency. Similar in our study, most of the students preferred the MCQs due to their reliability and effectiveness in achieving the learner approach compared to essay type questions[14]. The study results, which were conducted in Pakistan at Lahore with 219 numbers of participants related to pathology discipline, were included in the study. The study's basic aim was to find out the perception of 3rd and 4th-year MBBS regarding assessment tools used during the internal evaluation examination. Out of 219, 54.3 % of the student preferred MCQs, and 36.7% favors the short essay questions. Only 9.1% of the respondent agreed that MCQs are a least useful tool for assessment, and 14.2 % stated short essay under the least significant method of assessment and in the same way in present study maximum number of participants favors the MCQs and the short essay due to stimulating the skills of a critical thinker. Significantly adopt the MCQs as the best assessment tool due to their time feasibility, distractors are given a chance to pick the option and make it easy to understand the given question [15]. One of the studies done in 2018 among the medical students, about 96.55%, strongly favors the MCQs, 96.54% brief essay questions, and 96.57% in favor of short answer questions. These results were found to be similar to the results of the present study; only less percentage of participants accepted the short answers as a valid assessment tool in comparison to MCQs[16]. The study that was done in 2018 contained interesting facts regarding MCQs preparation by the medical students of the second year and provided them a significant training regarding the formulation of MCQs according to their objectives, clinically relevant, and reflects the skills of a critical thinker. The results revealed that student based survey documented the fact about MCQs, that they required more reasonable thoughts while preparing MCQS and more difficult to collaborate the key question with the given distractors require a high level of cognition skills and critical thinker, same characteristics of MCQs were found in the present study from a student perspective about the MCQs[17]. One of the studies was done at Jeddah in 2015, included 600 numbers of participants from 4th, 5th, and interns to survey the perceptions towards assessment methods. Significant numbers of participants choose MCQs as the best assessment tool, among others. The same reasons were responding by the medical students of this study[18, 19]. One of the studies was done among the dental students and was divided into two groups based on their year of matriculation and a significant gap from matriculation to admission. That means of the essay questions showed more accurate evaluation as compared to others. In the present study, the students highlighted the MCQs more reliable tool for assessment and accepted the essay question with a certain level of retriction[20]. By the study results, there was no gender-based difference in acquiring assessment methods and achieve higher grading among males and females. Similar results were found in this study, with no gender-based alteration in adopting assessment methods[21].

CONCLUSION

Following the results of the present study concluded that MCQs are a more preferred assessment tool among the students of medical sciences in comparison with the essay question. MCQs covers more content area in a limited period and assess the higher level of cognition; the level of competency depends on the quality structure of MCQs. Essay questions are essential to enhance the writing expression, while the preparation of MCQs takes some time.

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Original Article

Refractive Outcomes with Contact Lens

Refractive Outcomes with Contact Lens Followed by the Procedure of Corneal Cross Linkage

Ikramuddin Indhar, Pir Salim Mahar, Israr Ahmed Bhutto, Mustafa Kamal Junejo, Munawar Hussain and Umer Kazi

ABSTRACT

Objective: To determine the visual acuity in keratoconus patient after the contact lens implantation through cross corneal linkage process.

Study Design: Experimental study.

Place and Duration of Study: This study was conducted at the Cornea clinic, Isra Postgraduate Institute of Ophthalmology, Al-Ibrahim Eye Hospital, Karachi from January 2019 to August 2019.

Materials and Methods: 74 patients with progressive keratoconus of age 12 years to 40 years, central corneal thickness more than 400microns and without prior history of CXL corneal procedure were included in the study. Preoperative assessment was based on history, examination and investigations. Operative procedure was performed and postoperative assessment of visual outcomes and complications were noted. Statistical analysis was done by SPSS version 20.

Results: Statistically significant difference at p-value <0.001 of Best corrected visual acuity with contact lens (BCVACL) was observed in 93.2% of the patients with 6/6 visual acuity at 3rd month follow up after the contact lens implantation through corneal cross linkage.

Conclusion: Significant improvement observed in the visual acuity, Best Corrected Visual Acuity with Contact Lens (BCVACL) of keratoconus patient treated with corneal cross-linkage process with no complications.

Key Words: Visual Acuity, Keratoconus, Contact lens, Corneal Collagen

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INTRODUCTION

Keratoconus is a bilateral and symmetrical progressive medical condition in which the cornea is focally thinned and protruded, ultimately then escalating to a cone-shaped surface[1]. Various studies reported that Asian population are at much higher risk of Keratoconus patients then the others it also suggests that males are more prone to this disease[2,5].

Prior to start the treatment, full ophthalmic examination is required, most importantly corneal topography and tomography which gives the real time corneal steeping and epithelial imaging[6-7]. Studies showed that the time lapsed from the onset of the disease without treatment gotten this worse and early keratoconus, contact lens are very promising treatment[8-9]. Keratoconus patient have various pathological conditions such as high irregular astigmatism and significant anisometropia because of these spectacles does not achieve adequate vision acuity then the contact lens[10]. Advances in medical sciences has led to the development of modern operative techniques such as Deep Anterior Lamellar Keratoplasty (DALK) and Penetrating Keratoplasty (PK). Both have their pros and cons. DALK is associated with decreased incidence of graft rejection, endothelial cell preservation, avoidance of an open-sky procedure, and brief duration of post-operative administration of steroids, as compared to PK. Long-term use of steroid could lead to cataract and glaucoma[11]. By 1990s, the emergence of Cornea collagen cross-linking (CXL) procedure has proved to be a milestone in the management of Keratoconus[12]. Wollensak et al. were the pioneers of the procedure which proved to slow or halt the development of Keratoconus[13]. In CXL, riboflavin (vitamin B2) is introduced in conjuncture with ultraviolet A (UVA, 365 nm). The interplay of riboflavin and UVA results in the production of reactive oxygen species, which in turn leads to the formation of additional covalent bonds between collagen molecules, thus helping to give strength and reinforcement to the cornea[14].

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The inception of CXL has resulted in the drop of annual number of keratoplasties performed as has been reported in recent literature[15-16] with greater than 90% success rate observed in the stabilization of disease advancement[12]. CXL with Topography Guided-photorefractive Keratectomy (T-PRK) is also one of the treatment algorithm which has proved to be fruitful for the keratoconic population with contact lens intolerance. T-PRK causes the cornea to be regularized which helps in bringing about better vision with spectacles in addition to CXL which causes cessation of Keratoconus progression[17]. Thus, new modalities of CXL have provided new horizons in the management of Keratoconus[18].

With each passing day, there has been a boom in the introduction of more promising techniques for Keratoconus management. This has lead to the shift in focus of treatment from improving visual acuity with Keratoplasties to those aiding in the stopping of disease evolution or those supporting contact lens tolerance like CXL, ICRS or a recently developed Bowman Layer transplantation procedure described by GerritMelles[19].

MATERIALS AND METHODS

After taken an ethical approval of concern body this experimental study was conducted at Isra Post graduate institute of Ophthalmology (Al-Ibrahim eye hospital). The duration of this study was of six months. After taken written informed consent the data was collected at pre-operative and post-operative stages through Non-probability convenient sampling.

Subjects with Progressive keratoconus of ages range 12 to 40 years, Central corneal thickness more than 400microns and without prior history of CXL corneal procedure included while patients with Other corneal progressive ecstatic disorder, Severe corneal scaring or opacification on the clinical basis or history of: attack of acute hydrops concurrent ocular infection sever ocular surface disease like dry eye were excluded in this study.

Total 74 subjects were enrolled. Pre-operative examination included detailed history of patient, detailed ophthalmic examination, and Corneal Tomography was done After that Corneal cross linkage (CXL) procedure was carried out. This process was carried out by operating microscope, CXL UV laser machine, lid speculum, corneal forceps, tying forceps, and blade number 15, Cotton bud, 10 cc syringe.

RESULTS

Equal gender distribution was observed among 74 subjects (Fig 1). Our demographic data showed that students are at higher risk and more prone to keratoconus, as in this study 51.4% were students among the 74 subjects (Table-1). Un corrected visual acuity (UCVA) in the subjects prior to the procedure (Table 2).

Best corrected visual acuity with contact lens (BCVACL) and it was observed that 93.2% of the patients showed 6/6 visual acuity at 3rd month follow up after the contact lens implantation through CXL (Table 3).

Table No.1: Showing different occupations of study patients

Variable		n	%
Occupation	House Wife	21	28.4
	Student	38	51.4
	Carpenter	2	2.7
	Teacher	4	5.4
	Self Employed	4	5.4
	Shop Keeper	3	4.1
	Accountant	2	2.7

Table No.2: Comparison of un-corrected visual acuity during pre, 1st and 3rd month post-operatively period.

Variables		Preoperative		Postoperative 1st month		Postoperative 3rd month		p-Value
		n	%	n	%	n	%	
Un Corrected Visual Acuity (UCVA)	1/60	8	10.8	6	8.1	6	8.1	<0.001
	2/60	20	27.0	16	21.6	15	20.3	
	3/60	4	5.4	2	2.7	3	4.1	
	4/60	0	0.0	2	2.7	2	2.7	
	5/60	3	4.1	0	0.0	0	0.0	
	6/60	6	8.1	10	13.5	9	12.2	
	6/36	10	13.5	8	10.8	7	9.5	
	6/24	4	5.4	10	13.5	8	10.8	
	6/18	5	6.8	6	8.1	7	9.5	
	6/12	8	10.8	6	8.1	8	10.8	
	6/9	3	4.1	5	6.8	5	6.8	
	6/6	3	4.1	3	4.1	4	5.4	

Table No.3: Comparison of best corrected visual acuity with contact lens at pre, 1st and 3rd month post-operative follow up

Variables		Preoperative		Postoperative 1st month		Postoperative 3rd month		p-Value
		n	%	n	%	n	%	
Best Corrected Visual Acuity with Contact Lens (BCVACL)	6/9	4	5.4	5	6.8	5	6.8	<0.001
	6/6	70	94.6	69	93.2	69	93.2	

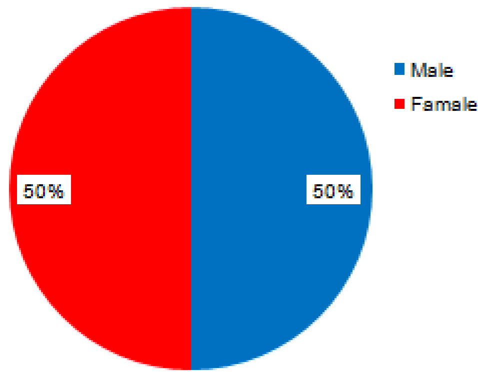

Figure No.I: Graphical representation of gender frequencies of study patients

DISCUSSION

A study conducted by Salman et al, on 22 patients having a mean age of 15.7 ± 2.1 years reported a significant improvement in UCVA, mean and maximum keratometry at 12th month post-operatively (p-value 0.05) as compared with pre-operative state[20].

Similar to our study, Ivarsen et al in a study conducted on 22 patients from 12 to 38 years treated with CXL for progressive keratoconus reported a significant decrease in the post-operative measures of keratometry, UCVA and BCVA[21]. Vinciguerra et al also reported significant reduction in mean keratometry, BCVA and UCVA at 36 months after operative as compared with pre-operative measures[22].

Goldich et al in a study on 14 patients with progressive keratoconus, treated with CXL and followed up till 24 months reported a significant improvement in BCVA difference from 0.21 ± 0.1 at baseline to 0.14 ± 0.1 after 24 months having a substantial difference of 0.002. UCVA difference from 0.62 ± 0.5 pre-operatively increased to 0.81 ± 0.49 D post-operatively having an insignificant difference of 0.48. Insignificant difference was also reported in minimal corneal thickness change from pre-operative state to 24 month follow up[23]. On the contrary, in our study substantial difference was observed in UCVA pre and post-operatively. Limited sample size, difference in geographic and age may have the difference in both study results.

The mean UCVA change at 3rd month from baseline (0.15±0.06) was reported to be significant (p-value 0.009). Similarly mean change in BSCVA improved at 3rd month (0.09±0.03) as compared with baseline, showing a significant p-value of 0.006[24]. Similar results were also reported in the present our study (Table-5; Figure-4, Table-6; Figure-5).

Goldich et al in a study on 14 patients with progressive keratoconus, treated with CXL and followed up till 24 months reported a significant improvement in BCVA difference from 0.21 ± 0.1 at baseline to 0.14 ± 0.1 after 24 months having a substantial difference of 0.002. UCVA difference from 0.62 ± 0.5 pre-operatively increased to 0.81 ± 0.49 D post-operatively having an insignificant difference of 0.48. Insignificant difference was also reported in minimal corneal thickness change from pre-operative state to 24 month follow up[23].

On the contrary, in our study substantial difference was observed in UCVA pre and post-operatively. Limited sample size, difference in geographic and age may have the difference in both study results.

Similar to our study, Ivarsen et al in a study conducted on 22 patients from 12 to 38 years treated with CXL for progressive keratoconus reported a significant decrease in the post-operative measures of keratometry, UCVA and BCVA[25].

Keratoconus is typically observed to commence at puberty and progresses till the third or fourth decade of life. Variation in keratoconus progression is seen in-between individuals and usually higher in young patients. The disease tends to stabilize approximately 20 years following initial presentation. Differences of age, genetic makeup, socio-economic background, operative facilities all tend to have an impact on visual outcomes of keratoconus after CXL.

Likewise, Vinciguerra et al reported a substantial 1.35 D improvement in maximum keratometry after CXL for keratoconus in 28 patients with ages ranging from 24-52 years. The maximum follow up time period was 2 years[26].

Similar to our study, Koller et al, reported a significant improvement of 0.89 D 1 year after CXL in 192 patients of keratoconus having a mean age of 29.3 years[27].

In accordance to our study, Derakhshan et al, in a study on 31 patients having a mean age of 22.3 years with keratoconus reported a substantial mean improvement of 0.65 D at 6 months follow up after CXL[28].

Asri et al reported a significant mean improvement of 0.49 D 1 year after CXL due to keratoconus in 142 patients having a mean age of 24.12 years[29].

In another study by Hersh et al, a substantial mean improvement of 2.0 D was seen in 49 patients undergoing CXL after 1 year of follow up[30].

Viswanathan et al reported in their study on 51 patients of keratoconus followed up for 4 years after CXL, a significant mean improvement of 0.96 D[31].

Age, gender, socio-economic status, genetic makeup, period of follow-up time all tend to effect in visual outcome of patients with keratoconus who have undergone CXL. But overall, all studies have reported improvements in the overall visual outcomes of patients, no matter what differences exist between each study.

CONCLUSION

It is concluded that collagen corneal cross linkage resulted in the considerable enhancements in the visuals acuity of keratoconus patients. Successful improvements were observed forBest Corrected Visual Acuity with Contact Lens no complications were observed throughout the study period after the operative procedure**.**

Author's Contribution:

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Original Article

Do Vitamin D Levels Correlate with Stroke Severity? Study on Patients with Ischemic Stroke

Shazia Siddiq[1], Sadia Hanif[4], Jhangir Zaib[1], Muhammad Nadeem[1], Sadiq Hussain[2] and Muhammad Fareed Khan[3]

ABSTRACT

Objective: To assess the vitamin D levels among patients presenting with acute ischemic stroke and relationship of these levels with severity of stroke.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of medicine, Sheikh Khalifa Bin Zayed Al-Nyhan hospital Rawalakot**,** Eight months, from January 2020 to August 2020.

Materials and Methods: A total of 180 patients with ischemic stroke diagnosed by the consultant medical specialist on the basis of clinical and neuro-radiological findings were included in this study. Serum Vitamin D levels were assessed along with other baseline investigations among the study participants. Severity of stroke was assessed via National Institutes of Health Stroke Scale.

Results: Out of 180 patients of ischemic stroke included in the study 112 (62.2%) were male while 68 (37.8%) were female. On National Institutes of Health Stroke Scale, 98 (54.4%) had mild, 52 (28.8%) had mild to moderately severe, 20 (11.11%) had severe and 10 (5.56%) had very severe symptoms. 99 (55%) of the patients had Vitamin D levels within range while 81 (45%) had deficient vitamin levels. Statistical analysis revealed that presence of hypertension and vitamin D deficiency had a statistically significant relationship (p-value <0.05) with severity of acute ischemic stroke.

Conclusion: Vitamin D levels were found low in significant number of patients presenting with acute stroke. Patients with Vitamin D deficiency and diagnosis of hypertension were more at chance of having severe symptoms of stroke as compared to those without diagnosis of hypertension and vitamin d deficiency.

Key Words: Ischemic stroke; severity; vitamin D

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INTRODUCTION

Cerebrovascular events make a huge chunk of patients who get admitted to all levels of health care facilities in developing countries.[1] Stroke is surely one of the most common cerebrovascular accident across the globe.[2]Alot of work has been done to look for the risk factors or consequences of such a devastating event which has a marked impact on quality of life of patients as well as care givers.[3] Multiple physical, endocrine and metabolic abnormalities have been related to stroke may be as a predisposing factor or as an after effect of the event.[4]

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Vitamins though required in small amounts for the body; yet play a very significant role in maintaining homeostasis in the human body. Classically, Vitamin D has been linked with bone and skeletal functioning but recent research has highlighted that this nutrient has multiple functions for human body and deficiency may lead to multi-system problems.[5] Multiple extra renal and extra intestinal causes have also been linked with vitamin D deficiency and it has been emphasized that clinicians should manage the deficiency of this nutrient with a more holistic approach.[6]

Neurologist and researchers have tried to establish correlation between mortality and morbidity associated with stroke and vitamin D levels in other parts of the world. Wajda et al. from Poland published a study last year highlighting that more than 90% of the stroke patients had vitamin D deficiency or insufficiency. They concluded that severe vitamin D deficiency was related to increased mortality among the patients suffering from ischemic stroke.[7]Zhang et al. came up with similar findings among patients with acute ischemic stroke without diagnosis of hypertension and revealed that initially vitamin D levels were not associated with severity of stroke but at three month follow up these levels emerged as strong predictors of

functional recovery among patients suffering from stroke.[8] Wei et al. in 2018 published a study on Chinese patients regarding Vitamin D deficiency in relation to the poor functional outcomes in non-diabetic patients with ischemic stroke. They came up with the findings that more than 50% patients had vitamin D deficiency by using levels of 20 ng/ml as cut off value. In multivariate analysis models, for vitamin D deficiency, the adjusted risk of poor functional outcomes and mortality was increased by 220% (odds ratio (OR): 3.2; 95% CI: 1.7-4.2, P<0.001) and 290% (OR: 3.9; 95% CI: 2.1-5.8, P<0.001), respectively. Vitamin D deficiency was associated with an increased risk of poor functional outcome events in their target population and they emphasized on future studies evaluating the role of vitamin D supplementation after acute ischemic stroke.[9]
Rehabilitative services and tertiary prevention is a time consuming and expensive process. We need to find some easy to administer and cost effective way to reduce the severity and impact of stroke on the patients. Vitamin D deficiency has been a prevalent problem in our population and a recent study revealed that around half of our population may be at risk of this deficiency therefore we need to keep this important deficiency in mind when dealing with the patients of stroke. We planned this study with the rationale to assess the vitamin D levels among patients presenting with acute ischemic stroke and relationship of these levels with severity of stroke.

MATERIALS AND METHODS

This cross sectional study was conducted at the medicine department of Sheikh Khalifa Bin Zyed Al-Nyhan hospital Rawalakot between January 2020 and August 2020. Sample size was calculated by using the WHO sample size calculator by using the population prevalence proportion of vitamin D levels in stroke as 13.6%. [11]Non probability consecutive technique was used to gather the sample for the study. Acute ischemic stroke was diagnosed by consultant medical specialist on the basis of clinical findings and plain CT scan brain done at the time of presentation.[12] Patients of both genders of age between 18 and 70 years presenting with scute ischemic stroke were included in the study. Exclusion criteria were the patients less than 18 years or more than 70 years of age or those who did not consent to or those with a past or current history of skeletal abnormalities or rhematological conditions. Patients who had cancer or had past history of renal or autoimmune disease or had a hemorrhagic stroke were also excluded from the study. Patients already taking Vitamin d supplements prior to the onset of stroke were also not included in the study.
Vitamin D levels were levels were assessed by an electrochemiluminescence method on a Cobas E411 analyzer (Roche Diagnostics GmbH, Mannheim, Germany) with inter-assay coefficients of variability below 7.8 and 6.5%, respectively. Levels less than 20 ng/ml were used as cut off value for vitamin d deficiency.[13] Severity of stroke was assessed via National Institutes of Health Stroke Scale (NIHSS). Following classes were made on the basis of NIHSS score Mild <5, Mild to Moderately severe, severe 15-24 and very severe >25.[14]
Ethical approval for the study was obtained from the ethical review board committee of the Sheikh Khalifa Bin Zyed Al-Nyhan hospital Rawalakot/ Poonch medical college Rawalakot. Subjects and their caregivers were provided with a detailed description of the study and were inducted into the study after written informed consent. Subjects with confounding variables like presence of other neurological illness or rheumatological conditions were identified by detailed history taking and excluded from the study. Severity of stroke was assessed via National Institutes of Health Stroke Scale (NIHSS) by the treating physician. Serum Vitamin D levels were assessed from the laboratory of own hospital. Variables in the study included age, gender, Vitamin D levels and presence of hypertension.
Characteristics of participants and the distribution of the severity of stroke were described by using the descriptive statistics. Chi-square was used to determine between-group variances in categorical correlates. Relationship of age, gender, presence of Vitamin D deficiency and presence of hypertension was assessed with the severity of stroke. All statistical analysis was performed using Statistics Package for Social Sciences version 23.0 (SPSS-23.0). Differences between groups were considered significant if p-values were ≤ 0.05.

RESULTS

Table No.1. Characteristics of patients presenting with acute ischemic stroke N=180

Age (years)	
Mean + SD	58.93 ±8.859
Range (min-max)	38 years-68 years
Gender	
Male	112 (62.2%)
Female	68 (37.8%)
Presence of Vitamin D deficiency	
Yes	81 (45%)
No	99 (55%)
Severity of stroke	
Mild	98 (54.5%)
Mild to moderately severe	52 (28.9%)
Severe	20 (11.1%)
Very severe	10 (5.6%)

Out of 180 patients of ischemic stroke included in the study 112 (62.2%) were male while 68 (37.8%) were female. Table I summarized the demographic profile of study participants. On National Institutes of Health Stroke Scale, 98 (54.4%) had mild, 52 (28.8%) had

mild to moderately severe, 20 (11.11%) had severe and 10 (5.56%) had very severe symptoms. 99 (55%) of the patients had Vitamin D levels within range while 81 (45%) had deficient vitamin levels. Statistical analysis (person Chi-square test) revealed that presence of hypertension and vitamin D deficiency had a statistically significant relationship (p-value <0.05) with severity of acute ischemic stroke (Table 2).

Table No.2: Association of different variables with severity of stroke

Socio demographic factors	Mild	Mild to moderately severe	Severe	Very severe	p-value
Age					
50 year or less	50 (51.1%)	24 (46.2%)	08 (40%)	08 (80%)	0.171
>50 years	48 (48.9%)	28 (53.8%)	12 (60%)	02 (20%)	
Gender					
Male	64 (65.3%)	32 (61.5%)	11 (55%)	05 (50%)	0.691
Female	34 (34.7%)	20 (38.5%)	09 (45%)	05 (50%)	
Vitamin D levels					
Absent	70 (71.4%)	20 (38.5%)	07 (35%)	02 (20%)	<0.001
Present	28 (28.6%)	32 (61.5%)	13 (65%)	08 (80%)	
Hypertension					
No	67 (68.7%)	30 (57.7%)	08 (40%)	03 (30%)	0.019
Yes	31 (31.3%)	22 (42.3%)	12 (60%)	07 (70%)	

DISCUSSION

Human body had complex biochemical mechanism for maintenance of homeostasis especially at the time of physical or mental stress. Various types of vitamins though required in small quantity but have a vital role in proper functioning of different processes of human body. Cerebrovascular events like stroke pose a major stress to human body and is a big blow on homeostatic mechanism of the body. In this time of acute crisis, if any of the important nutrient is deficient it may add insult to the injury and make things difficult for the patient as well as the physician. We therefore planned this study to assess the vitamin D levels among patients presenting with acute ischemic stroke and relationship of these levels with severity of stroke at time of presentation at neurology unit of our tertiary care teaching hospital.

Narasimhan et al[15] did an interesting study which may be regarded as next step to the epidemiological data we have generated. They performed a randomized controlled trial to look for the efficacy of Vitamin D in predicting outcome after ischemic stroke. They concluded that there was a significant improvement in the stroke outcome after three months in those patients who were supplemented with vitamin D.[15]Ours was a basic cross-sectional study in this regard but supported findings of Narasimhan et al. in terms of deficient vitamin D levels clearly related to increased severity of stroke at the time of presentation.

Turetsky et al.[16] in 2015 studied this subject from another angle and emphasized on relationship of Vitamin D levels with volume of stroke lesion on neruo-radiological investigations. They concluded that lacunar infarct etiology, lower admission National Institutes of Health Stroke Scale, and higher serum 25(OH)D concentration were associated with smaller infarct volumes (P < .05). The association of 25(OH)D with ischemic infarct volume was independent of other known predictors of the infarct extent (P = .001). Multivariable analyses showed that the risk for a poor 90-day outcome doubled with each 10-ng/mL decrease in serum 25(OH)D.[16] Our findings were similar in terms of National Institutes of Health Stroke Scale score and deficient vitamin D levels and hypertension predicted more severity of stroke.

Another similar study performed in France in 2016 by Daumas et al.[17]regarding correlation of vitamin D levels and functional outcomes after the stroke. They came up with the findings that the risk of functional impairment in patients with low 25(OH)D levels was greater than that in patients with higher 25(OH)D levels (odds ratio [OR] 2.10, 95% confidence interval [CI]: 1.35-3.27, P = .001). This association was still observed after adjustment for confounding variables (OR 1.70, 95% CI: 1.06-2.71, P = .027).[17]Results of our study supported their findings and vitamin D levels were strong predictor of severe symptomatology of acute ischemic stroke.

Yarlagadda et al.[18] in 2020 published a detailed review regarding effect of vitamin D deficiency on incidence, severity and mortality related to stroke and benefit if any of supplementation of vitamin D in such patients. They concluded that neuroprotective mechanisms by which vitamin D may be related to mitigate stroke onset and outcomes have yet to be fully studied, but researchers have proposed several pathways, including promotion of certain neuroprotective growth factors, reduction of arterial pressure through vasodilation, and inhibition of reactive oxygen species. There has been some evidence that vitamin D supplementation could

lower stroke risk and improve recovery, though outcomes can also be negligible or negative.[18]Our findings generated a baseline data and emphasized on role of vitamin D deficiency in predicting severity of stroke.

There were few limitations in our study. Assessing severity at time of presentation may not be very accurate measure of stroke severity and outcome. Long term follow up may yield better results in this regard.

CONCLUSION

Vitamin D levels were found low in significant number of patients presenting with acute stroke. Patients with Vitamin D deficiency and diagnosis of hypertension were more at chance of having severe symptoms of stroke as compared to those without diagnosis of hypertension and vitamin d deficiency.

Author's Contribution:

Concept & Design of Study:	Sadia Hanif, Shazia Siddiq
Drafting:	Muhammad Nadeem, Shazia Siddiq
Data Analysis:	Sadia Hanif
Revisiting Critically:	Muhammad Fareed, Jhangir Zaib, Sadiq Hussain
Final Approval of version:	Sadia Hanif

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

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Original Article

Impact of Denture Cleansing Habits and its Association with Denture Stomatitis among Removable Denture Wearers in Different Clinics of Karachi City

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ABSTRACT

Objective: The aim of the study is to assess the denture hygiene habits among removable denture wearer and its impact on denture stomatitis with respect to gender.

Study Design: Cross-sectional study

Place and Duration of Study: This multicenter study was conducted in different private clinics of Karachi, city during January, 2019 to January, 2021.

Materials and Methods: A total of 102 denture wearing subjects were included in this study. After obtaining informed consent, the patients were asked to fill the designed performa for collection of relevant data. Clinical examination of oral cavity along with the denture in use was carried out and the questions related denture hygiene habits were investigated. The p-value <0.05 was considered statistically significant.

Results: Our study findings showed that out of 102 subjects 79(77.5%) subjects cleaned their dentures while 23(22.5%) didn't maintain denture hygiene. Water was the most preferred method in males 30(55.5%), and 24(44.3%)in females followed by tooth paste and mouth wash as denture cleansing method. In present study denture stomatitis was observed in both genders.

Conclusion: The knowledge regarding the denture cleansing methods plays a vital role in maintaining overall oral hygiene. Therefore, it is stressed upon that the dentist should be aware about the importance of providing effective denture cleansing instructions to the patients.

Key Words: Denture, Acrylic Complete denture, Care, Hygiene, Habits, Assessment.

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INTRODUCTION

The term denture stomatitis is common form of oral candidiasis and also known as denture sore mouth characterized by inflammation of oral mucosa particularly palatal and gingival mucosa which is covered by denture surface.[1]

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In this condition, inflammation is a common and recurrent problem in those patients who wear dentures, which may result in erythema, pain, burning and inflammation of oral mucous membrane.[2]The etiology of denture stomatitis are multifactorial in origin including, poor oral and denture hygiene, trauma resulted from inappropriate denture, nutritional deficiency, diabetes mellitus, allergy to denture base materials, continuous night time wearing of denture, and immune deficiency.[3]Presence of dental plaque beneath the surface of denture may harbor microorganisms causing inflammation of mucosa.[4]

The epidemiological studies have shown the prevalence of denture stomatitis may range from 15%-70% among denture wearers. The incidence of denture stomatitis in some literature has shown the female dominance.[2] Various epidemiological surveys have shown the higher prevalence of condition in those patients who do not clean their dentures daily and used dirty dentures. This might shows the negligence of the clinicians who did not inform their patients about thorough cleaning at the time of insertion of removable prosthesis.[5,6]

There are different factors that play an important role in maintaining the oral hygiene habits such as gender, education, age and social status. Nishi and colleagues investigated the relationships between the quantity of microorganisms adhering to complete dentures and the frequency of use of a denture cleanser.[7] A study conducted in Brazil on complete denture patients about denture hygiene and nocturnal habits revealed that 55.5% patients removed their denture during night time, and 46.87%patients used brushing with toothpaste as a cleaning method.[8]

Shay and its associates highlighted the two approaches for denture cleansing.[9] The removable prosthesis can be cleaned by mechanical and chemical methods. The most familiar mechanical methods used for denture cleansing is use of bush in the presence of cold or hot water. The second is chemical method which includes household bleach (sodium hypochlorite in 1:10 dilution with tap water. Andrucioli and colleagues states that this approach (chemical) was not familiar among patients either due to lack of information, knowledge or non-availability of such products. [10,11,12,8]

Denture cleanliness is essential to prevent malodor, poor esthetics, and the accumulation of plaque/calculus and biofilms. Several denture cleaning methods are clinically used to reduce plaque and biofilms and are generally divided into mechanical and chemical techniques. Mechanical methods include the use of toothbrushes, nail-brushes, magnetic stirrers, agitators, sonic vibrators, and ultrasonic cleansers.[13] The present study aimed to investigate the frequency of denture and denture cleansing habits and its association with denture stomatitis among removable denture wearers.

MATERIALS AND METHODS

This cross-sectional study was conducted among dental patients who visited for their dental treatment in different clinics of Karachi city between the period of January, 2019 to January, 2021. The ethical consent was taken from the private dental practitioners. The patients were also informed about the project and their consent was obtained prior to oral examination. A total of 102 patients wearing removable prosthesis were included in this study. The participants were also asked for filling of a questionnaire containing information like age, sex, occupation, type of denture, denture cleansing habits and techniques. The patients who refuse to give consent were excluded from the study. The data was recoded on Statistical Package for Social Sciences (SPSS) version 23. Different variables were also cross tabulated and p-value was set at 0.05.

RESULTS

Out of sample size of total 102patients, 59(57.8%) were males and 43(42.2%) females participated in the study.The mean age 58.77 and standard deviation SD±11.70. The minimum and maximum age recorded was 29 and 86 years and the male to female ratio was 1.37:1. Distribution of subjects according to the type of denture used is presented in Table 1. Data concerning the denture cleansing habits showed 79(77.5%) patients clean their dentures daily while 23(22.5%) did not clean their dentures on daily basis as shown in Table 2.Young elderly denture wearer maintained better frequency of cleaning as compared to older age group patients.

Table No.1: Distribution of subjects according to type of removable dentures

Types of Denture	n	%
Acrylic partial denture	39	38.2
Acrylic complete denture	46	45.1
Cast partial denture	15	14.7
Flexible denture	2	2.0
Total	102	100%

Table No. 2: Daily denture cleansing habit

Denture cleansing	n (%)
Yes	79(77.5%)
No	23(22.5%)

When data was collected about the method of denture cleansing, majority of patients claimed to maintain with water and this was the most familiar method reported in males 30(55.5%) and females 24(44.3%) for denture cleaning followed by tooth pasteand mouth wash. The use of denture cleansing tablets was the least common type used by both genders. An insignificant finding was observed when gender was cross-tabulated with type of denture cleansing method with a p-value .916 as shown in Table 3.

Another interesting fact that was investigated from patients was that, did their dentist explain the denture cleansing methods and its care at the time of denture insertion. 77(75.4%) of patients agreed that the dentist instructed about denture cleansing methods while 25(24.5%) said no (see figure1). In present study, denture stomatitis was also reported in both genders with a p-value of 0.612 as shown in Table 4.

Table No.3: The methods of denture cleansing

Gender	Types of denture cleansing methods						p-value
	water	Tooth paste	Denture cleansing tablets	Soak in mouthwash	others	Don not clean	
Male	30(55.5%)	6(54.5%)	2(66.6%)	4(80%)	4(66.6%)	13(56.5%)	.916
Females	24(44.4%)	5(45.4%)	1(33.3%)	1(20%)	2(33.3%)	10(43.4%)	
Total	54	11	3	5	6	23	

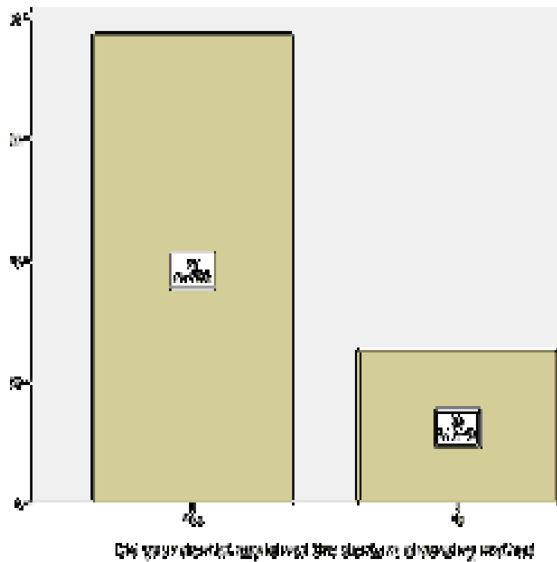

Figure No.1: Dentist explains the patient about denture cleansing methods.

Table No.4: Distribution of denture stomatitis according to gender.

Denture Stomatitis	Gender		Total	P-value
	Male	Female		.612
Present	7	5	12	
Absent	52	38	90	

DISCUSSION

Our study assessed the efficacy of numerous denture cleansing methods and showed water was the most preferred method for denture cleansing followed by tooth paste and mouthwash. Ashishtaru Saha conducted study in India showed most of the patients used water and brush for denture cleaning.[14] Another study by Patel and colleagues on complete denture wearer patient revealed that their patients used brushing as a mechanical method and greater number of patients used only water while brushing their dentures.[15] The chemical methods is also used for denture hygiene maintenance include soaking in a household solution (e.g., diluted sodium hypochlorite) or commercial solutions, and exposure to ozonated water or microwave radiation. Recent scientific developments indicated that micro-waving, ultraviolet C (UVC) light, and ozonated water can be effective in controlling infection. Arita et al suggested that ozonated water may be useful in reducing the number of Candida albicans on denture plates.[13]Cakan and coauthors in their study reported that brushing with toothpaste was the most adopted method of cleaning, followed by soaking and combination of both methods. This results finding was similar to Kulak-Ozkan colleagues study.[16]

Our study findings revealed that water was the principal method employed for cleansing dentures by an overwhelming majority. Application of toothpaste was the second most common method followed by soaking the denture in mouthwash. According to the data of the present study, denture cleansing tablets were the least preferred method of used by patients. This may be due to lack of knowledge and may be the instruction was not given to patients at the time of delivery of dentures. The results of the present study are similar to the findings of another local study conducted on edentulous patient at Rawalpindi that observed that most of the patients maintained denture hygiene with water only (50%). Whereas others used soap with tooth brush with water (22%) tooth paste, water and denture cleansing tablets (8%).[17] A study conducted at Lahore in 2019 reported that most common method used was plain tap water by 100% subjects.[18] Other study by Peracini and colleagues observed in their sample size (58.49%) showed the most frequent method for denture cleaning was immersion in water.[19] Similar type of study by Cakan et al. conducted on denture hygiene among wearers of removable partial denture concluded brushing as the most regular method for cleaning followed by soaking in the solution.[6]Similarly, Barbosa et al. observed 71.3% subjects also used toothbrush along with water. Previous studies have shown that some of the denture wearer experience difficulties in cleaning their prosthesis on the other hand large scale of patients were wearing dirty dentures.[16,20]A survey was conducted in Nizamabad, India reported the older dentures were more dirtier than the newer ones and associated with a higher incidence of denture stomatitis.[20]Some cases of denture stomatitis were also found in present study. Our study findings are in accordance with Indian study.[20]

When asked from patients regarding instruction given by the clinicians. In present study, 77(75.49%) of subjects were given verbal instructions about cleaning of dentures, while 25(24.51%) said no instructions were provided by the dentist. A local study by Mushtaq et al. reported that 57.3% denture wearing patients were provided instructions and 42.7% did not receive any type of instruction from the dentist,[18] This finding are in accordance with our present study. Another study on Brazilian dental patients, 77.5 % declared that they had not given any type of instructions regarding the denture cleaning and the rest of 22.9% instructed about cleaning of dentures.[21] The study by Hoad-red dick and colleagues states that they found significant majority (86.3%) of patients were provided verbal instructions about denture cleansing method.[22]

CONCLUSION

The current study concluded that majority of removable denture wearer did not clean their dentures and remaining natural teeth satisfactorily due to lack knowledge about denture cleansing methods. It is further recommended the clinician should instruct about the use of denture cleansing tablets/solution for denture hygiene maintenance in their routine clinical practice.

Author's Contribution:

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Original Article

Visual Outcomes with Spectacles

Evaluation of Visual Outcomes with Spectacles After Corneal Cross-Linkage Procedure

Pir Salim Mahar[1], Ikramuddin Indhar[1], Israr Ahmed Bhutto[1], Mustafa Kamal Junejo[1], Munawar Hussain[1] and Hina Khan[2]

ABSTRACT

Objective: To evaluate the visual outcome with spectacles after corneal cross linkage (CXL) in Keratoconus patients

Study Design: A prospective experimental study

Place and Duration of Study: This study was conducted at the Cornea clinic, Isra Postgraduate Institute of Ophthalmology, Al-Ibrahim Eye Hospital, Karachi from January 2019 to August 2019.

Materials and Methods: 74 patients with progressive keratoconus of age 12 years to 40 years, central corneal thickness more than 400microns and without prior history of CXL corneal procedure were included in the study. Preoperative assessment was based on history, examination and investigations. Operative procedure was performed and postoperative assessment of visual outcomes and complications were noted.

Results: A highly substantial difference of <0.001 existed between pre-operative and post-operative assessment of patients for Un-Corrected Visual Acuity (UCVA). At 3 months post-operatively, the 6/6 visual acuity was observed in 29.7% of patients with spectacles. A highly significant difference of <0.001 existed between pre-operative and 3rd month post-operative examination for Best Spectacle Corrected Visual Acuity (BSCVA). The mean corneal thickness was440 ± 44.34, 429.44 ± 40.52 and 435.45 ± 43.14 at pre-operatively, 1st month post-operative, and at 3rd month. And this exhibits a statistically significant difference of p<0.001 between them

Conclusion: Considerably enhancement observed in the visual outcome and BSCVA of keratoconus patient treated with corneal cross-linkage process with no complications.

Key Words: Visual Acuity, Keratoconus, Spectacle, Corneal Collagen

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INTRODUCTION

Keratoconus is a bilateral and symmetrical progressive medical condition in which the cornea is focally thinned and protruded, ultimately then escalating to a cone-shaped surface[5]. The prevalence of keratoconus among people of subcontinent (Pakistan, Bangladesh and India) is found to be about 4.4-7.5 times greater than those of Caucasians[1-2]. Male gender has also found to be at higher risk in recently published data[3-4].

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Various risk factors include allergy, atopy, area of origin, connective tissue diseases, Down's syndrome, Leber's congenital amaurosis, eye rubbing along with familial causes[6-7]. Keratoconus presents with decreased vision and altered refractive powers due to disfigurement of the curvature of the corneal surface[8]. Keratoconus morphology has been described as nipple cones, with 5-mm diameter; oval cones, with 5 to 6-mm diameter; and globus cones, with greater than 6-mm diameter, in the literature[9].

In patients with keratoconus, up till now the recent, choice of treatment was rigid contact lens, spectacles or intra-corneal ring segment for improving visual acuity, but none of them altered the cause of disease which led to advancement in disease and lastly needed corneal transplantation. Keratoconus remained one the leading cause of corneal grafts. With the introduction of corneal collagen cross-linking, a decrease or halting of keratoconus progression has been reported[10-11]. Slowing of disease progression has been associated with increase in collagen stability within the corneal[12]. Through the use of keratometric measurements, either with topographer or manual keratometer, progression or dissolution of keratoconus can be measured. The progression occurs upto the third or fourth decade of

life after which the disease usually comes to a standstill[13].

Before beginning the treatment, eye needs to be evaluated fully as in any other ocular condition. The most important diagnostic procedures include corneal topography and tomography which are used to assess corneal steepening, epithelial imaging and examination of the anterior segment. They give real time information regarding both the anterior as well as the posterior surfaces of cornea[14-16].

MATERIALS AND METHODS

After taken an ethical approval of concern body this experimental study was conducted at Isra Post graduate institute of Ophthalmology (Al-Ibrahim eye hospital). The duration of this study was of six months. After taken written informed consent the data was collected at pre-operative and post-operative stages through Non-probability convenient sampling.

Subjects with Progressive keratoconus of ages range 12 to 40 years, Central corneal thickness more than 400microns and without prior history of CXL corneal procedure included while patients with Other corneal progressive ecstatic disorder, Severe corneal scaring or opacification on the clinical basis or history of: attack of acute hydrops concurrent ocular infection sever ocular surface disease like dry eye were excluded in this study.

Total 74 subjects were enrolled. Pre-operative examination included detailed history of patient, detailed ophthalmic examination, and Corneal Tomography was done After that Corneal cross linkage (CXL) procedure was carried out. This process was carried out by operating microscope, CXL UV laser machine, lid speculum, corneal forceps, tying forceps, and blade number 15, Cotton bud, 10 cc syringe.

RESULTS

Among 74 subjects equal gender distribution of mean age 22.41± 6.10 was observed.

Frequency of the eye side operated shown in Table 1

In this study, measures of Un-Corrected Visual Acuity (UCVA) showed a significant difference pre-operatively and 3rd month post-operatively (Table 2). A substantial difference was also observed in pre-operative and post-operative measurement 3rd month of Best Spectacle Corrected Visual Acuity (BSCVA) (Table 3).

Table No.1: Frequency of side of eye operated

Variable		N	%
Eye	Right	39	52.7
	Left	35	47.3

Table-2: Comparison of Best Spectacle Corrected Visual Acuity at pre, 1st and 3rd month post-operative state

Variables		Preoperative		Postoperative 1st month		Postoperative 3rd month		p-Value
		n	%	N	%	n	%	
Best Spectacle Corrected Visual Acuity (BSCVA)	6/60	s	2.7	1	1.4	1	1.4	<0.001
	6/36	9	12.2	6	8.1	2	2.7	
	6/24	11	14.9	6	8.1	2	2.7	
	6/18	8	10.8	15	20.3	18	24.3	
	6/12	5	6.8	7	9.5	10	13.5	
	6/9	16	21.6	22	29.7	19	25.7	
	6/6	23	31.1	17	23.0	22	29.7	

Table No.3: Comparison of un-corrected visual acuity during pre, 1st and 3rd month post-operatively phase.

Variables		Preoperative		Postoperative 1st month		Postoperative 3rd month		p-Value
		n	%	N	%	n	%	
Un Corrected Visual Acuity (UCVA)	1/60	8	10.8	6	8.1	6	8.1	<0.001
	2/60	20	27.0	16	21.6	15	20.3	
	3/60	4	5.4	2	2.7	3	4.1	
	4/60	0	0.0	2	2.7	2	2.7	
	5/60	3	4.1	0	0.0	0	0.0	
	6/60	6	8.1	10	13.5	9	12.2	
	6/36	10	13.5	8	10.8	7	9.5	
	6/24	4	5.4	10	13.5	8	10.8	
	6/18	5	6.8	6	8.1	7	9.5	
	6/12	8	10.8	6	8.1	8	10.8	
	6/9	3	4.1	5	6.8	5	6.8	
	6/6	3	4.1	3	4.1	4	5.4	

A significant difference was observed between pre-operative and 1st month post-operative measurement of Best Correct Visual Acuity with Contact Lenses (BCVACL). At first Keratometric measurement pre-operatively and 1st month post-operatively, a significant difference was reported.

Similarly, in pre-operative and 3rd month post-operatively, a significant difference was reported. At second Keratometric measurement, substantial difference was recorded between pre-operative and 1st month post-operatively as well as pre-operative and 3rd month post-operatively. The maximum keratometric measurement at pre-operative, 1st month post-operative and 3rd month post-operative demonstrated insignificant difference between them. A significant decrease in pre-operative, 1st month post-operative and 3rd month post-operative corneal thickness was reported.

DISCUSSION

In accordance to our study, a study by Wittig-Silva et al conducted on 66 eyes of 49 patients undergoing Corneal Collagen Cross-linking (CXL) due to keratoconus reported a significant difference between maximum Keratometry (of 0.74 diopters) at pre-operative and 3rd month post-operative (p-value 0.004). BSCVA was also reported to improve at 3rd month post-operatively as compared to pre-operative state[17]. Another study conducted by Fadlallah et al, on 16 eyes of 10 patients of keratoconus, a substantial difference of 0.001 was observed in keratometry measured at baseline (50.02 ± 4.07) to keratometry measured at 6th month post-operatively (48.74 ± 4.05). The BCVA improved post-operatively at 6th month as compared to baseline[18]. The above findings were similar to our study although the follow up period in our study was 3 months and in the above study it was 6 months. Wittig-Silva et al, reported in a study on 46 keratoconus eyes undergoing CXL reported a mean decrease in maximum keratometry of 1.20 ± 0.28 diopters at 3rd month post-operatively as compared with baseline, being statistically significant (p-value 0.001). The mean UCVA change at 3rd month from baseline (0.15±0.06) was reported to be significant (p-value 0.009). Similarly mean change in BSCVA improved at 3rd month (0.09±0.03) as compared with baseline, showing a significant p-value of 0.006[19]. Similar results were also reported in the present our study. Keratoconus is typically observed to commence at puberty and progresses till the third or fourth decade of life. Variation in keratoconus progression is seen in-between individuals and usually higher in young patients. The disease tends to stabilize approximately 20 years following initial presentation[20]. Differences of age, genetic makeup, socio-economic background, operative facilities all tend to have an impact on visual outcomes of keratoconus after CXL. In accordance with our study, Raiskup-Wolf et al, in a study with a follow up time of 6 years on 241 patients undergoing CXL for keratoconus, a significant mean improvement of 2.44 D was observed[21]. Similarly, Jankov et al, in another study on 25 patients having a mean age of 28 years, reported a substantial improvement of 2.14 D 6 months after CXL for keratoconus[22]. Likewise, Vinciguerra et al reported a substantial 1.35 D improvement in maximum keratometry after CXL for keratoconus in 28 patients with ages ranging from 24-52 years. The maximum follow up time period was 2 years[23]. In another study by Agrawal et al, on 37 keratoconus patients undergone CXL reported a significant 2.47 D improvement in maximum keratometry after 1 year of follow up[24]. Coskunseven et al in a study on 19 patients having mean age of 22 years reported asubstantial mean improvement of 1.57 D in maximum keratometry after a follow up of 1 year[25]. In a study by Koller et al on 117 patients of keratoconus a significant improvement in mean keratometry post-CXL was observed after 1 year of follow up[26]. El-Raggal in another study on 15 patients of keratoconus having mean age of 26.4 years reported an improvement of 1.63 D 6 months after CXL[27]. Similar to our study, Koller et al, reported a significant improvement of 0.89 D 1 year after CXL in 192 patients of keratoconus having a mean age of 29.3 years[28].

In accordance to our study, Derakhshan et al, in a study on 31 patients having a mean age of 22.3 years with keratoconus reported a substantial mean improvement of 0.65 D at 6 months follow up after CXL[29]. Asri et al reported a significant mean improvement of 0.49 D 1 year after CXL due to keratoconus in 142 patients having a mean age of 24.12 years[30]. In another study by Hersh et al, a substantial mean improvement of 2.0 D was seen in 49 patients undergoing CXL after 1 year of follow up[31]. Viswanathan et al reported in their study on 51 patients of keratoconus followed up for 4 years after CXL, a significant mean improvement of 0.96 D[32]. Age, gender, socio-economic status, genetic makeup, period of follow-up time all tend to effect in visual outcome of patients with keratoconus who have undergone CXL. But overall, all studies have reported improvements in the overall visual outcomes of patients, no matter what differences exist between each study.

CONCLUSION

It is concluded that collagen corneal cross linkage resulted in the considerable enhancements in the visual outcomes of keratoconus patients. Successful improvements were observed for Un-Corrected Visual Acuity and Best Spectacle Corrected Visual Acuity with no complications after the procedure during the study.

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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

Non-Invasive Evaluation of Liver Fibrosis; Diagnostic Performance of Ultrasound Signs

Muhammad Saulat Nawaz[1], Maria Nawaz[1], Hasham Nawaz[1], Syed Jawad Hussain[2], Syed Amir Gilani[3] and Muhammad Usama Faruqui[4]

ABSTRACT

Objective: To assess the diagnostic performance of Ultrasonography in evaluation of liver fibrosis.
Study Design: Prospective / observational study
Place and Duration of Study: This study was conducted at the Nawaz Medicare Hospital, Faisalabad during Jan 2019 to Dec 2020.
Materials and Methods: In this prospective observational study, 130 liver patients, 70 (53.84%) males and 60 (46.15%) females confirmed upon serological examination were included for their Ultrasonography investigations that had already undergone liver biopsy for diagnostic work-up of hepatopathy. Liver nodularity was noted by studying echogenicity and echo pattern. The caudate lobe hypertrophy was measured using 3.5 megahertz transducer at the level of portal vein bifurcation; and Anterior Posterior diameter of the lobe was measured between Inferior vena cava and ligamentum venousum. The portal venous as well as hepatic venous blood flow was recorded in Doppler studies to note vascular index towards the diagnosis of portal hypertension and fibrosis. The performance of various ultrasound signs was measured into different statistical parameters. The written informed consent of every patients was taken before collecting the data for research. The permission of Ethical Committee of the Nawaz Medicare hospital was taken before collecting the data and get publishing in the Medical Journal.
Results: The incidence of liver fibrosis in male patients was 70(53.84%) and in female patients was 60(46.15%). The incidence of Chronic HBV infection was 32(24.24%), in Chronic HCV infection was 93(76.23%) and Alcohol abuse was 5(4.10%). The incidence of fibrosis was present in 76(62.30%) and fibrosis was absent in 54(41.53%). The incidence of fibrotic patients was maximum 29(23.80%) in grade 1 and was minimum 12 (9.80%) in grade 4. The incidence of performance of various ultrasound signs in prediction liver fibrosis was maximum 83% accuracy, 76% sensitivity, 93% specificity in Abnormal Hepatic venous flow and was minimum 37% accuracy, 59% sensitivity, 0% specificity in abnormal vascular index. The incidence of diagnostic performance of the level of ultrasound signs presence in liver patients was 66% accuracy, 63% sensitivity, 72% specificity and 51% accuracy, 21%sentivity, 100% specificity.
Conclusion: The results were of the view that ultrasound might be seen as safe and non-invasive technique against liver biopsy for the diagnosis of liver fibrosis that may be considered accurate and sensitive but highly specific method.

Key Words: Non-invasive evaluation of liver fibrosis, Diffuse parenchymal liver disease, liver ultrasound, ultrasound signs.

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INTRODUCTION

Actual diagnosis of the disease seen straightway treatment procedure on the sick person stopping him from the stress of other unwanted treatments.[1,2]

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Despite the fact liver biopsy is considered to be the reference standard, yet it shows false-negative results in nearly one third of the cases, characterized by a disease rate of three percent and death rate of zero point zero three percent as shown by the data from a large survey[1,2]. For these reasons, non-invasive methods including various Ultrasonography methods have been suggested and tested as a method of detecting liver fibrosis (cirrhosis)quite correctle[1].

Also ultrasound is less expensive, safest, effective first-line testing but insensitive test in evaluating liver and biliary system disease. Nevertheless, authenticity and accuracy of ultrasound findings may be assessed against histology (biopsy) findings to obtain a definite diagnosis and determination of liver disease [3,4].

The objective of this study is to assess the diagnostic performance of various ultrasound signs towards detecting the degree of liver fibrosis against histology findings taken as gold standard.

MATERIALS AND METHODS

In this prospective observational study, 130 liver patients, 70 (53.84%) males and 60 (46.15%) females confirmed upon serological examination were included for their Ultrasonography investigations that had already undergone liver biopsy for diagnostic work-up of hepatopathy. Liver nodularity was noted by studying echogenicity and echo pattern. The caudate lobe hypertrophy was measured using 3.5 megahertz transducer at the level of portal vein bifurcation; and Anterior Posterior diameter of the lobe was measured between Inferior vena cava and ligamentum venousum. The portal venous as well as hepatic venous blood flow was recorded in Doppler studies to note vascular index towards the diagnosis of portal hypertension and fibrosis. The performance of various ultrasound signs was measured into different statistical parameters. The written informed consent of every patients was taken before collecting the data for research. The permission of Ethical Committee of the Nawaz Medicare hospital was taken before collecting the data and get publishing in the Medical Journal.

RESULTS

Table No.I: Gender distribution

Sex	No of Patients	Percentage
Male	70	53.84%
Female	60	46.15%
Total	130	100.00%

The incidence of liver fibrosis in male patients was 70(53.84%) and in female patients was 60(46.15%) as shown in table no 1.

Table No.2: Distribution of causes of liver disease

Category	No of Patients	Percentage
Chronic HBV infection	32	24.24
Chronic HCV infection	93	76.23
Alcohol abuse	5	4.10
Total	130	100.00

The incidence of Chronic HBV infection was 32(24.24%), in Chronic HCV infection was 93(76.23%) and Alcohol abuse was 5(4.10%) as shown in table no 2

Table No.3: Distribution of the patients into present and absent states of fibrosis

Patients Status	No of Patients	Percentage
Fibrosis present	76	62.30
Fibrosis absent	54	41.53
Total	130	100.00

The incidence of fibrosis was present in 76(62.30%) and fibrosis was absent in 54(41.53%) as shown in table no 3.

Table No.4: Distribution of the fibrotic patients into different grades of fibrosis

Grade of Fibrosis	No of Patients	Percentage
1	29	23.80
2	22	18.00
3	13	10.70
4	12	09.80
Total	76	62.30

The incidence of fibrotic patients was maximum 29(23.80%) in grade 1 and was minimum 12 (9.80%) in grade 4 as shown in table no 4.

Table No.5: Diagnostic performance of various ultrasound signs in prediction of liver fibrosis

Ultrasound Signs	Accuracy (%)	Sensitivity (%)	Specificity (%)	Positive Likelihood Ratio	Negative Likelihood Ratio	Positive Predictive Value (%)	Negative Predictive Value (%)
Surface nodularity	53	26	98	12.11	0.75	95	45
Surface lobe hypertrophy	75	62	98	28.45	0.39	98	61
Abnormal Portal venous flow	67	47	100	0.00	0.53	100	53
Abnormal Hepatic venous flow	83	76	93	11.70	0.25	95	70
Abnormal Transverse CL/RL ratio	70	54	96	12.41	0.48	95	56
Abnormal Vascular index	37	59	0	0.59	0.00	49	0

Table No.6: **Diagnostic performance of the level of ultrasound signs presence in the liver patients**

Ultrasound Signs	Accuracy (%)	Sensitivity (%)	Specificity (%)	Positive Likelihood Ratio	Negative Likelihood Ratio	Positive Predictive Value (%)	Negative Predictive Value (%)
At least one Present	66	63	72	2.23	0.51	79	54
All six Present	51	21	100	0.00	0.79	100	43

The incidence of performance of various ultrasound signs in prediction liver fibrosis was maximum 83% accuracy, 76% sensitivity, 93% specificity in Abnormal Hepatic venous flow and was minimum 37% accuracy, 59% sensitivity, 0% specificity in abnormal vascular index as shown in table no 5.

The incidence of diagnostic performance of the level of ultrasound signs presence in liver patients was 66% accuracy, 63% sensitivity, 72% specificity and 51% accuracy, 21%sentivity, 100% specificity as shown in table no 6.

DISCUSSION

The present work judge the role of measured and valid ultrasound signs, as nodule of liver surface, hypertrophy of caudate lobe, abnormal flow of portal vein, abnormal flow of hepatic vein, abnormal ratio of transverse caudate lobe/right lobe, and abnormal vascular index.

The individual data of ultrasound were not having higher accuracy for abnormal vascular index (37%) and liver surface nodularity (53%); the other ultrasound signs showed reasonable diagnostic performance with accuracy ranged from 67% to 83%. As regards sensitivity of the ultrasound data, it also appeared low for certain signs like liver surface nodularity (26%), abnormal portal venous flow (47%) and abnormal transverse caudate lobe/right lobe ratio (54%). However, other sensitivity statistics for remaining signs (59% - 76%) were reasonably good. It is worth mentioning that ultrasound data were found to be highly specific for most of the individual signs, like nodularity liver surface (ninety eight percent), hypertrophy of caudate lobe (ninety eight percent), abnormal floe of portal vein (hundred percent), abnormal flow of hepatic vein (ninety three percent) and abnormal ratio of transverse caudate lobe/right lobe (ninety six), but abnormal vascular index appeared to be a non-specific sign with zero point zero percent specificity for the diagnosis of fibrosis of liver.[5,6,7,8]

Further, accuracy and sensitivity of the presence of at least one sign were considerably and fairly higher, respectively, than the presence of all six signs. Nevertheless, the specificity of the presence of all six signs (100%) appeared to be appreciably higher than that (72%) of at least one sign. Though, all six ultrasound findings were false-positive in only 1 of 51patients with moderate fibrosis (1-2 grade), yet these supported their role in confirmation of the diagnosis of severe fibrosis.[12,13,14,15]

As regards positive likelihood ratio, it was the highest (28.45) for caudate lobe hypertrophy and the lowest (0.00) for abnormal portal venous flow. Whereas, ratios for liver surface nodularity, abnormal hepatic venous flow, abnormal transverse caudate lobe/right lobe ration, abnormal vascular index were 12.11, 11.70, 12.41 and 0.59, respectively. Interestingly to note that nil (0.00) ratio for the presence of all six signs was found against 2.23 for at least one sign present. Whereas, 100% positive predictive value was observed for all six signs present. Overall, the ultrasound findings were sufficiently specific to allow a diagnostic confirmatory strategy[10], thus indicating that a positive result can rule-in the presence of liver fibrosis. On the contrary, the sensitivity of at least one ultrasound findings was comparatively low to support a screening diagnostic strategy, thus, indicating that negative result cannot help rule out the target to diagnose liver fibrosis.[7,8,9,16,17,18]

The caudate and left lobe tended to be relatively less affected by marked by degeneration of cells, inflammation, and fibrous thickening of tissue of liver than the right lobe. This resulted hypertrophy in a small right lobe with left and caudate lobe. The ratios comparing size or value of the caudate lobe with that a shrunken right lobe has been used to diagnose marked by degeneration of cells, inflammation, and fibrous thickening of tissue of liver.[11]

In disease of liver cells, the sinusoids are injured, tear down or restored and the support to flow of portal vein is increased. Whereas portal vein is dilated and portal flow in the end inside out. Flow inside out may be the only finding indicating portal increased blood pressure. In this study, abnormal flow of portal vein was present in thirty six sick persons with fibrosis. However, forty sick persons with fibrosis did not show non-forward portal flow.

Hepatic vascular index helps in diagnosis of marked by degeneration of cells, inflammation, and fibrous thickening of tissue of liver and portal increased blood pressure. In marked by degeneration of cells, inflammation, and fibrous thickening of tissue of liver, the velocity portal vein was decreased and hepatic artery pressure increased. So, index of hepatic vessel decreased. In this study, abnormal hepatic vascular index was present in thirty one sick persons and absent in forty five sick persons with fibrosis, showing it a normal indication.[19,20]

The present findings reflect everyday clinical practice, in so far as the incidence of severe fibrosis (thirty three

percent) was similar to that reported in relating to the branch of medicine which deals with the incidence, distribution, and control of diseases studies[8,10,11]. This study also showed that sixty two point eight percent of sick persons had fibrosis. These findings appeared to be similar with those of some previous studies as cirrhotic, and a relevant subgroup of sick persons has a decompensate clinical status.

CONCLUSION

The results were of the view that ultrasound might be seen as safe and non-invasive technique against liver biopsy for the diagnosis of liver fibrosis that may be considered accurate and sensitive but highly specific method.

Author's Contribution:

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Revisiting Critically:	Muhammad Saulat Nawaz, Maria Nawaz
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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

Abnormal Hemoglobin Identified on High Performance Liquid Chromatography (HPLC) in a Secondary Care Hospital of Karachi

Nadeem Nusrat[1], Furrukh Ali Khan[1], Salman Zafar[2], Muhammad Rizwan[1], Nazia Qamar[3] and Owais Ismail Gadar[3]

ABSTRACT

Objective: To estimate the frequency of abnormal hemoglobin variants in local population.
Study Design: Descriptive / Cross sectional study.
Place and Duration of Study: This study was conducted at the Kutiyana General Hospital, a secondary care hospital in Karachi from January 2020 January 2021.
Materials and Methods: Samples were collected in Kutiyana hospital in EDTA anticoagulant containing tubes and sent to laboratory of a tertiary care university hospital.
Results: Total of 1083 blood samples were analyzed out of which 736(68%) had normal hemoglobin while 347(32%) had abnormal hemoglobin. The frequency of abnormal hemoglobins (Hb) were beta thal trait 18%, beta thal major 9.9%, Hb D trait 1.1%, Hb D disease 0.7 %, S-beta thal 1%, Sickle cell anemia 0.5%, Hb-E trait 0.4%, Sickle cell trait 0.2% Hb D beta thal 0.1 %, SD disease 0.1% and Hb-E disease 0.1%
Conclusion: Abnormal Hbvariants were detected in a significant number of samples. Beta thal trait was the most common abnormal Hb followed by beta thal major and Hb- D trait. Large scale screening studies are required in general population.
Key Words: Hemoglobin (Hb), Thalassemia (thal), Hb-D, Hb. E, HPLC, Sickle cell disease, Hb SD disease

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INTRODUCTION

Hemoglobin (Hb) is a very important and major component of red blood cells. Hb is made up of Haem and globin chains[(1)]. It is responsible for the transport of oxygen and involved in various biochemical reactions in the blood. Normal adult contains three types of hemoglobins in the blood. The main hemoglobinsin adultsare Hb-A which accounts for more than 95 % of entire Hb in circulation while Hb A2 and fetal Hb (Hb-F) contributes a very small fraction. There are also hemoglobins which are present during the embryonic and fetal life of an individual which appear during specific intrauterine periods and then disappear. These are Hb Portland, Gower 1 and 2 and fetal Hb or Hb-F.

All the above mentioned Hemoglobin disappears and only a small fraction of Hb-F remains in adult and persists throughout adult life[(1).] Hb A is composed of two alpha and two beta chains, Hb A2 is composed of two alpha and two delta chains while Hb-F is composed of two alpha and two gamma chains. The genes for alpha chains are present on Chromosome 16 while that of beta, gamma and delta chains are present on chromosome 11[(2).] These genes are genetically acquired and follow simple Mendel's law of transmission in autosomal recessive pattern. Many types of abnormalities can occur in the genetic control and regulation of these genes resulting in the production of abnormal number or quality of globin chains. These mutations can cause abnormalities in transcription and translation processes. Mutations causing deficient production of structurally normal globin chains produce a syndrome called thalassemia[(3)]. It can be alpha, beta, gamma or delta thalassemia or a combination, depending upon the type of globin chain production. Thalassemias are only important clinically if they involve alpha or beta globin chains. In beta thalassemia, if only one allele is involved, then it is called beta thalassemia trait or minor and had high Hb-A2, while if

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both the alleles are involved then it produces the clinical syndrome of beta thalassemia major which is characterized by severe anemia and high Hb-F. The same is the case with alpha chains, producing alpha thalassemia trait and alpha thalassemia major called Hb H disease[(4)].

But if the number of globin chain production is normal but there is a defect in the structure of these chain due to substitution of an amino acid by another amino acid, then it is called hemoglobinopathy. Both thalasemias and hemoglobinopathies have an autosomal mode of transmission. Another abnormality is the presence of high amount of Hb-F in adult life called hereditary persistence of fetal Hb or HPFH, which does not have any clinically significant effect.

There are many naturally occurring and genetically determined variants of Hb and more than 750 have been described uptill now [(5)]. Many of these variants are harmless but some may have serious clinical effects like severe anemia requiring blood transfusions, failure to thrive and severe crippling body pains (2) . But some may be beneficial for the area in which it occurs e.g., Sickle cell disease in tropical and African continent for malariaetc.[(6)]. The main abnormal hemoglobin producing clinical syndromes are sickle cell or Hb-S, Hb-D, E or C. These have autosomal recessive mode of transmission and can present as trait or disease if the alleles are same or in combination. The traits can be Hb-S, CD or E trait while the disease can be homozygous for the same disease like SS, DD, CC or EE or various combination of two different alleles of abnormal hemoglobins like S/D, SC , SE or C/E, D/E etc.[(7)]. Usually, they produce clinical syndromes when both the alleles are abnormal and in various combinations. They can also co-exist with genes of thalassemia and produces various clinical syndromes. The above mentioned abnormal hemoglobins are relatively common in Asian and African countries. One of the reasons may be due to intermarriages which are quiet common in these parts of world especially in Middle east and Indian subcontinent[(8)]. These Hb variants including fetal Hb can be detected by Hb electrophoresis and High-performance liquid chromatography (HPLC). HPLC has an advantage over Hb electrophoresis by a rapid, cost effective, accurate and precise identification and quantitation of the various Hbs. This technique utilizes the principle of cation exchange and gives results in retention time. Each individual Hb has a different retention time. The retention times for Hb A, A2, F, S, D, E, C and Q are 2.43,3.6,1.2,4.5,4.2 3.6, 5.18 and 4.7 minutes respectively.

MATERIALS AND METHODS

It was a descriptive cross-sectional study in the Institute of hematology for a period of one year starting from January 2020 till January 2021. The objective was to find out the frequency of Hb abnormalities in the population. Those samples were included after analysis in the study by non -probability technique who had abnormal Hb or anexcess of fetal Hbafter3-5 ml of whole blood was collected in EDTA tube for all the patients irrespective of age and sex except those with a history of blood transfusion in the past three months, were sent to Hematology laboratory of Dow university hospital, Ojha campus, Karachi for Hb HPLC and Complete blood count (CBC). CBC was done on fully automated Sapphire hematology analyzer while HPLC was done on Fully automatic Akray analyzer. A total of 1083 samples were collected to achieve the objective with a margin of error d = 0.007 and confidence level of 95%. All the data was entered in the computer and analyzed through SPSS 17. Statistical analysis was done and reported as percentages for categorical variables like gender and type and frequency of abnormal Hb variant while means with Standard deviation of =- 1SD was reported for continuous variables like age, Hb, hematocrit, red blood cell count, MCV and MCH.

RESULTS

A total of1248 samples were received from which 165 samples were excluded because of recent blood transfusion history, results were included in the study. n= 736 (68%) males n=260 (35%) females n= (476 (65%), showed normal results while n = 347 (32%), males n=177 (51%) and females n= (170 (49%) had abnormal results with variant or abnormal excess of normal Hb as shown in table 1, the percentage of various abnormalities with male and female percentage are also shown in figure 2.

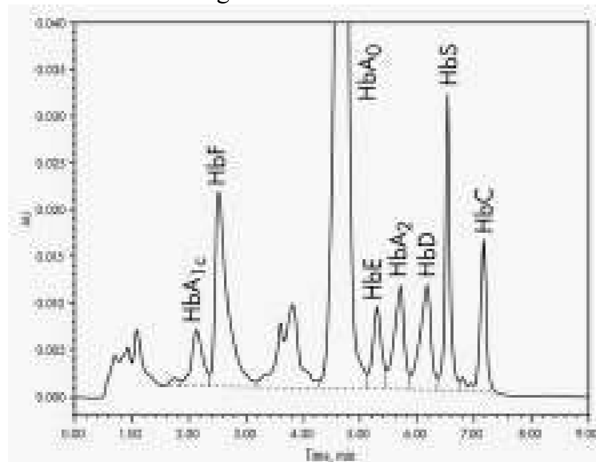

Figure No. 1. Graphic presentation of abnormal hemoglobin by retention time on HPLC

Table No.1: Split up of Frequency of different abnormal hemoglobin variants

Total HPLC =1083 **Normal results**: 736 (68%) **Abnormal results**: 347 (32%)										
Split up of abnormal Hemoglobin results:										
βThal trait	βThal Major	D trait	S/β thal	DD	SS	E trait	S trait	D/β	S/D	EE
195(18%)	107(9.9%)	12(1.1%)	11(1%)	8(7.7%)	5(0.5%)	4(.4%)	2(.2%)	1(.1%)	1(.1%)	1(%)

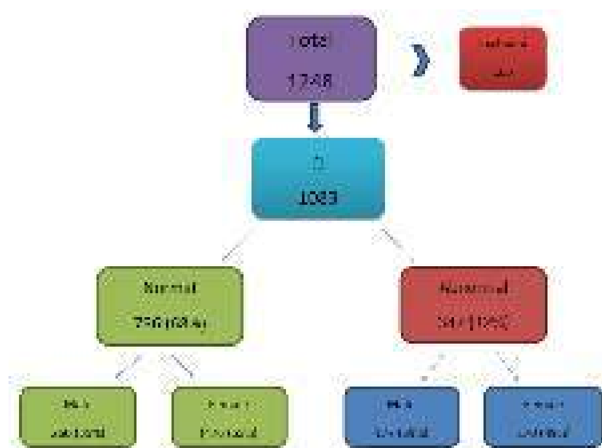

Figure No. 2: Abnormal Hemoglobins detection on routine Hb HPLC

DISCUSSION

HPLC with automation and quantitative ability appears to be a highly accurate and precise technique for direct identification and quantification of both normal and abnormal fractions [7] · Few studies have been done in this part of world and needs more studies to elaborate the importance of HPLC in hematology. In our study the overall frequency of abnormal Hb variants in Pakistan was 32% in comparison to other studies done in India which narrated a frequency of 12.7%. The reason for this difference may be due to very large sample size and a huge population of country[8].In our study beta thalasemia minor was the most common quantitative abnormality of about 18 %, characterized by high Hb A2, which is comparable to other studies done in this and nearby regions 13 % [9], 9 % , although the frequency reported by Khattak in 1992 was as low as 5.34 % [10], but the discrepancy may be due to a different sampling strategy. This trait has a gene frequency of 5-6% in Pakistan[11]) and its identification is of crucial importance in consanguinity marriages especially in this part of world with a possibility of birth of a beta thalasemia major child [12]

The second most common quantitative abnormality was beta thalasemia major 9.9 %, characterized by very high Hb-F, this was in contrast to Shaista et al[3]who reported a frequency of 24.1 % in their study in Karachi. The reason for this discrepancy may be due to the fact that their study was conducted in a hematology center dealing with hemoglobinopathies

The percentage of Hb D trait was 1.1 % of all abnormalities which is in accordance to study conducted by Usman et al showed a frequency of 1.4 % [14] but this was different from study by Shaista et al[11]and the difference again may be due to the reason that it was done in a pure hematology center. Hb D trait is an asymptomatic condition and can present with microcytosis and target cells on peripheral smear morphology[15]

Hb- D disease was detected in 0.7 % cases in our study which is nearly the same as of the study conducted in Peshawar, Pakistan by Khalid Khan[16]which shows a percentage of 01%. This disease presents with hypochromic microcytic picture of red blood cells. It is benign in trait form but presents with severe in homozygous form

Sickle cell anemia and its double heterozygous forms were1.5% of the abnormal Hb in our study which is in accordance with the study conducted by Nazish Hashmi[17]and the identification of this Hb is particularly important as it gives rise to various significant clinical syndromes, the majority of which are clinically significant having a considerable impact on family and burden on health care authorities[18].Hb E in ours study had a frequency of 0.4 % of abnormal hemoglobin which is nearly similar to a study conducted by Bushra Moiz et al which becomes significant when it combines with other abnormal hemoglobin disorders particularly beta thalassemia [19]

The limitation of our study is that not a single case of alpha thalassemia was identified although these cases are relatively common in this part of world. The reason for this that we used only HPLC for abnormal hemoglobin while a study conducted by Vijay Bhat showed that the identification can be made on sequential analyses using BioRad D10 HPLC, Alkaline gel electrophoresis, GPO α THAL-IC strips and the identification of the specific genetic lesion using an α Globin reverse dot blot hybridization assay [20].

CONCLUSION

This is one of the comprehensive studies done in this area by HPLC. Thalassemia minor was a more frequent abnormality amongst all the abnormal results, and these individuals should have genetic counseling regarding pre marriage screening of their spouses, directly or through parents or guardian as this was a non-probability sampling so general population screening needs to done to identify.

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

Pneumonia with Vitamin D Deficiency

Pneumonia is Severe and Complicated in Children with Vitamin D Deficiency

Sayed Ibrar Hussain[1], Munir Akmal Lodhi[1], Syed Zulfiqar Haider[1], Mulazim Husaain[2], Rabia Aziz[1] and Saira Arshad[3]

ABSTRACT

Objective: To determine the frequency of complications of pneumonia in children with vitamin D deficiency.
Study Design: Descriptive cross-sectional study.
Place and Duration of Study: This study was conducted in Pediatric department, Fauji Foundation Hospital, Rawalpindi from November 2017 to April 2018.
Materials and Methods: One hundred patients admitted with clinical diagnosis of pneumonia and confirmed by chest x-ray, were included in the study. All the selected patients were under five years of age and of both sexes. Blood samples were collected from these patients and sent to the hospital's laboratory for serum vitamin D levels.
The patients were divided into two groups, vitamin D deficient and vitamin D sufficient. Vitamin D deficiency was defined as serum vitamin D levels of <30ng/ml and vitamin D sufficient as >30ng/ml. Both groups were observed for the development of complications of pneumonia and were discharged once clinically stable.
Results: Out of 100 patients included in the study, 46 patients had deficient serum Vitamin D and 54 patients had normal Vitamin D levels. When pneumonia complications were compared in the two groups, all the complications were found to be statistically significant, like pleural effusion (p-value 0.036), empyema (p-value 0.045), need for chest intubation (p-value 0.042), need for mechanical ventilation (p-value 0.024) and death (p-value 0.015).
Conclusion: The incidence and severity of the complications was more in patients with vitamin D deficiency as compared to those with normal levels of vitamin D.
Key Words: Vitamin D deficiency, pneumonia, complications.

Citation of article: Hussain SI, Lodhi MA, Haider SZ, Husaain M, Aziz R, Arshad S. Pneumonia is Severe and Complicated in Children with Vitamin D Deficiency. Med Forum 2021;32(3):55-58.

INTRODUCTION

Pneumonia is one of the leading causes of morbidity and mortality in children under five years of age, all over the world. In the developing countries the incidence of pneumonia in this age group is ten times higher. Moreover three fourth of the world's pneumonia deaths in children occur in developing countries. Every year it causes 1.2 million deaths world wide[1].
According to, the Expanded program on immunization, Ministry of National Health Services Government of Pakistan, children under five years of age constitute one fifth of Pakistan's population. The incidence of respiratory infections including pneumonia and its possible complications is 4% in this major segment of our population. This totals to a staggering figure of 15 million episodes of acute respiratory infections every year in this age group[2]. It is therefore of utmost importance that preventable and possibly treatable predisposing factors of pneumonia in Pakistani children be identified.
International researchers have always made efforts to identify predisposing factors of pneumonia and determinants of its severity. One of the most commonly identified factors is vitamin D deficiency[3-8]. Vitamin D has an immune modulator role in innate immunity[9-12]. The occurrence of pneumonia, its severity and possibility of complications has a strong association with Vitamin D deficiency[13-16]. It also affects the response to treatment and outcomes in terms of complications and death[3-18].
We carried out a study to compare the frequency of complications of pneumonia between children who were vitamin D deficient and those with normal Vitamin D levels.

MATERIALS AND METHODS

This study was carried out at the department of Pediatrics, Fauji Foundation Hospital Rawalpindi from

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November 2017 to April 2018. Informed written consent for the collection of data and its use in research publication was taken from the parents. The confidentiality of the patient's data was ensured. Blood samples were collected from one hundred patients of both sexes, less than five years of age, and admitted with radiologically proven pneumonia. The blood samples were sent to the hospital's laboratory for serum vitamin D levels. Vitamin D deficiency was defined as serum vitamin D levels of <30ng/ml and Vitamin D sufficient as level >30ng/ml. The results were recorded individually for each patient. The patients were kept under observation for development of complications of pneumonia like pleural effusion, empyema, need for chest intubation, need for mechanical ventilation and death. The number of patients who fully recovered was also noted.

The data was analyzed on SPSS version 21.0. Data including age, gender, duration of hospital stay, complications, outcome and vitamin D levels was documented. Descriptive variables i.e gender, complications and outcome were described as frequencies and percentages while continuous variables i.e. age, vitamin D levels were described as mean and standard deviation. Comparison between the groups was done using chi-square test and Student T Test. A p-value of < 0.05 was considered significant.

RESULTS

Out of 100 patients included in the study Vitamin D level was found to be below normal in 46 patients, and normal in 54 patients (Table I). 81 (81%) patients recovered fully and 19(19%) developed complications of pneumonia, like pleural effusion, empyema, need for chest intubation, need for mechanical ventilation and death. 15 out of 19 patients who developed complications, had vitamin D levels below normal (78.94%) and 4 had normal vitamin D levels(21.05%). Two patients died and both were vitamin D deficient. Pneumonia complications were compared in the two groups. All complications were encountered more in vitamin D deficient group and the difference was statistically significant, pleural effusion (p-value 0.036), empyema (p-value 0.045), need for chest intubation (p-value 0.042), need for mechanical ventilation (p-value 0.024) and death (p-value 0.015) (Table 2).

Table No.I: Frequency and Percentages of Vitamin-D deficiency

	Frequency	Percent	Valid Percent	Cumulative Percent
Vit-D deficient	46	46.0	46.0	46.0
Normal Vit-D levels	54	54.0	54.0	54.0
Total	100	100.0	100.0	100.0

Table No.2: Complications of pneumonia in patients with below normal and normal Vit-D levels

Complications of Pneumonia	Vit-D deficiency N=	Normal Vit-D levels N=	p-value *
Plural effusion	8%	2%	0.036
Empyema	5%	4%	0.045
Need for a chest intubation	13%	2%	0.042
Need for a ventilating support	3%	0	0.024
Death	2%	0	0.015

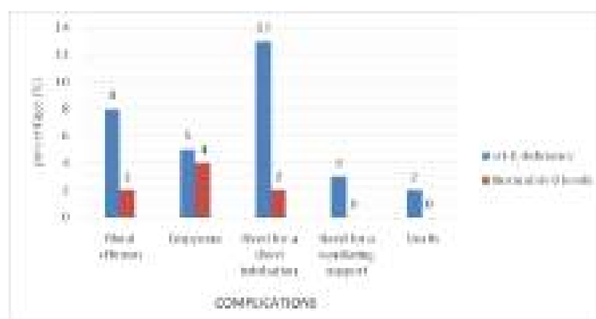

Figure No.1: Complications

DISCUSSION

In the last few decades researchers have developed an increasing interest in non-skeletal role of Vitamin D. It enhances production of human cathelicidin antimicrobial peptide (hCAP-18), and defensin which provide natural resistance against respiratory tract infections[14]. Decreased vitamin D leads to decreased resistance and increased incidence and severity of lower respiratory tract infections[16].

Among 100 patients included in our study, 46% patients had Vitamin D deficiency whereas 54% had normal serum Vitamin D levels. These results are similar to the results of many international studies. In the study published by Oduwole et al 54% of children admitted to hospital with pneumonia had vitamin D defficiency[16]. In Dogan M and colleagues study 47.1% patients with clinical rickets were admitted in hospitals with pneuminia[11] and in Sakka et al study 55.2% patients with pneumonia had vitamin-D deficiency [7].

In our study we observed that vitamin-D deficient children more frequently developed complications of pneumonia like pleural effusion, empyema, need for chest intubation, need for mechanical ventilation and death. This was in keeping with other international studies. In our study, frequency and percentages of empyema thoraces and death were 05 (5%), and 02 (2%) respectively. Whereas in Oduwole et al[16] study the frequency and percentage of empyema thoraces and death was 08(8%).The difference observed between the two studies may be due to comparatively larger sample size of our study which was divided into empyema thoraces and death separately, and secondly the vitamin

D deficiency was more severe in Nigerian children as compared to our patients[16].

In our study 3 (6.5%) patients needed mechanical ventilation. A study carried out by Inamo Y et al and mentions that 57.1% of infants admitted with pneumonia and vitamin D deficiency required oxygen and ventilator support[15]. The difference between the two studies is due to the fact that did not include oxygen supplementation in complications and considered the need for artificial ventilation only.

Some of the international researchers have tried to find out the results of universal supplementation of Vitamin D on decreasing the incidence of pneumonia in malnourished children. A commendable success was not achieved in this regard and no concrete recommendations were made[23,24]. Our patients could also have been studied in this respect but it was beyond the scope of our study.

CONCLUSION

The frequency of the complications was more in vitamin D deficient group in comparison to the vitamin D sufficient group.

Author's Contribution:

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Data Analysis:	Mulazim Husaain, Rabia Aziz, Saira Arshad
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Final Approval of version:	Sayed Ibrar Hussain

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

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Original Article

Vertebral Level of Classical Celiac Trunk

Detection of Vertebral Level of Origin of Classical Celiac Trunk by Using 3D Multidetector Computed Tomography Angiography in Subset of Karachi Population

Rosheena Nabeel Khan[1], Sadaf Shaheen[1], Maria Mohiuddin[2], Nabeel Qutub Khan[3], Tahir Hussain[1] and Abdul Rehman[4]

ABSTRACT

Objective: To evaluate the vertebral level of origin of Celiac Trunk by using Multidetector Computed Tomography Angiography (MDCTA).

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted at the Radiology Department, Ziauddin University Hospital, Clifton Karachi, from March 2017 to August 2017.

Materials and Methods: Total 160 individuals was taken, 75 (46.9%) females and 85 (53.1%) males without any abdominal and vascular diseases who visited to Radiology Department, Ziauddin University Hospital, Clifton Karachi, for Abdominal 3DComputed Tomography Angiography. Subjects who were recruited in this study were referred to radiology department because of different indications like altered bowel habits, abdominal aches, adrenal and renal pathologies. In this study origin of celiac trunk at vertebral level was analyzed in both sexes. SPSS version 20 was used for statistical analysis. Data is showed in frequencies and percentages.

Results: At T12 vertebral level, classical celiac trunk was present in (37%) 49 out of 160 individuals while in 28 (21%) individuals classical celiac trunk found between T12- L1 level. In 24 (18%) individuals classical celiac trunk lies between T11-T12 vertebral levels. Classical celiac trunk in 17 (13%) individuals and 16 (12%) individuals were found at T11 and L1 vertebral levels respectively. There was no association were found between gender (P= 0.592).

Conclusion: The current study reports that classical celiac trunk found at T12 vertebral level in 37% individual and 12% at L1 level. Vertebral level of origin of celiac trunk between gender is not statistically significant.

Key Words: Multidetector computed tomography, anatomic variations, lymph nodes, celiac artery, Interventional.

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INTRODUCTION

Celiac trunk is the first ventral visceral branch of abdominal aorta that arises at vertebral level of T12/L1, just below the aortic hiatus[1, 2]. Variations in the celiac trunk's vertebral level of origin requires individualization as it can influence when dealing with treatment modality of carcinoma of stomach, pancreas & hepatobiliary tree because the draining lymph nodes at risk lie close to the vessel [3-5]

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Interventional radiologists have to be cautious about the celiac trunk's position. In cases where insertion of catheter is necessary, vertebral level of origin of celiac trunk provides it as a landmark for proper localization and positioning of its orifice. When performing therapeutic and diagnostic angiographies, the interventional radiologists should be aware of different branching pattern and variations of celiac trunk[6].

Celiac plexus lie at the vertebral level of origin of celiac trunk which consists of a dense network of ganglia is present on the anterolateral surface of aorta. Patients who present with upper abdominal carcinoma, chronic pancreatitis, agonizing retroperitoneal tumors and chronic abdominal aches are prescribed for celiac plexus block, if they are not responding to narcotic analgesia even in higher doses[7].

Comprehensive radiological and anatomical assessment of level of origin of celiac trunk is essential for the diagnosis of celiac artery compression syndrome

(CACS) or median arcuate ligament (MAL) syndrome[8]. It is a rare disorder which is clinically characterized by postprandial intestinal pain (caused by insufficient blood supply to gastrointestinal organs), vomiting and weight loss [9]. CACS is external compression of celiac trunk by MAL. MAL also compress celiac ganglion[9].

Carcinoma is one of the principal factor of death in Pakistan, and hepatobiliary cancers are the most common malignancies observed in male adults [10]. Gastric carcinoma is the 4th most common malignancy in world [11] and most common cancer in Asia [12] while pancreatic cancer is the 11th most common cancer globally[13]. Lymph node removal is essential for gastric[12] and pancreatic cancers[14]. Identification of vascular variations is important preoperatively because vessels are considered to be the landmark for lymph node removal[12].

It is fundamental to know the level of origin of celiac trunk when dealing with hepatic tumors and liver transplant surgeries. The median arcuate ligament connects the diaphragmatic crura on each side of the aortic hiatus. The median arcuate ligament is found at T12 - L1 level and bridges the crura of the diaphragm just anterior to the aorta[1].The ligament usually passes superior to the origin of the celiac axis[15] (Figure 1 A). A low insertion of median arcuate ligament or high origin of celiac trunk may cause extrinsic compression[3] (Figure 1 B).

Celiac artery compression syndrome (CACS) or Median arcuate ligament (MAL) syndrome has clinical and anatomicalimportance in which celiac axis extrinsic compression may lead to, nausea or vomiting, postprandial epigastric aches and weight loss (often related to "food fear" or fright of pain provoked by eating).Symptoms may be due narrowing and compression of the celiac axis, which leads to compromise in flow of blood. Patients with this syndrome, in most cases need surgery to achieve celiac trunk decompression where detailed anatomy of this region is essential [8] as MAL syndrome is related to level of origin of celiac trunk [16].

Knowledge of level of origin of celiac trunk is important during celiac plexus block and lymph nodes removal during upper abdominal visceral malignancies[7]. To block this plexus, the celiac trunk is a landmark for needle placement[17], so it is important to know the exact anatomic position of celiac trunk in terms of vertebral level of origin for localization of celiac plexus.

MATERIALS AND METHODS

It is a cross-sectional study which was performed from March 2017 to August 2017. Samples were collected through Non-probability convenience sampling technique. A sample size of 138 subjects were calculated by using WHO sample size calculator keeping prevalence at 10%[3,17,18], with bound of error at 5% and confidence level of 95%. Sample size was 160 where, n = z2P(1-P)d2 where n= number of samples, z= standard error of mean, P= prevalence and d= absolute precision. Formula used was N= z2pq/d2, with Prevalence 10%, Precision 0.05 and Confidence level 95%. In this study 160 individual were taken, aged between 20-60 years. Patients who were recruited in this study was referred to the radiology department for abdominal contrast CT (computed tomographic) examination for various indications. Persons having age between 20-60 years (males and females)with serum creatinine level of less than 1.4mg/dl with no hepatobillary pathologies, pancreatic or abdominal vascular lesionswere included in the study. Patients having pancreatic or abdominal vascular lesions, hepatobillary pathologies, or previous history of liver transplants, any history of upper abdominal malignancies and surgeries, abdominal malignancy distorted vascular anatomy, atherosclerosis and vasculitis were excluded. Persons having previous history of any allergic reaction to contrast agents and pregnant women were excluded from this study

This study was conducted after approval from Ethics Review Committee of Ziauddin University. Informed consent was obtained from each participant and a questionnaire based on their demographic profile, including age, gender and medical/surgical history was filled out. MDCTA (multidetector computed tomographic angiography) of abdominal aorta was taken. All CT examinations were performed on a 16-slice MDCT (multidetector computed tomographic) scanner (Toshiba 16 slicer Alexion, Japan) using the automatic dose modulation technique (Real Exposure Control, Toshiba Medical Systems) in the arterial phase. Contrast material was administered. The subject was asked to lie in supine position on the platform of CT scanner and was instructed to hold his/ her breath for 15 seconds and then the scan was initiated. In order to define the arterial pattern, analysis was performed in axial plane with reconstruction techniques in the coronal and sagittal planes in multiplanar reformatting images (MPR), as well as by 3D reconstruction with maximum intensity projection (MIP) and volume rendered (VR) techniques. The slice thickness was taken as 5 mm to evaluate the origin of coeliac trunk and its branches. Images were acquired from the dome of the diaphragm to the pubic symphysis in craniocaudal fashion.

Data was analyzed on SPSS version 20. Frequencies and percentages were calculated for level of origin of coeliac trunk. In order to identify the level of origin of celiac trunk, vertebrae was observed in craniocaudally fashion in coronal, axial and sagittal plane. 12th rib was also considered which is attached to 12th thoracic vertebra in an axial plane(Figure 2).

RESULTS

Vertebral Level of Origin of Celiac Trunk: Classical celiac trunk was found at T12 vertebral level in 49 individuals (37%), between T12-L1 vertebral level in 28 individuals (21%), between T11-T12 vertebral level in 24 individuals (18%), at T11 vertebral level in 17 individuals (13%) and at L1 vertebral level in 16 individuals (12%) (Table 1). No significant association was found between gender (P=0.592) (Table 2).

Table No.1: Frequencies of different level of origin of celiac trunk

Level of origin of classical CT	n (%)
T11	17 (13%)
T12	49 (37 %)
T11 to T12	24 (18%)
T12 to L1	28 (21%)
L1	16 (12%)

CT (Celiac Trunk), n=number of individuals.

Table No.2: Frequencies of different levels of origin of celiac trunk with respect to gender

Level of origin of CT	Males	Females	p-Value
T11	6(35.3)	11(64.7)	0.592
T12	28(57.1)	21(42.9)	
T11 to T12	14(58.3)	10(41.7)	
T12 to L1	15(53.6)	13(46.4)	
L1	9(56.2)	7(43.8)	

CT (Celiac Trunk). p-value ≤ 0.05 was considered significant.

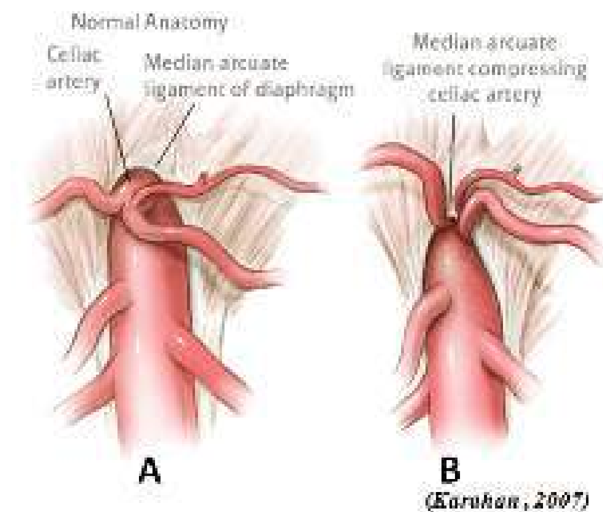

Figure No.1 A: Showing(normal) anatomy of median arcuate ligament (MAL) of diaphragm
B: Showing (abnormal) anatomy of median arcuate ligament compressing celiac trunk.

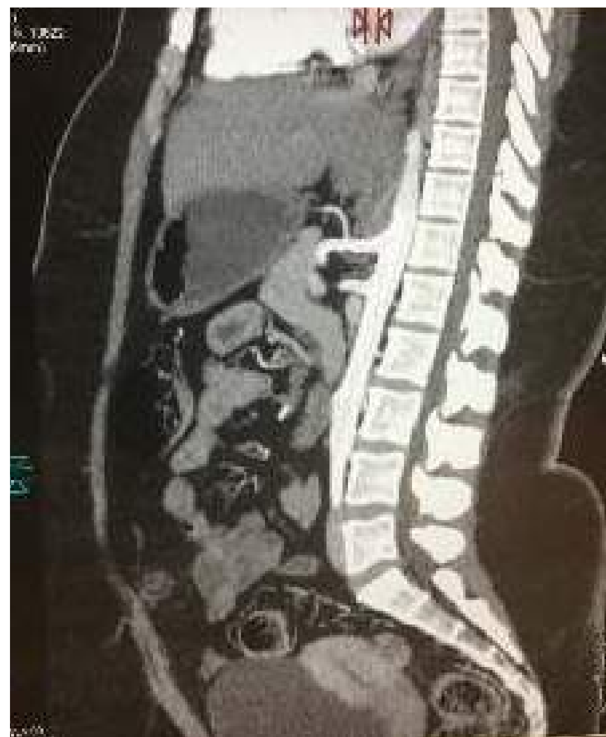

Figure No.2: Showing MDCT scan (MPR) and (MIP) sagittal contrast CT enhanced image depicts Celiac Trunkoriginate at T12 vertebral body.

DISCUSSION

Variation found in vertebral level of origin of celiac trunk needs individualization which can influence when dealing with treatment planning of carcinoma of stomach, pancreas & hepatobiliarytree as the lymph nodes at risk lie adjacent to thisvessel [(3)(4, 5)].

Interventional radiologist should be aware of the position of the celiac trunk as the vertebral level could serve as a landmark for the localization of its orifice in cases where a catheter is to be inserted into it [(6)].

The celiac plexus (CP) is deeply located in the retroperitoneum, overlying the anterolateral surface of the aorta, at the level of the celiac trunk, comprising a dense network of ganglia that varies considerably in size, number and positioning[(7, 18)], between the levels of T12-L1 disc space and L2 [(19)].

Our results showed that classical celiac trunk was found most frequently at T12 vertebral level i.e.in 49 out of 134 individuals [(37%)]. Our results are comparable to other studies conducted in India and New York where the frequency of vertebral level of celiac trunk origin was found to be at T12 level in (40%) and (34%) individuals respectively [(5), (17)]. Study conducted in Turkey also showed most frequent level of origin of celiac trunk at T12 (in 79.8% individuals). However, our results are in contrast with those of studies done on Albanian and Thai population where T12 was found to be the 2nd most frequent level of origin of celiac trunk[(20)].

We found 2nd most frequent level of origin of classical celiac trunk between T12-L1 vertebral level i.e. in 28 out of 134 individuals (21%). Comparable frequencies of celiac trunk origin between T12-L1 in Indian and American population[5].

In the present study 18% individuals showed 3rd most frequent level of origin of classical celiac trunk between T11-T12 intervertebral disc. Similar results have been reported in an Indian study [5].

In the present study 13% individuals showed the level of origin of classic celiac trunk at T11 vertebral level. A study conducted in Turkey showed 3.8% frequency of celiac trunk origin at T11 vertebral level[21]. We could not find any other study reporting the origin of celiac trunk at T11 vertebral level.

In the present study the lowest frequency of level of origin of celiac trunk was found to be at L1 vertebral level in 12% of our sample. An Indian study has also reported comparable frequency of origin of celiac trunk at L1 vertebral level i.e. in 12% individuals[5]. A study conducted on Thai population also showed frequency of L1 vertebral level of celiac trunk origin to be the lowest in their study[22]. However, a previous study from USA showed the level of origin of classical celiac trunk at L1 vertebral level to be the 3rd most frequent level in their study with the frequency of 28.5%[17].

Our results showed that level of origin of celiac trunk did not show any significant difference between gender. A previous study also did not show any significant difference between gender in vertebral level of emergence of celiac trunk [7].

CONCLUSION

This is the first study conducted in Pakistan on vertebral level of origin of Celiac trunk on MDCTA. From the above discussion it has been evident that level of origin of celiac trunk showed variations among different populations and ethnic groups. Our results are closer to Indian population. Thus, we suggest that level of origin of celiac trunk should be evaluated on MDCTA carefully before any laparoscopic procedures.

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

Domestic Violence as a Risk Factor for Hypertensive Disorders of Pregnancy

Sumaira Yasmin, Tanveer Shafqat, Samina Sabir, Wajeeha Syed and Nazia Liaqat

ABSTRACT

Objective: This study aims to determine an association between domestic violence and increased risk of hypertensive disorders of pregnancy in our antenatal patients.

Study Design: Cross Sectional study

Place and Duration of Study: This study was conducted at the Obstetrics and Gynecology department, Lady Reading Hospital, Peshawar from March 2018 to February 2019.

Materials and Methods: Patients were recruited in third trimester of pregnancy by non-probability consecutive sampling after taking consent from ethical review board. Patients with a blood pressure of less than140/90 mmHg were normotensives and those above140/90 mmHg were considered as hypertensive. All patients meeting the inclusion criteria were interviewed for history of domestic violence according to a questionnaire. History of domestic violence encountered during last one year duration from the index pregnancy was obtained from hypertensive as well as normotensive antenatal patients. Type of domestic violence was ascertained whether they encountered physical, verbal (psychological) or sexual violence was recorded on a performa. Descriptive statistical analysis was done. Odds ratio with 95% CI was computed to determine the presence and strength of association between domestic violence and hypertension in pregnancy.

Results: Out of the total 228 patients, 114 were normotensives and 114 women were with hypertension in pregnancy. Both groups were comparable in their demographic characteristics of age, parity and level of education.Domestic violence was found in 55(48.24%) hypertensive patients and 49(42.6%) normotensives showing that percentage of hypertension is higher in those antenatal patients who has experienced domestic violence OR=1.423 (CI=0.844 -2.398).

Conclusion: Domestic violence is to be considered as a potential risk factor for hypertensive disorders of pregnancy. Pregnant women need to be screened for domestic violence so as to minimize the risk of hypertensive disorders of pregnancy.

Key Words: Domestic violence, Pregnancy, Gestational hypertension, Preeclampsia

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INTRODUCTION

Pregnancy, despite being a physiological condition, is a stressful situation with a woman trying to adapt to the physiological changes of pregnancy and also adjusting for psychological stresses of childbearing, childbirth and forthcoming neonatal care with increasing responsibilities.[1,2] Theoretically these stresses may be exaggerated by the additional stress incurred by domestic violence.

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Stress has long been thought to raise the blood pressure giving rise to terminologies like white coat hypertension. Moreover prenatal stressful environment has been implicated in many adverse outcomes through activation of the neuroendocrine hypothalamic–pituitary– adrenal axis with its effects on utero placental blood flow.[3]This utero placental insufficiency has been also implicated in hypertensive disorders of pregnancy.

The Hypertensive disorders of pregnancy have their own inherent risks and complications for both mother and fetus. Hypertensive disorders during pregnancy are classified into four categoriesby the National High Blood Pressure Education Program[4] as chronic hypertension, preeclampsia-eclampsia, preeclampsia superimposed on chronic hypertension and gestational hypertension. Gestational hypertension is referred to as a transient hypertension of pregnancy or chronic hypertension identified in the latter half of pregnancy.[5]

Domestic violence has been associated with maternal morbidities including hypertension .[6]Exposure to domestic violence and especially violence by the intimate partner was reported among ranging from 11% to 44.1% of women in different studies and 23%%

reported it in during the index pregnancy.[7]The use of physical force intentionally to inflict or intend to inflict trauma is the physical violence. Psychological or verbal violence encompasses threats, humiliation, restriction of activities, isolation, name calling, and attempts to frighten· Emotional violence was the most common form as in various studies.[8]Domestic violence may be inflicted either by the intimate partner (husband) or by the relatives in law of the patient with mother in law on top of the list in our society. There may be cases in which violence may be inflicted by other relations. Despite their anguish, women justified, normalized, and tolerated abuse; this acceptance reflected their cultural values and norms.[9]Complications of domestic violence in pregnancy may occur directly by incurring physical trauma to the uterus and the fetus like abruption, pre labor rupture of membranes and even intrauterine death of fetus and also affecting mental health and behavior.[10,11] Studies have revealed that Pregnant women in antenatal settings may be more likely to disclose IPV when screened.[12] keeping these facts in view, screening of domestic violence is imperative during the antenatal visits so as to avoid obstetric complications.

MATERIALS AND METHODS

It was a one year study conducted in Obstetrics and Gynaecology Department, Lady Reading Hospital Peshawar from March 2018 to February 2019.

Patients were recruited in study after taking permission from ethical review board and informed consent. Patients were selectedby non-probability consecutive random sampling with a calculated sample size of 200 by Open Epi. Patients were enrolled in study as per inclusion criteria as under;

Inclusion criteria: Patients in third trimester of pregnancy with singleton foetus. Patients were recruited in third trimester because gestational hypertension usually manifest after twenty weeks of gestation,

Exclusion criteria: Patients with any concomitant co morbidity like diabetes, renal or cardiac diseases were excluded from the study which would impose additional risk for hypertension. Multiple gestations were similarly excluded due to increased risk of preeclamsia and eclampsia which would be a source of bias in the study.

Blood pressures were checked so as to categorize them as normotensive or hypertensive. Blood pressure of 140/90 mmHg was taken as cutoff.[4] Patients Data was collected using a questionnaire (Annexure 1) administered by an interviewer who was a doctor on duty who was already briefed regarding history taking on domestic violence. Patients were interviewed in privacy after informed consent (Annexure 2) and were ensured that all data collected by this questionnaire would be confidential and patients partner or any member of the family cannot access this data. It was to eliminate the fear of the patient so as to reveal correct history of exposure to domestic violence without any hesitancy. History of domestic violence encountered during last one year was obtained. All of these patients were enquired regarding the type of domestic violence whether they encountered physical, verbal or sexual violence.

Our questionnaire was designed on the basis of HITS[13,14] which is a brief screening tool consisting of four questions that asks about physical hurts, insults, threats or screams over the prior 12 months. Questions were asked in accordance with this criterion and specifically for violence encountered in current pregnancy. Any mal treatment by husband or family members was also noted.

Data analysis: Data was analyzed using SPSS version 18 software by calculating odds Ratio for binary estimations and 95%Confidence Interval.

RESULTS

Total patients recruited in study were228. Patients with hypertension(group 1) presenting in third trimester of pregnancy (PIH/Pre-eclampsia/Eclampsia/Chronic HTN) were 114.Number of pregnant ladies in third trimester without hypertension (group 2) were 114 taken as control .The mean gestational age of both the cases and controls was(35.32 ± 3.43).Both the groups were comparable regarding their demographic variables.

Table No.1: Study sociodemographic Characteristics

Age; mean ± S.D		27.83 ± 5.74
Gestational age in weeks; mean ± S.D		35.32 ± 3.43
Education; n (%)	Primary education	59 (25.8)
	Secondary education	60 (26.2)
	Higher education	25 (10.9)
	Uneducated	85 (37.1)
Gravidity; n (%)	Primigravida	77 (33.6)
	Multigravida (G2-G4)	107 (46.7)
	Grand multi-gravida (G5 and above)	45 (19.7)
Type of hypertension; n (%)	Pregnancy induced hypertension	57 (50)
	Pre-eclampsia	26 (22.8)
	Chronic hypertension	20 (17.54)
	Eclampsia	11 (9.6)
Domestic violence		104 (45.4)
Type of domestic violence	verbal violence	87(83.65)
	Physical violence	15(14.4)
	Sexual violence	02(1.9)
Person inflicting violence	Husband/ intimate partner	65 (62.5)
	Relations in law	24 (23.1)
	Not Answered	15 (14.4)

The sociodemographic characteristics of both the groups are shown in (table no 1)Most of the patients

population was uneducated in both the groups 85 (37.1%)followed by those who had completed their primary level of education 59 (25.8%).

History of domestic violence was found in 55(48.24%) hypertensive patients and 49(42.6%) normotensives odds ratio =1.423 (CI= 0.844-2.114). The most common type of violence was psychological (emotional violence) 87(83.65%) and the most common perpetrator of violence was husband in 65 (62.5%)of the cases. (Table 2). The most common hypertensive disorder of pregnancy was pregnancy induced hypertension in 57 patients (50%) followed by Pre-eclampsia in 26 cases (22.8%). Percentage of Hypertension in Participants with or without Domestic Violence (n=114) is depicted in table (3).

Table No.2. Evaluation of study variables among participants with or without domestic violence

Study variables		Domestic violence		P-value
		Yes (n =104)	No (n =124)	
Age; Mean± S.D		28.33 ± 6	27.42 ± 5.51	0.230
Education; n (%)	Primary education	26 (25.0%)	33 (26.4%)	0.090
	Secondary education	31 (29.8%)	54 (43.2%)	
	Higher education	15 (14.4%)	10 (8.0%)	
	Uneducated	32 (30.8%)	28 (22.4%)	
Gravidity; n (%)	Primigravida	44 (42.3%)	33 (26.4%)	0.040
	Multigravida (G2-G4)	43 (41.3%)	64 (51.2%)	
	Grand multigravida (G5 and above)	17 (16.3%)	28 (22.4%)	
Period of gestation in weeks; Mean ± S.D		35.77 ± 3.51	34.94 ± 3.33	0.070
Normotensive; n (%)		49	65	0.391
Hypertensive; n (%)		55	59	
Type of hypertension; n (%)	Pregnancy induced hypertension	26 (47.2%)	31(52.54%)	0.060
	Pre-eclampsia	15 (27.27))	11 (18.64)	
	Eclampsia	5 (9.09)	6(10.16)	
	Chronic hypertension	9 (16.3)	11 (18.6)	

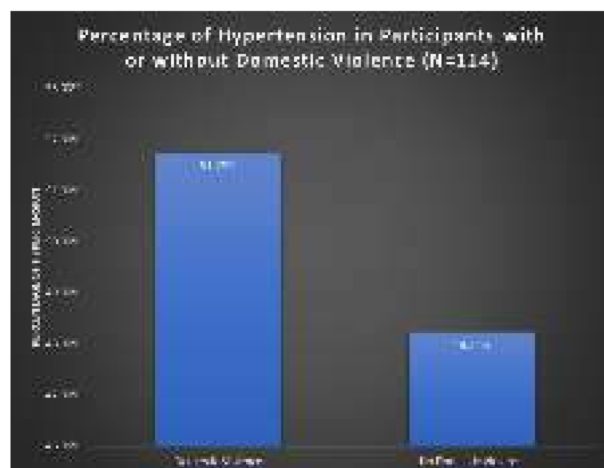
Table No.3: Percentage of Hypertension in Participants with or without Domestic Violence (n=114)

Participants	Normo-tensive; n =114	Hyper-tensive; N=114	Odds ratio	Confi-dence interval
Domestic violence (in last one year from index pregnancy)	49 (42.6%)	59 (51.75%)	1.423	0.844 - 2.398
No domestic violence (in last one year from index pregnancy)	65 (57.39%)	55 (48.24%)		

Annexure 1

Proforma: Domestic Violence as a Risk Factor for Hypertensive Disorders of Pregnancy

Name	
Husbands name	
Age	
Patients' education	
Husbands education	
Obstetric history gp + alive	
Period of gestation	
Previous history of hypertension	
Yes	
No	
Current blood pressure	
Type of hypertension	
Chronic hypertension	
Pregnancy induced hypertension	
Pre-eclampsia	
Eclampsia	
History of Domestic violence	
No	
Yes	
Person inflicting Violence	
Husband	
In laws	
Others	
Type of violence	
Physical(Hurts).	
Verbal(Insults, Threats for harm, Screaming)	
Sexual (unwanted sexual experiences)	



Graph No.1: Percentage of Hypertension in Participants with or without Domestic Violence (n=114)

DISCUSSION

In this study both the groups were comparable regarding their demographic variables. Mean age of patients was28.33 and 27.42years in hypertensive and normotensive group(p value 0.230),respectively. Most of the patients in our study were multigravidas 107 (46.7%). Most of the patient's population were uneducated in both the groups 85 (37.1%) however as secondary outcome measures, a higher percentage of domestic violence was found in uneducated patients (30.8%)as compared to those without domestic violence (22.4%). Women exposed to domestic violence were of younger age, higher parity, and lower educational level as in many studies[15.16]Amuch higher percentage 55.6% of uneducated patients was found in similar studies which also found domestic violence to be more prevalent in rural as compared to urban areas.[17]

Domestic and intimate partner violence is highly prevalent as much as one out of three women were found to have experienced some form of violence in a WHO(worlds health organization)report. Prevalence of violence in our study groups was quite high as it also included those cases who experienced gender based maltreatment by husband or in laws which was more common in our cultural setup. In accordance with many other studies[18,19] conducted on domestic violence, the most common type of violence implicated in our study was psychological or verbal violence in 87 cases (83.65%) followed by physical and sexual violence. Similar prevalence of different types of domestic violence was shown in a study by in which more frequent was psychological violence, followed by physical and sexual violence.

A combination of different types of violence was encountered by quite a number of these women. Once again verbal and physical violence was one of the most common combination of domestic violence. Most of the women who contracted physical violence have been facing psychological and verbal violence for quite a period of time before their physical abuse.

Regarding person inflicting the violence, Intimate partner violence was the commonest in which husband was the person inflicting the violence. Intimate partner violence(IPV) often leading to unintended pregnancies with all its inherent psychological risks.[20,21]Relatives in law were the second most common persons inflicting the violence (24 %).Amongst these the mother in law was answered by many of the participants to be involved in inflicting the violence followed by other relations in law. Culturally and as a custom in this part of the world where the head of the families being the parents in law (specially in those cases where they are the major earning sources) they are supposed to have every right to inflict verbal or psychological influence on their young married descendants whom they are supporting financially. This occurs more so in younger daughters in law with earlier marriages. These factors were also highlighted in a study by Kaye which narrated that staying with co-wife, adolescent pregnancy and the first pregnancy were significantly associated with domestic violence.[22]

About 15 %of the women have not answered the person conflicting the violence which shows rather their extreme fears and psychological status that they did not answer even after ensuring confidentiality. They were unable to alleviate their fears sand were afraid to pinpoint the person inflicting the violence lest they may end up in trouble and may become the victim of violence again .Due to the recall bias some women were not able to recall the episodes of domestic violence in the earlier gestations

While Comparing the Percentage of Hypertension in Participants with or without Domestic Violence (table 3), a higher percentage of hypertension in pregnancy (57.39%)was found in patients who had a history of domestic violence compared to (51.75%) without domestic violence. Odds ratio was1.25 with p-value 0.039(95%CI 0.7-2.114) depicting an increase in the odds of hypertension in patients with a history of violence. A stronger association was found in other studies. A study by Ebrahimi et al[23] which revealed a 2.07-fold increased risk of preeclampsia compared to those who were not exposed to IPV.

Our study findings were also augmented by another study which showed that women with intimate partner violence in a year prior to index pregnancy had an increased risk of high blood pressure or edema.[24] Higher strength of association between domestic violence and preeclampsia in these studies could be due to their larger sample sizes. Thus domestic violence or intimate partner violence poses a risk factor for hypertensive disorders of pregnancy.In a study by Han it was shown that unintended pregnancies and adverse maternal out comes including hypertension and pre-eclampsia were more common in patients with intimate

partner violence.[25]This increased risk was also shown by Bellizzi.[26] specifically in Women of under developed countries having an increased risk of violence, which in turn poses a risk factor for hypertensive complications in pregnant population.

Domestic violence is a potential risk factor for hypertensive disorders of pregnancy therefore it seems prudent to screen women of childbearing age for domestic violence (DV), provide them support and services. These women need proper referral to the intervention services.[16] Proper screening of pregnant women for domestic violence is very important at earlier gestation or even preconception screening may play an important role for a better counselling of patient as well as those involved in inflicting the violence so as to reduce the maternal risk of hypertension.More vigilance in antenatal monitoring of patients with domestic violence will help to reduce and prevent obstetric complications associated with it and achieve the goal of good maternal and fetal outcome of pregnancy.

CONCLUSION

Domestic violence in pregnant women should be considered as a potential risk factor for hypertensive disorders of pregnancy like gestational hypertension, preeclampsia and eclampsia.

Recommendations: Studies on large population may reveal a stronger association of domestic violence with hypertensive disorders of pregnancy. Antenatal patients presenting with a history of domestic violence should be monitored more vigilantly for developing any signs and symptoms of hypertension in pregnancy during their routine antenatal visits

Author's Contribution:

Concept & Design of Study:	Sumaira Yasmin
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Revisiting Critically:	Sumaira Yasmin, Tanveer Shafqat
Final Approval of version:	Sumaira Yasmin

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

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Original Article

Complications of Dengue Fever - Experience in Tertiary Care Hospitals Khyber Pakhtunkhwa

Ziauddin[1], Shah Zeb[2], Rehmanuddin[2], Shahabuddin Zia[3], Muhammad Abbas[2] and Manzoor Hussain[2]

ABSTRACT

Objective: To determine the nature of complications in dengue fever in Khyber Pakhtunkhwa province.
Study Design: Descriptive study.
Place and Duration of Study: This study was conducted at two major tertiary care hospitals of Khyber Pakhtunkhwa from July 2020 to November 2020.
Material and Methods: Demographics, clinical features and laboratory findings were recorded on pre-designed Performa.
Results: Conditions complicating dengue fever included Hepatitis (26.3%), Pneumonia (15.7%),Dengue Hemorrhagic Fever(15.7%).Pleural effusion(10.5%),Multi-organ Failure(10.5%),Renal failure(7.8%),Dengue Shock Syndrome(5.2%),Encephalopathy(2.6%) and Myocarditis(2.6%).
Conclusion: Early diagnosis and treatment is important in order to avoid complications in dengue fever.
Key Words: Dengue, Fever, Complications.

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INTRODUCTION

Dengue is the most important arbovirus disease of humans, in terms of both morbidity and mortality. It was first described by Benjamin Rush in 1780 as “break bone fever.” Since the end of World War II, the incidence of dengue disease has greatly increased.[1]

Dengue fever is a human arbovirus infection caused by a ribonucleic acid (RNA) virus of the Flavivirus genus. There arefour distinctserotypes of dengue viruses causing three different clinical patterns of the disease: dengue fever(DF), dengue hemorrhagic fever(DHF)and dengue shock syndrome. In 1986, the World Health Organization (WHO) defined Dengue hemorrhagic fever as an acute febrile disease caused by one of the four serotypes of dengue viruses and characterized by a bleeding diathesis.

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Dengue shock syndrome is defined as patients having dengue fever with circulatory collapse.[2]

The first case of dengue was reported in Karachi in 1994 and in Lahore in2007.[3] Thereafter the disease spreaded rapidly to other cities. According to official reports, 3305 cases of dengue fever were diagnosed in Karachi in 2010[4]. There was an outbreak of dengue fever in whole country in 2010 during monsoon season. Effective drainage system is the only preventive measure so that no stagnant pools and ponds stay for longer duration after rain[5].

Very little work has been done to determine nature of complications in dengue fever. We aimed at studying the frequency of common complications in our community. This study will help us in providing the latest and updated information regarding the magnitude of common complications of dengue fever in the country. More over the results of this study will be shared with other health professionals and will be used for further research work.

MATERIALS AND METHODS

This descriptive study was conducted from July 2020 to November 2020 at departments of Medicine, Lady Reading hospital Peshawar and Mardan medical complex Mardan. Lday Reading is the oldest and biggest hospital providing health services to the people all over the province as well as receiving patients from Afghanistan.

Data Collection Procedure: Our study was approved by hospital ethical committee. Non- probability consecutive sample technique was used. All patients

with dengue fever, having one or more symptoms and positive dengue specific IgM or dengue NS1 antigen were enrolled. Patients with bleeding diathesis were excluded from the study. Diagnosed cases of liver diseases, cerebral malaria, meningoencephalitis, respiratory tract infection were also excluded. Written inform consent was taken from all the patients.

After taking detailed history, examination and bio data entry, all patients were looked for specific complications. 2 cc blood was taken in oxalated bottle, 2cc blood was taken in citrated bottles and 4 cc blood was collected in gel bottle. Complete blood count including platelets count was performed on CEL-DYN-RUBY (Abbot) machine and even manually with a high power microscope and ncubar's chamber where required. Serum ALT was measured by P-800 Modular Machine and PT, APTT was measured by SYSMEX-CA-500.

All information including age, gender, duration of disease, residence, socioeconomic status was recorded in a pre-designed proforma.

Data Analysis: Statistical analysis was performed at SPSS version 23. Mean and standard deviation were computed for continuous variable like age, duration of disease. Frequency and percentages were measured for categorical variables like gender, residence, socio economic status and common complications.

RESULTS

196 confirmed cases of dengue fever were included in the study. Most of dengue cases 102(52.04%), occurred in district Peshawar, while 94(47.95%) cases were reported from district Mardan. Majority of the cases 117(59.69%) were males and 79(40.30%) were females. Male to female ratio was 1.48:1. Maximum number of cases were in age group of 14-48 years with mean age of 35years + 1.24 SD.In the study 158 (80.61%) patients recovered uneventfully, and 38(19,39%) developed complications of dengue fever. Average period of hospital stay was 6-9 days.

Almost all patients presented with fever 192(97.95%), followed by myalgia130(66.32%), headache98(50.0%), vomiting 98(50.0%), skin rash 96(48.97%).

Hemorrhagic manifestations included bleeding gums in 20(10.20%) and epistaxis in 18 (9.1%) subjects as shown in table 1.

Table No.1:Clinical Features in Dengue Fever

S.N	Clinical Features	Percentage(%)
1	Fever	97.9
2	Myalgia	66
3	Vomiting	50
4	Headache	50
5	Skin rash	48.9
6	Bleeding gums	10
7	Epistaxis	10

As seen in table 02, among the 38 patients who had complications,10 (26.31%) had hepatitis and 04(10.53%) had multiorgan failure. Respiratory complications included Pneumonia in 06 (15.78%) patients and Pleural effusion in 04 (10.52%) cases. Dengue hemorrhagic fever occurred in 06(15.78%) subjects, while 02 (5.26%) suffered from dengue shock syndrome. 03(7.89%) patients were complicated by renal failure during the course of illness and needed renal replacement therapy. Encephalopathy was seen in 02(5.26%) patients and 01(2.63%) had myocarditis with heart failure.

Table No.2: Complications in Dengue Fever

				Peshawar		Mardan	
S.N	**Complications**	**N**	**%**	**n**	**%**	**n**	**%**
1	Hepatitis	10	26.3	06	60	04	40
2	Pneumonia	06	15.7	04	66.6	02	33.3
3	DHF	06	15.7	04	66.6	02	33.3
4	Pleural effusion	04	10.5	02	50	02	50
5	M.O.F	04	10.5	03	75	01	25
6	Renal failure	03	7.8	02	66.6	01	33.3
7	DSS	02	5.2	01	50	01	50
8	Encephalopathy	02	5.2	00	00	02	100
9	Myocarditis	01	2.6	01	100	00	00
Total		38	100	23	60.53	15	39.47

DHF=Dengue Hemorrhagic Fever, MOF=Multi organ failure, DSS=Dengue Shock Syndrome.

DISCUSSION

Dengue is rising as an important and major public health problem of the tropical and sub-tropical areas nowadays. About 50-100 million people are infected every year. The clinical features of dengue fever range from asymptomatic to sever illness that may lead to death if not treated properly. Mortality is less than 1% in self-limiting disease[2].

Male to female ratio in our study was 1.48:1 respectively. Identical pattern was observed by Ashwini Kumar[6] et.al andChandralekha[7] et.al in their respective

studies in North India Dengue outbreak. Clinical profile of dengue showed that fever was the most common presenting symptom (97.9%), followed by myalgia, headache, nausea and vomiting. Similar kind of study from Singapore statistically linked fever, headache, joint pains and skin rashes with dengue fever[8]. It is imperative to note that dengue should be considered in the differential diagnosis of all patients with fever and gastrointestinal symptoms.

Of the 196 subjects,38 cases showed complications. Hepatitis was noted in 10 patients. It could be due to the liver injury caused by the dengue virus. Pleural effusion was seen in 4 cases. Congruent incidence has been reported by Shabbir[9] et al. and Ejaz[10] et al in their studies. Pleural effusion in dengue fever results from plasma leakage into the pleural cavity and is one of the severity markers. All effusions in our patients resolved spontaneously and did not require any additional intervention.

In our study dengue hemorrhagic fever was found in 15.7% patients, while dengue shock syndrome was seen in minority group(5.26%). An exclusive study on dengue hemorrhagic fever and dengue shock syndrome conducted in Peshawar in 2018 reported same results, DHF12%and,DSS 5.0%[11].Our results are also in concordance with the study conducted in Udupi district, Karnataka, India in 2010[6].

One of our study patient developed myocarditis during stay in hospital. Initial rhythm on electrocardiogram was sinus tachycardia followed by atrial fibrillation. Cardiac markers including Troponin I and CK MB were elevated. Pathophysiology of cardiac involvement in dengue fever is not known. However, it has been suggested that it could be due to cytokine mediated immune injury[12-13].

Overall outcome of patient care was good. Six deaths were reported during study period. As a whole mortality was 3.0%.

Present study is limited to only two centers. Different multicenter studies are needed to emphasize the importance of different aspects of dengue fever.

CONCLUSION

Dengue is a devastating disease and can lead to complications if not treated early. Awareness is important and demands the attention of public health care providers.

Author's Contribution:

Concept & Design of Study:	Ziauddin
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Data Analysis:	Shahabuddin Zia, Rehmanuddin
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Final Approval of version:	Ziauddin

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Original Article

Hysterectomy with Diagnosis of Placenta Previa

Incidence of Hysterectomy in Pregnant Women with Diagnosis of Placenta Previa

Munazza Munir[1], Nadia Taj[1], Afshan Mehvish[1], Muhammad Usman[1], Asma Sajid[2] and Saba Javed[1]

ABSTRACT

Objective: To determine Incidence of hysterectomy in pregnant women with diagnosis of placenta previa.
Study Design: A prospective observational study.
Place and Duration of Study: This study was conducted at the Department of obstetrics and gynecology of Nishtar Hospital Multan from 10th August 2019 to 20th May 2020.
Materials and Methods: We included 171 pregnant women who were diagnosed as case of placenta previa. Age, gestational age, parity, height, weight were documented for all the patients. Placenta previa and its grade was confirmed by obstetrical ultrasound. Pfannenstiel incision was made for cesarean section. Decision for hysterectomy was made by the consultant gynecologist with a minimum of 5 years post fellowship experience. Effect modifiers such as age, parity, gestational age, history of cesarean section and, grades of placenta previa were controlled through stratification and post stratification chi-square test was applied and $p \leq 0.05$ was considered statistically significant.
Results: Mean age and weight of all the patients was 31.2 ± 4.1 years and 71.1 ± 13.1 kg, respectively. BMI of the patients was 29.9 ± 5.5 Kg/m^2. Mean gestational age and parity was 38.2 ± 1.5 weeks and 1.6 ± 1.3, respectively. Cesarean section was performed in 59.1% of the patients. Grade III and IV placenta previa was observed in 31% and 18.1% of the patients, respectively. Hysterectomy needed to be done in 29.2% of the patients.
Conclusion: The results of the study show that factors including parity, placental invasion abnormality and past history of cesarean sections determine incidence of hysterectomy in pregnant women diagnosed of placenta previa.
Key Words: Placenta previa, lower segment cesarean section, Hysterectomy

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INTRODUCTION

The fetus gets it's nourishment from the uterus through placenta [1]. Uptake of the nutrients, removal of the waste and the exchange of the gases between fetal and mother blood circulation takes place through placenta. Attachment of the placenta n on decidua which is formed over the endometrium under the influence of progesterone during pregnancy[2]. Decidua is the layer which controls the invasion of the extravillous trophoblasts so that these cells do not cross endometrium and invade myometrium[3].

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Shearing action of the decidua separated the non-contracting placenta from the contracting myometrium. Sometimes, the placenta adheres abnormally to the uterine wall and thus lead to obstetric complications[4]. There is deficiency in the formation of the decidua over the endometrium which leads to the uncontrolled invasion of the uterine myometrium by the extravillous trophoblasts [5].

Placenta previa is a rare complication faced during pregnancy in which the placenta abnormally covers the internal cervical os, which in turn prevents the normal vaginal delivery of products of contraception [6]. Almost 0.3% to 0.8% of the pregnancies are complicated worldwide, and incidence of hysterectomy reaches up to 47.6% in patients with placenta previa[7]. Another study found out the incidence to be 5.71% [11]. There are many factors which predispose to placenta previa; these factors include in fertility treatment, grand multiparity, maternal age >35 years, previous uterine scar, and male gender of the fetus [8].

There is strong association of placenta previa with abnormal placentation leading to preterm delivery [9]. And the incidence of the morbidly adherent placenta previa increase with the number of previous cesarean section. This situation increases the risk of massive bleeding at the time of placental removal and is an

indication for emergency hysterectomy. Intraoperatively, the maternal mortality risk in almost 7% and comorbidities include infection, massive blood transfusion, fistula formation and urologic injuries [10].

Various studies have shown various results regarding the incidence of hysterectomy in patients with placenta previa[7,11]. Moreover, no local researches are available. Therefore, this study was steered to observe the incidence of hysterectomy among the patients with placenta previa and the factors influencing this frequency.

MATERIALS AND METHODS

This prospective observational study was conducted in the Department of obstetrics and gynecology of Nishtar Hospital Multan from 10th August 2019 to 20th May 2020. Ethical approval was obtained from hospital ethical review board. Total 171 diagnosed cases of placenta previa with age range of 18-40 years were selected for the study by non-probability consecutive sampling technique. Sample size was calculated from the reference study [7]. Patients included in the study were with gestational age of minimum 36 weeks or more, and less than 5 parity. Patients with multiple pregnancies, endometriosis and uterine fibroids were excluded from the study.

Written consent was taken from all the patients after explaining the purpose of the study. Age, gestational age, parity, height, weight were documented for all the patients. Placenta previa and its grade was confirmed by obstetrical ultrasound. Pfannenstiel incision was made for cesarean section. Decision for hysterectomy was made by the consultant gynecologist with a minimum of 5 years post fellowship experience. All the data was recorded by the researchers themselves.

All the data were entered in SPSS version 23 and analyzed. Mean and standard deviation were calculated for age, weight, height, BMI, parity, gestational age. Number and percentages were calculated for the grades of placenta previa, past history of cesarean section and hysterectomy. Effect modifiers such as age, parity, gestational age, history of cesarean section and, grades of placenta previa were controlled through stratification and post stratification chi-square test was applied and $p \leq 0.05$ was considered statistically significant.

RESULTS

Mean age and weight of all the patients was 31.2 ± 4.1 years and 71.1 ± 13.1 kg, respectively. BMI of the patients was 29.9 ± 5.5 Kg/m^2. Mean gestational age and parity was 38.2 ± 1.5 weeks and 1.6 ± 1.3, respectively. Cesarean section was performed in 59.1% of the patients. Grade I, II, III and IV placenta previa was observed in 29.2%, 21.6%, 31% and 18.1% of the patients, respectively. Hysterectomy needed to be done in 29.2% of the patients. Table-I

In 18-30 years age group, hysterectomy was done in 27.2 % of the patients while in 31-40 years age group, hysterectomy was done in 31.1 % of the patients (p=0.571). Hysterectomy was done in 30.1% patients of 36-39 weeks gestational age and 25.7% patients of >39 weeks gestational age (p=0.607). Hysterectomy incidence was 24.2% and 46.2% in 0-2 and 3-4 parity groups (p=0.008). No hysterectomy was done in grade I and II placenta previa, while hysterectomy was done in 35.8% and 100% in grade III and IV placenta previa (p<0.001). Hysterectomy was done in 49.5% of the patients with past history of cesarean section while no hysterectomy was done in patients with no previous cesarean sections. Table-2

Table No.1: Details of the patients

Variable	Value
Age (years)	31.2±4.1
Gestational age (weeks)	38.2±1.5
Parity	1.6±1.3
Weight (Kg)	71.1±13.1
Height (m)	1.5±0.1
BMI (Kg/m^2)	29.9±5.5
History of cesarean section	101 (59.1%)
Grades of placenta previa	
I	50 (29.2%)
II	37 (21.6%)
III	53 (31.0%)
IV	31 (18.1%)
Hysterectomy	50 (29.2%)

Data is entered as mean ± standard deviation or number (percentage).

Table-No.2: Stratification of Hysterectomy with respect to groups based on effect modifiers

Effect modifiers		Hysterectomy		p-value
		Yes	No	
Age, years	18-30	22(27.2%)	59(72.8%)	0.571
	31-40	28(31.1%)	62(68.9%)	
Gestational Age (weeks)	36-39	41(30.1%)	95(69.9%)	0.607
	>39	9(25.7%)	26(74.3%)	
Parity	0-2	32(24.2%)	100(75.8%)	0.008
	3-4	18(46.2%)	21(53.8%)	
Grades of Placenta Previa	I	0(0%)	50(100%)	<0.001
	II	0(0%)	37(100%)	
	III	19(35.8%)	34(64.2%)	
	IV	31(100%)	0(0%)	
History of Cesarean Section	Yes	50(49.5%)	51(50.5%)	<0.001
	No	0(0%)	70(100%)	

DISCUSSION

In current study, the frequency of hysterectomy in women with placenta previa was observed to be 29.2%. Nankali et al. 7 observed the incidence of hysterectomy to be 47.6% and Jang et al. 11 observed the incidence to

e 5.71%. The results of our study were in between the results of above mentioned studies.

Grading of placenta previa is done on the basis of the proximity of the lower edge of the placenta to internal cervical os. Combined clinical scoring and ultrasound are considered to help in predicting peripartum complication of placenta previa [12]. When there is massive postpartum hemorrhage after cesarean or vagina delivery, it can be life threatening for the patient and warrants hysterectomy. Though associated with high morbidity, emergency hysterectomy is a lifesaving procedure.

Common risk factors for hysterectomy are placenta accreta and previa. There have been very limited number of studies regarding the evaluation of risk factors leading to hysterectomy [13, 14]. Those studies observed placenta previa, placenta accreta, previous cesarean section and abortion to be the risk factors. Placenta accreta is abnormally invasive placenta which constitutes almost 80% of the placenta previa ceases [15]. Placenta previa prevalence has been reported to be one in 533 deliveries [15].

The frequency of emergency hysterectomy has not changed over past few years. But the change has happened in intraoperative interventions and indications of hysterectomy. Uterine atony has been the most common indication for hysterectomy in the past but abnormal placentation has emerged to be the most common indication for hysterectomy in present, owing to the increased rate of deliveries via cesarean sections 16. Similar findings have been observed in a previous study [17]. Cetin et al. [18] conducted a retrospective study on 18 patients who underwent hysterectomy; and they observed that the most common indication for hysterectomy was abnormalities in the insertion of placenta.

Owolabi et al. [19] conducted a similar study and found out various risk factors warranting hysterectomy. Those risk factors included advanced maternal age, grand multiparity, and obesity, primary or repeated cesarean section. These factors had direct association with hysterectomy. Other risk factors included placenta accreta, placenta previa, uterine atony and severe postpartum hemorrhage.

Vaginal bleeding is observed in the last months of pregnancy in the women diagnosed of placenta previa. This bleeding occurs as the lower segment of the uterus matures for birth. Areas where the placenta is attached to uterine wall through decidua gradually become thin as the full term approaches, and this thinning leads to separation of placenta previa and results in painless vaginal bleeding. Lower uterine segment lacks muscle fibers and thus, is unable to contact in order to prevent bleeding[20]. Jang et al. [21] conducted a study and observed that anteriorly lying placenta previa is associated with higher risk of hysterectomy. Anteriorly lying placenta previa was more common among the patients who has previous history of cesarean section as compared to those with previously normal vaginal deliveries.

CONCLUSION

The results of the study show that factors including parity, placental invasion abnormality and past history of cesarean sections determine the incidence of hysterectomy in the pregnant women diagnosed of placenta previa.

Author's Contribution:

Concept & Design of Study:	Munazza Munir
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Final Approval of version:	Munazza Munir

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Original Article

Thyroid Dysfunction in Women with Primary Subfertility

Sadia Saeed[1], Wadiat Khan[2], Abida Rasheed[3], Sadia Nazir[1], Uzma Shaheen[2] and Asia Fayaz[2]

ABSTRACT

Objective: Calculate and determine the frequency and thyroid dysfunction pattern in women having primary subfertility.

Study Design: Descriptive / Cross sectional study.

Place and Duration of Study: This study was conducted at the outdoor of Gynaecology and Obstetrics department, DG Khan Medical College and Nishtar Hospital, Multan from May 2015 to November 2015.

Materials and Methods: Final approval of investigation was taken by the ethical board of the hospitals. Sampling was done by non-probability consecutive sampling. A 5 cc sample of venous blood was drawn and sent to laboratory evaluation of serum T3, T4 and TSH levels. Version 22 of SPSS was used to analyze the data. Quantitative variables such as age (in years), duration of marriage, BMI, serum T3, T4 and TSH value analyzed in means and standard deviations. Qualitative variables i.e. thyroid dysfunction pattern (hypothyroidism, hyperthyroidism) was calculated in percentage. The effect modifiers like age, BMI and time span of marriage were controlled through stratification. To see the outcome, chi square test was applied after stratification. P value of less or equal to 0.05 was significant for this study.

Results: Total 250 patients were taken in this project. The mean age, duration of marriage, BMI, serum T3, serum T4 and TSH of the patients was 30.38±3.54 years, 4.53±2.22 years, 27.72±3.25 Kg/m^2, 1.82±1.13 ng/ml, 6.39±2.49 ug/dl and 3.90±2.03uIU/ml, respectively. The outcome variables of our study was hypothyroidism and hyperthyroidism. It was seen in n=73 (29.2%) and n=23 (7.6%) patients, respectively. (Table. 2). No association was found between age, duration of marriage and BMI with hypothyroidism and hyperthyroidism.

Conclusion: Conclusion of this project was that hypothyroidism is one of the main and emerging reasons of primary infertility. Proper management of hypothyroidism can result in regain of fertility. Assessment and screening of thyroid status should be part of criteria in infertile patients.

Key Words: Primary subfertility, Hyperthyroidism, Hypothyroidism

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INTRODUCTION

Infertility is a global matter in the health issues of reproduction. After a time of one year of unprotected intercourse done regularly, couple is incapable to conceive baby. Its occurrence is about 10-15% in any population.[1]

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It is obvious to humans and other species to reproduce. However, factors are different fpr different individuals. The term fertility explains the ability of producing offspring, fecundity characterize the possibility for reproduction, prejudiced by age, the aptitude of carrying a pregnancy and then deliver feasible offspring. While, the term infertility is lacking fecundity, and subfertility any form of reduced fertility with stretched time of acquiring conception.[7]

A wide range of cases of decreasing of human fertility has been noticed in the last century. In the developed countries, a major involvement of involuntary childlessness is increasing and as a result female's fertility is decreasing. This tendency will certainly affect the population size as the Total Fertility Rate (TFR) falls below the population substitute level of 2,1 births per couple, but is also the reason of not acquiring the desired no of babies by the couple.

Number of babies or the family size is depended on the age where women start trying to conceive. Fro, last 40 years it has been seen that many devices and medicines are used to late the pregnancy and this is mostly done by educated females. Whilst in the European Union, a rise in the mean age of maternity started in the late

1970s, in Canada from 1970 to 1999. The average age of a female delivering her first baby has been increased from 24.6 to 29.1 years.

A usual age-dependent decrease in fertility exists in both genders, however the lack in fecundity commence is earlier in women and demonstrate a significant variability in which age it actually starts. The increase of maternity is due to an increasing rates of aneuploidy in oocytes[10]concurring with decreasing numbers of elemental follicles and quality of oocytes. This coincides with a significant enhance in the number of couples seeking medical help for involuntary childlessness. Actually, infertility affects approximately 15% of all couples trying to envisage.

Thyroid hormones are vital for normal growth, sexual development and reproductive function. Both hypothyroidism and hyperthyroidism are linked with a variety of changes in reproductive functions together with reproductive depletion, delayed onset of puberty, anovulatory cycles, menstrual disorders, infertility when pregnancy is achieved. Thus thyroid dysfunctions may have a great impact on fertility in females .[2,3] Infertility as well as sub-fertility are due to the Undiagnosed and untreated thyroid disease.

Rijal B, et al, [5] did a study and exhibit 735 primary infertile women. For estimation of thyroid hormones, blood samples were gathered and subjected. Thyroid dysfunction was observed in 25.6% patients and 74.4% were euthyroid. Among those, 7.6% had primary hypothyroidism, 4.2% had primary hyperthyroidism, 12.9% had subclinical thyroid dysfunctions. In the research of Nemade, et al, 52% patients were in euthyroid state, 30% hyperthyroid and 18% hypothyroid patients with infertility.

An epidemiologic study in Pakistan exposed that about 79.8% of the pregnant mothers are having iodine deficiency which predisposes the mothers and their neonates to develop iodine deficiency thyroid disorders.[6] The treatment of thyroid dysfunction may repeal the process of infertility. Although, low or high T3, T4 levels may recognize the patients with hypothyroidism or hyperthyroidism, the identification of subclinical hypo or hyperthyroidism is also significant. Till now there is not any good material published in Pakistan. The earlier studies from different parts of world have shown a great changeability of results. This also provoked me to determine the true frequency of subclinical hypothyroidism among infertile women in our population because thyroid dysfunction is a avoidable disease and is easily reversible by cure. By detection and treatment of thyroid dysfunction, we may be able to improve the results of infertility. Moreover, by knowing the frequency of thyroid dysfunction, we will also be able to determine whether a screening of T3, T4 and TSH could be considered in all the females with infertility or not.

MATERIALS AND METHODS

Descriptive Cross sectional investigation conducted in outdoor of Gynaecology and Obstetrics department,DG Khan Medical College and Nishtar Hospital, Multan. This study was carried out from May 2015 to November 2015. Final approval of investigation was taken by the ethical board of the hospital. Sampling was done by non-probability consecutive sampling. Females with age ranging from 18 years to 40 years having primary subfertility were included in this project. Primary subfertility was defined as the women who failed to conceive a single time during the last two years after unprotected sex. While females with abnormal pelvic ultrasonographic findings (i.e. with adnexal masses, uterine masses or with absence of any of reproductive organs), patients with previous thyroid surgery, history of antithyroid drugs (i.e. propylthiouracil or carbimazol) or lithium and patients who already had received treatment for infertility were excluded from this research. The calculated sample was 250 cases with 2.5 % margin of error, 95 % confidence level taking expected percentage of primary hyperthyroidism i.e. 4.2%.[5]

Total 250 cases fulfilling criteria were registered through Gynaecology OPD of Nishtar Hospital, Multan. Demographic history [including age (in years) was taken. Informed consent was taken through patients. Detailed medical history and clinical examination were carried out. A 5 cc sample of venous blood was drawn and sent to laboratory evaluation of serum T3, T4 and TSH levels. All the laboratory investigations were done by Pathologist who have at least 5 years of experience of performing laboratory investigation. Presence of any condition hypothyroidism or hyperthyroidism will be considered thyroid dysfunction. The normal range of thyroid function tests were taken as T3 = 0.52-1.90 ng/ml, T4 = 4.5-12.0 µg/dl and TSH = 0.4 - 5.4 µIU/ml. All the information was collected on a specially designed proforma.

Version 22 of SPSS was used to analyze the data. Quantitative variables such as age (in years), duration of marriage, BMI, serum T3, T4 and TSH value analyzed in means and standard deviations. Qualitative variables i.e. thyroid dysfunction pattern (hypothyroidism, hyperthyroidism) was calculated in percentage. The effect modifiers like age, BMI and time span of marriage were controlled through stratification. To see the outcome, chi square test was applied after stratification. P value of less or equal to 0.05 was significant for this study.

RESULTS

Total 250 patients were taken in this project. The mean age, duration of marriage, BMI, serum T3, serum T4 and TSH of the patients was 30.38±3.54 years, 4.53±2.22 years, 27.72±3.25 Kg/m^2, 1.82±1.13 ng/ml,

6.39±2.49 ug/dl and 3.90±2.03 uIU/ml, respectively. (Table. I).

The outcome variables of our study was hypothyroidism and hyperthyroidism. It was seen in n=73 (29.2%) and n=23 (7.6%) patients, respectively. (Table. 2). No association was found between age, duration of marriage and BMI with hypothyroidism and hyperthyroidism (Table. 3& 4).

Table No. I: Demographics characteristics of the patients

Demographics	Mean±S.D
Age(years)	30.38±3.54
Duration of marriage (years)	4.53±2.22
BMI (Kg/m²)	27.72±3.25
Serum T3 (ng/ml)	1.82±1.13
Serum T4 (ug/dl)	6.39±2.49
TSH (uIU/ml)	3.90±2.03

Table No.2: Variables

Variable	Presence
Hypothyroidism	
Yes	n=73 (29.2%)
No	n=177 (70.8%)
Hyperthyroidism	
Yes	n=19 (7.6%)
No	n=231 (92.4%)

Table No.3: Association of hypothyroidism with study variables

Variable	Strati-fication	Hypothyroidism		P-value
Age (years)		Yes n=73	No n=177	
	18-30	n=46 (63%)	n=121 (68.4%)	0.414
	31-40	n=27 (37%)	n=56 (31.6%)	
BMI (Kg/m²)	<19	n=10 (13.7%)	n=32 (18.1%)	0.818
	19-25	n=18 (24.7%)	n=42 (23.7%)	
	26-30	n=25 (34.2%)	n=53 (29.9%)	
	>30	n=20 (27.4%)	n=50 (28.2%)	
Duration of Marriage (years)	2-4	n=40 (54.8%)	n=96 (54.2%)	0.936
	>4	n=33 (45.2%)	n=81 (45.8%)	

Table No.4: Association of hyperthyroidism with study variables

Variable	Strati-fication	Hyperthyroidism		P-value
Age (years)		Yes n=19	No n=231	
	18-30	n=6 (31.6%)	n=154 (66.7%)	0.876
	31-40	n=13 (68.4%)	n=77 (33.3%)	
BMI (Kg/m²)	<19	n=3 (15.8%)	n=39 (16.9%)	0.221
	19-25	n=4 (21.1%)	n=56 (24.2%)	
	26-30	n=3 (15.8%)	n=75 (32.5%)	
	>30	n=9 (47.4%)	n=61 (26.4%)	
Duration of Marriage (years)	2-4	n=8 (42.1%)	n=128 (55.4%)	0.263
	>4	n= 11(57.9%)	n=103 (44.6%)	

DISCUSSION

Hypothyroidism, hyperprolactinemia, hyperthyroidism, polycystic ovary syndrome, diabetes mellitus, cushings syndrome and inadequate corpus luteum are ordinary endocrine disorders which cause infertility. But thyroid disorders are very essential because of subclinical hypothyroidism incidence in ovulatory dysfunction females is 11.3%. These hormones play vital role in pregnancy and reproduction. Dysfunction of thyroid is problem in many disorders of reproduction that ranges from infertility, menstrual irregularity to abnormal sexual development.[11,12]

In present investigation serum level of T3 and T4 in infertile women were low while TSH level in serum were significantly raised.Results have similarity with Sharma et al, [13] Lakshmi et al, [14] Rijal et al,[5] Munghate et al.[15] In our study we also experienced that out of 250 primary sub infertile females, Hypothyroidism was seen in 29.2% patients and Hyperthyroidism was seen in 7.6% patients. Close similarity to study done by Sharma et al.[13]

The occurrence of hypothyroidism was initiate to be 26% by Sharma et al,[13] 23.9% by verma etal,[16] 18% by Nemade et al,[17] ,20% by Rijal et al,[5] while in our study this frequency is found to be 29.2%. Hypothyroidism is usually linked with dysfunction of ovulation because of thyroid hormones various interactions with system of reproduction.

It causes more concentration of TRH which in turn results in more release of PRL and TSH by stimulation of pituitary. Hyperprolactinemia has adverse effect on fertility and the reason is disturbed pulsatility of GnRH and therefore function of ovaries.[18] Altering the estrogen metabolism in periphery and lowering the SHBG release peripheral metabolism of estrogen and by decreasing SHBG production is different pathway through which hypothyroidism may contact on fertility.

Overall incidence of hyperthyroidism in our study was found to be 7.6%. This popularity was found to be 8% by Goswami et al,[19] 5.4% by Rijal et al[5]3.1%, by 5.8% by Joshi et al[20] by Sharma et al,[13]. Hyperthyroidism causes alteration in serum sex hormone binding globulin, that results change in concentration of sex hormone. Changes in concentration of sex hormone including LH and FSH results in menstrual disturbances such as oligomenorrhea, hypomenorrhea and anovulation.[21]. Dysfunction of thyroid is an ordinary reason of infertility thatcan be handled by treating the suitable levels of thyroid hormones. This type of infertility can be diagnosed and treatment can assist a lot rather than going for unnecessary battery of hormone assays and costly invasive procedures.

CONCLUSION

Conclusion of this project was that hypothyroidism is one of the main and emerging reason of primary infertility. Proper management of hypothyroidism can result in regain of fertility. Assessment and screening of thyroid status should be part of criteria in infertile patients.

Author's Contribution:

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Original Article

Acute Poison-Related Mortality among Adults at a Tertiary Care Hospital Multan, Pakistan – A Cross Sectional Study

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ABSTRACT

Objective: The objective of the study was to determine the acute poison-related mortality among adults at Nishtar Hospital, Multan.

Study Design: Cross Sectional Study

Place and Duration of Study: This study was conducted at the department of Medicine (unit-I) at Nishtar Hospital, Multan from January 01, 2019 to June 30, 2019.

Materials and Methods: The patients were visited on daily basis to record any death of the patient with the history of poisoning and relative signs and symptoms during hospital stay. The SPSS-21 was used for statistical analysis. Mean and standard deviation were calculated for age, duration of poisoning and hospital stay. Frequency and percentages were calculated for gender, marital status, residence, ethnicity, employment, education, type of poisoning and mortality. Effect modifiers like age, gender, duration of poisoning and type of poisoning were controlled through stratification.

Results: Of these 200 study cases, 66 (33%) were male patients while 134 (67%) were female patients. The mean age of the study cases was 23.4 ± 4.14 years. Of 200 patients, 111 (55.5%) patients were married, 87 (43.5%) were unmarried and 2 (1%) were divorced. Similarly, 70.5%, 22% and 6% patients belonged to Saraiki, Punjabi and Urdu ethnicity, respectively. The residence of 87.5% and 12.5% patients was rural and urban areas, respectively. Of 200 patients, 78% were unemployed while 22% were employed, respectively. Top three type of poisoning were paraphenylenediamine poisoning (51%), organophosphate (14%) and aluminium phosphide (10%). Suicidal, accidental and homicidal cases were 86.5%, 7.5% and 6%, respectively. Thirty-three (16.5%) patients died. Mean duration of poisoning at time of presentation and hospital stay were 7.37 ± 12.66 hours and 3.98 ± 4.06 days, respectively. Significant association between hospital stay and mortality was found ($p = 0.002$).

Conclusion: Poison related mortality is significantly associated with hospital stay. Most of the deaths occurred within first three days of admission.

Key Words: Acute Poisoning, Mortality, Adults, Pakistan

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INTRODUCTION

Poisoning refers to the exposure of a person to a substance which can harm or endanger his/her life[1]. It is an important, growing and unsolved issue worldwide, affecting all age groups, from infants to elderly ones. In 2019, United States reported 2.1 million human poison exposures from its 55 poison control centers[2].

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Similarly, it has been reported that 150,000 people suffered from poisoning in England in 2013-2014[1]. In this context, poisoning is a significant public health problem worldwide, accounting for the loss of over 7.4 million years of healthy life[3]. In Pakistan, poisoning has been reported as second commonest cause of unintentional injuries in the individuals of age five years and above[4]. In this regard, the limited number of poison control centers (PCCs) and unlawful use of chemicals in Pakistan make the situation even worse. Therefore, there is urgent need of building more PCCs in Pakistan.

Poisoning can be intentional or unintentional, homicidal or suicidal and drug adverse effects, depending upon the predisposing circumstances. Suicidal poisoning is an emerging problem all over world, accounting for one million deaths each year[5]. Similarly, five million snake-bites occur each year worldwide, accounting for one million deaths[5]. Morbidity and mortality depends on the type and amount of the substance as well as time of

approach to the health-care facility. In Pakistan, incidence of poisoning is on the rise, which can be attributed to the rapid industrialization, rising number of chemical substances and increasing domestic conflicts[6]. Most common poisoning substances reported in Pakistan include pesticides (e.g. OP preparations, aluminum phosphide), cosmetic agents (e.g. paraphenylenediamine - PPD), soporific agents (e.g. benzodiazepines), alcohol, and other drugs.

Suicidal poisoning, especially chemical poisoning, is an emerging problem is Pakistan due to increasing unemployment and domestic violence. However, in Pakistan, epidemiological data on poisoning is scarce, and is only available in the form of a few case series, single center experience or ICU records[7-10]. A retrospective hospital record-based study on acute poisoning in Karnataka India has reported 15.4% mortality, where corrosives were the leading cause of death[11].

The rationale of the study was to generate a local data regarding mortality in our local population of Southern Punjab among poisoning cases which is an effective addition to the literature regarding poisoning in our population. There was no such study done in our local population on topic of interest, so the results of study generated baseline database of our local population as we routinely treat such patients in our daily practice, so there was a dire need to conduct such study in our population. The data presented in this study will be helpful in future in making policies regarding readily availability of certain poisonous substances at shops, emphasizing the role legislation in this regard.

MATERIALS AND METHODS

A cross sectional study was conducted in the department of medicine (unit-I) at Nishtar Hospital Multan including 200 patients with acute poisoning who presented between January01, 2019 and June30, 2019. Non-probability consecutive sampling technique was used to collect the required sample size. Inclusion criteria included all patients presenting with poisoning, both genders with age from 15 to 60 years. Exclusion criteria included the patients who did not give consent to be included in the research or those with known case of co-morbid conditions such as diabetes, hypertension, heart failure, renal failure, cardiovascular disease as per patients' history and medical record. All the patients fulfilling criteria admitted in the medicine unit-I of Nishtar Hospital Multan were included in the study after having permission from Ethical Committee and Research Department of the institution. Informed consent was taken on a designed consent form in both English and Urdu languages. In the present study mortality was defined as "poison-related death during hospitalization, confirmed by absent pulse and blood pressure, bilateral fixed dilated pupils, absent corneal reflex, absent cardiac and respiratory activity, and straight-lined electrocardiogram (ECG)". Poisoning was defined as "ingestion of any harmful substance (suicidal/homicidal) as reported by the patient".

The demographic data including patient's name, age, gender and duration of poisoning before reaching the hospital were noted. All the patients were given treatment according to standard protocol set by the University. The patients were visited on daily basis and any death of the patient with the history of poisoning and relative signs and symptoms during hospital stay was recorded on the designed proforma. The data was saved in soft as well as in hard copy in file folder, proper coding was done.

The data was entered on daily basis in SPSS-21 for statistical analysis. The quantitative variables like age and duration of poisoning and hospital stay were presented by calculating mean and standard deviation. The qualitative variables like gender, marital status, residence (urban or rural), ethnicity, employment, type of poisoning and mortality were presented by calculating frequency and percentages. Effect modifiers like age, gender, duration of poisoning and type of poisoning were controlled through stratification. Chi square test was applied to calculate P value to check their effect on mortality. P value <0.05 was taken as significant.

RESULTS

Of these 200 study cases, 66 (33%) were male patients while 134 (67%) were female patients with mean age of 23.4 ± 4.14 years. The patients were divided into three age groups: group 1 (15-30 years), group 2 (31-45 years), and group 3 (46-60 years). Maximum patients fall in the group 1 (167, 83.5%), followed by group 2 (29, 14.5%) and group 3 (4, 2%). Demographic characteristics including gender, age, marital status, ethnicity, employment, and residence are described in table 1.

One-hundred and two (51%) patients presented with paraphenylenediamine (black stone or kala pathar) poisoning, followed by organophosphate (28, 14%), aluminium phosphide (20, 10%), acid intake (14, 7%), and bleaching powder (12, 6%) poisoning. Regarding mode of poisoning, suicidal, accidental and homicidal cases were as 173 (86.5%), 15 (7.5%) and 12 (6%), respectively. About 33 (16.5%) patients died while 167 (83.5%) patients were discharged home from the hospital. The overall mean duration of poisoning at time of presentation in ER was recorded 7.37 ± 12.66 hours where the shortest duration of poisoning recorded was 10 minutes while the longest duration of poisoning recorded was 5 days. The overall mean hospital stay of the patients was recorded 3.98 ± 4.06 days where the shortest hospital stay recorded was 3 hours while the longest hospital stay recorded was 20 days. Types of poisoning, modes of poisoning, and mortality can be referred to table 2.

Table No.1: Demographic characteristics of the patients (Total = 200)

Demographic Characteristic	Frequency N (%)
Gender	
Male	66 (33%)
Female	134 (67%)
Age	
15-30 years	167 (83.5%)
31-45 years	29 (14.5%)
46-60 years	4 (2%)
Marital Status	
Married	111 (55.5%)
Unmarried	87 (43.5%)
Divorced	2 (1%)
Ethnicity	
Saraiki	141 (70.5%)
Punjabi	44 (22%)
Urdu	12 (6%)
Others	3 (1.5%)
Employment	
Employed	44 (22%)
Unemployed	156 (78%)
Residence	
Rural	175 (87.5%)
Urban	25 (12.5%)

Table 2: Types of poison, modes of poisoning and mortality (N = 200)

Poison	Frequency, N (%)
Type of Poison	
Paraphenylenediamine	102 (51%)
Organophosphate	28 (14%)
Aluminium phosphide	20 (10%)
Acid Intake	14 (7%)
Bleaching powder	12 (6%)
Rodenticide	9 (4.5%)
Opioid	4 (2%)
Anxiolytic overdose	3 (1.5%)
NSAIDs overdose, Nephthalene balls, Digoxin, Copper sulfate, PPIs, Calotropis, Petrol intake, Insecticide	8 (4%; 0.5%for each poison)
Mode of Poisoning	
Suicidal	173 (86.5%)
Accidental	15 (7.5%)
Homicidal	12 (6%)
Mortality	
Died	33 (16.5%)
Discharged	167 (83.5%)
Abbreviations: NSAIDs = Non-steroidal anti-inflammatory drugs; PPIs = Proton pump inhibitors	

A significant association was reported between type of poison and gender (p= 0.000; table 3). No significant association was found between mortality and age groups (p value = 0.83). Similarly, no significant association was recorded between the gender and mortality (p value = 0.24).No association was found between duration of poisoning at the time of presentation and mortality (p value = 0.81). However, significant association between the hospital stay and mortality was recorded (p value = 0.002; table 4). No significant association between type of poisoning and mortality was recorded (p value = 0.31). Similarly, no significant association between mode of poisoning and mortality (p value = 0.81).

Table No.3: Association between type of poisoning and gender (N = 200)

Type of Poison	Male	Female
Paraphenylene Diamine	22 (21.6%)	80 (78.4%)
Organophosphate	11 (39.3%)	17 (60.7%)
Aluminium Phosphide	12 (60%)	8 (40%)
Acid Intake	5 (37.5%)	9 (64.3%)
Bleaching Powder	1 (8.3%)	11 (91.7%)
Rodenticide	4 (44.4%)	5 (55.6%)
Opioid	4 (100%)	-
Anxiolytic Overdose	3 (100%)	-
NSAIDs Overdose	1 (100%)	-
Nephthalene Balls	-	1 (100%)
Digoxin	-	1 (100%)
$CUSO_4$	1 (100%)	-
Proton Pump Inhibitors	-	1 (100%)
Calotropis	1 (100%)	-
Petrol Intake	1 (100%)	-
Insecticide	-	1 (100%)
p-value = 0.001		

Table No.4: Association between hospital stay and mortality (N = 200)

Mortality	Hospital stay		P value
	Mean	SD	
Yes	48.15	79.96	0.002
No	104.94	98.49	

DISCUSSION

Acute poisoning is a major but preventable healthcare problem worldwide that increases both morbidity and mortality. Globally, millions of people suffer from poisoning every year, leading to loss of millions of years of healthy life. The major findings of the present study were female predominance, young adults, suicidal mode of poisoning, frequent poisoning with PPD, frequent deaths with acid intake and significant association of mortality with the hospital stay. The most common mode of poisoning was suicidal, contributing to more than three quarters ($3/4^{th}$) of all the indoor patients admitted with acute poisoning. The most common poisoning was PPD (kala pathar, black stone

or hair dye) poisoning that contributed to more than half of all the indoor patients admitted with the history poisoning. The overall mortality recorded in the study was 16.5%. The most common death frequency was recorded among the patients with acid intake, followed by PDD, ALP (aluminium phosphide, wheat or rice pill) and bleaching powder. Most of the mortality was recorded within the first three days of hospital stay.

Predominance of gender differs with the type of poisoning. However in terms of overall poison-related mortality, female gender predominates. In this regard, Muhammad et al.[12] studied 103 patients with acute poisoning, reporting the female predominance of 65.1%. In United States, Gumminet al.[13] reported male predominance below 12 years of age while female predominance among teenagers and adults. On the contrary, a retrospective study conducted in Malaysia to evaluate type of poisoning exposure calls reported overall male predominance[14].

One of the most important concerns of poisoning is that it frequently affects the young adults. Muhammad et al.[12] reported majority of the patients with the age group of 21-30 years of age. In this regard, it supports the results of the present study where 83.5% patients had age from 15 to 30 years. Similarly, in China, Zhang et al.[15] reported 52.7% acute poisoning in the age group of 20-39 years.

The most common mode of poisoning is suicidal. Similarly, self-poisoning is the most common method of suicide[16]. Chowdhury et al.[17] reported 68.7%, 15.9% and 15.2% patients with suicidal, accidental and homicidal modes of poisoning, respectively. PPD, OP and ALP poisoning were most commonly encountered in the present study which warrants urgent restriction on the production of these substances.

Poisoning is one of the most common causes of mortality world-wide. Poison-related mortality is high (16.5%) among the indoor patients admitted in the acute poisoning. In rural South India, poison-related mortality has been reported to be 4.30% where highest incidence of poison was recorded among the age group of 21-30 years[18]. Khan et al.[19] studied patients from Pak-NEDS regardless of age. They reported 6.6% mortality among the patients with intentional or unintentional poisoning. It shows that poison-related mortality is high at Nishtar Hospital Multan, warranting development and application of urgent policies and programs in order to reduce the poison-related mortality.

The important finding of the study was the association of mortality with hospital stay. Most of the deaths occurred within first three days of admission. It shows that the patients with poisoning require maximum care during their early days of admission. In this regard, Eddleston et al.[20] reported maximum deaths with 24 hours of admission among those with acute self-poisoning.

The strengths of the present study include its appropriate sample size, prospective design and individual monitoring of the patients. However, the present study is not without limitations. The poisoning cases were included in the study on the basis of history, clinical examination or laboratory results. No confirmatory tests were used to determine the poison used. Therefore, further studies are required at large scale based on confirmatory tests for poisons along with history, clinical examination and laboratory investigations.

CONCLUSION

In conclusion, acute poison-related mortality is high at Nishtar Hospital Multan. Most common victims are young adults and female gender which warrant an urgent evaluation of the causes and circumstances of poisoning. Highly toxic PPD, OP and ALP products should be withdrawn from the market and banned for use. Domestic use of strong acids should be restricted. Particular standard operating procedures (SOPs) should be developed for the management of poisoning cases especially in the early days of poisoning.

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Original Article

Ventricular Arrhythmias in Non-ST Segment Elevation MI

Frequency of Sustained Ventricular Arrhythmias in Non-ST Segment Elevation Myocardial Infarction (STEMI) Patients

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ABSTRACT

Objective: To determine the frequency of sustained ventricular arrhythmias in Non-ST segment elevation myocardial infarction (NSTEMI) patients.

Study Design: Descriptive case series study.

Place and Duration of Study: This study was conducted at the Department of Cardiology, Chaudhry Pervaiz Ellahi Institute of Cardiology, Multan from 10-Aug-2018 to 9-Feb-2019.

Materials and Methods: A total of 170 patients who presented in department of cardiac emergency with Non ST segment myocardial infarction were enrolled in the study. Each Patient with NSTEMI was monitored centrally on cardiac monitor for 3 days and documented sustained ventricular arrhythmias on ECG were further interpreted by senior consultant cardiologist. SPSS version 23 was used for data analysis.

Results: Mean age of patients was 50.66±6.95 years. There were more male patients as compared to female patients i.e. n=140 (82.4%) male patients and n=30 (17.6%) female. There were n=59 (34.7%) patients who were having diabetes mellitus. Similarly n=75 (44.1%) patients who were having hypertension. n=58 (34.1%) patients who were having history of smoking and n=15 (8.8%) patients were having hypercholesterolemia. There were n=16 (9.4%) patients who were having positive family history of coronary artery disease (CAD). Cardio-version was done in n=11 (6.5%) patients of non-STE myocardial infarction. Sustained ventricular arrhythmias (VA) occurred in n=12 (7.1%) patients of non-STEMI.

Conclusion: The incidence of Sustained ventricular arrhythmias in patients of non-ST elevation myocardial infarction (NSTEMI) is 7.1%. The occurrence of such events remains difficult to predict. Cardiac monitoring should be done in all patients to monitor occurrence of such Sustained ventricular arrhythmias in these patients.

Key Words: Non-ST elevation myocardial infarction, ventricular arrhythmia, Cardiac monitoring.

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INTRODUCTION

Ischemic heart disease (IHD) also known as coronary heart disease is a term to define heart problems. It is the leading cause of morbidity and mortality in the world[1]. IHD usually caused by atherosclerosis of coronary arteries. Middle income community is more prevalent o ischemic heart disease and furthermore male gender commonly affected[2].

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About 50% of mortality due to cardiovascular diseases occurs in developing countries. South Asian population contributes 1/4th of developing world and strongly suffered from increase in CVD[3].

Myocardial ischemia caused by atherosclerosis may manifest itself as effort angina, unstable angina and myocardial infarction. Acute myocardial infarction (AMI) is the most life threatening condition and is a serious emergency in hospitals[4]. After admission in hospital mortality rate decreased about 30% in within two decades but is still high. Among cardiac problems non ST segment elevation myocardial infarction (NSTEMI) holds a big role in acute coronary syndrome[5].

Management of these patients is heterogeneous and delayed as compared to approach to STEMI patients[6,7]. But NSTEMI patients should be treated aggressively because of their increased risk of ventricular arrhythmias and other heart rhythm disorders[8]. If ventricular arrhythmia documented admission of patients in cardiac care unit and aggressive treatment strategy with complete cardiac mentoring is necessary[9]. Although incidence and severity of ventricular

arrhythmias is well documented in STEMI patients but they cannot be considered and compared under similar detail of NSTEMI patients because of their increasing incidence rate[10].

As Upon extensive literature surveying it was evident that no such study has been done in Pakistan and very little literature is available from international researchers with different clinical results. So there is a dire need to see current magnitude of the problem in our local population of Southern Punjab in 2018. So we have planned to conduct this study to provide correct baseline database of our local population. This study will be ultimately very rewarding in overall improvement of treatment and management protocols of myocardial infarction in local population of Southern Punjab. So it will help to decrease morbidity and mortality.

MATERIALS AND METHODS

This cross sectional descriptive study was started after ethical approval from hospital ethical committee and study was proceeded at department of Cardiology, Chaudhry Pervaiz Ellahi Institute of Cardiology, Multan from 10-Aug-2018 to 9-Feb-2019. Written informed consent was taken from patients after detailed information of study purpose and confidentiality policy. Patients of both genders, age groups (30 – 65 years) presented with diagnosis of NSTEMI within 24 hours of onset of symptoms were included in study. Patients of STEMI & previous history of infarction, chronic kidney disease (already diagnosed & patients with kidney damage lasting for more than 3 months with glomerular filtration rate (GFR) <60 ml/min/1.73 m^2), liver cirrhosis (already diagnosed & on ultrasound shrunken irregular nodular liver with splenomegaly & Ascites Pregnant ladies, previous history of arterial or venous thrombosis, history of coronary artery bypass surgery and don’t give consent of participation were excluded from the study.

Non-ST elevation myocardial infarction defined by ECG ST-segment depression or prominent T wave inversion and/or positive biomarkers of necrosis (Troponin I > 0.03ng/ml, troponin T >0.02ng/ml, CK-MB > 25U/L) in the absence of ST-segment elevation. Sustained Ventricular arrhythmias (VA) also included sustained ventricular tachycardia and fibrillation. Rhythm disturbance shown showing wide QRS complexes at more than 120/m observed on electrocardiography either on monitor or ECG machine, lasting more than 30 seconds or accompanied by hemodynamic instability requiring cardioversion and originating from the ventricle labeled as ventricular tachycardia. Similarly ventricular Fibrillation (VF) was defined as undulations at irregular intervals with varying amplitude and shape on electrocardiography monitoring without discrete p or QRS complexes that resulted in prompt hemodynamic compromise requiring direct-current (DC) cardioversion. Diabetes: known cases of diabetes which are on either oral hypoglycemic drugs or on insulin for more than 1 year including both controlled (HbA1c ≤6.5%) and uncontrolled diabetes (HbA1c >6.5). Hypertension is known hypertensive patients who are taking any hypertensive treatment for more than 1 year including both controlled (BP<140/90) and uncontrolled (BP>140/90). Smoking: It was deemed as positive if patient has positive history of smoking at least 10 cigarettes per day for the duration of more than 2 years. Hypercholesterolemia: patient with total blood cholesterol level >200mg/dl or >5.2 mmol/L. Family History: It was deemed as positive if any first degree blood relative has ischemic heart disease. Cardioversion: pharmacological (IV Amiodarone 150-300mg) or electrical (DC cardioversione 150-360-J).

After registration of patient all baseline investigations were done including cardiac enzyme. Electro cardiography and echocardiography was done. Each Patient with NSTEMI enrolled in this study is monitored centrally on cardiac monitor for 3 days and documented sustained ventricular arrhythmias (as defined in operational definitions) on ECG was further interpreted by senior consultant cardiologist having more than five years-experience after fellowship to overcome inter-observer bias.

Data analysis was done by using Statistical Package for the Social Sciences (SPSS) version 23.Categorical variables like gender, diabetes, smoking, hypertension, cardioversion and sustained ventricular arrhythmias were calculated and presented in form of frequencies and percentage. Mean and SD was calculated and presented for numerical variables like age. Chi-square test was applied to see association among variables. P value equal or less than 0.05 was considered as significant.

RESULTS

One hundred and seventy patients of non-STEMI were included in this study. Mean age of patients was 50.66±6.95 years. There were more male patients as compared to female patients i.e. n=140 (82.4%) male patients and n=30 (17.6%) female. There were n=59 (34.7%) patients who were having diabetes mellitus and remaining n=111 (65.3%) patients were not having diabetes mellitus. Similarly n=75 (44.1%) patients who were having hypertension while n=95 (55.9%) patients were not having hypertension and n=58 (34.1%) patients who were having history of smoking and n=15 (8.8%) patients were having hypercholesterolemia.

There were n=16 (9.4%) patients who were having positive family history of coronary artery disease (CAD). Cardio-version was done in n=11 (6.5%) patients of non-STE myocardial infarction. While in remaining n=159 (93.5%) no such event occurred that require electrical or pharmacological cardio-version.

Sustained ventricular arrhythmias (VA) occurred in n=12 (7.1%) patients of non-STEMI, while no Sustained ventricular arrhythmia occurred in remaining n=158 (92.9%) patients.

Chi-square was applied to check the association of sustained ventricular arrhythmias with effect modifiers. It was seen that diabetes mellitus (p=0.000), hypertension(p=0.029), smoking(p=0.000), hypercho-lesterolemia(p=0.000), family history of coronary artery disease (p=0.000)and cardio-version(p=0.000)were the risk factors for sustained ventricular arrhythmias. (Table. I).

Table No. I: Association of Sustained Ventricular Arrhythmias with effect modifiers

Variable	Sustained Ventricular Arrhythmias		P-value
	Yes n=12 (7.1%)	No n=158 (92.9%)	
Age	49.91±6.78	50.72±6.98	0.700
Gender			
Male	n=8 (66.7%)	n=132 (83.5%)	0.139
Female	n=4 (33.3%)	n=26 (16.5%)	
Diabetes mellitus	n=10 (83.3%)	n=56 (35.4%)	0.000
Hypertension	n=7 (58.3%)	n=70 (44.3%)	0.029
Smoking	n=5 (41.7%)	n=41 (25.9%)	0.000
Hyper-cholesterolemia	n=11 (91.7%)	n=15 (9.5%)	0.000
Family History of Coronary Artery Disease	n=8 (66.7%)	n=23 (16.5%)	0.000
Cardioversion	n=9 (75.0%)	n=35 (22.2%)	0.000

DISCUSSION

This study was designed to investigate the frequency of sustained ventricular arrhythmias in consecutive NSTEMI patients and study will be a new gate towards modern health initiative for research on cardiac patients. This study will also fulfill the reference gap of regional reports on this topic. Sustained Ventricular arrhythmias (VA) comprehend ventricular fibrillation (VA) or ventricular tachycardia (VT), its incidence is associated with magnitude of autonomic imbalance, ischemia area size reduced left ventricular function, extend of acute strains and myocardial infarction[11]. Patients of non-ST elevation myocardial infarction have 4 folds lower risk of ventricular arrhythmias as compare to ST elevation myocardial infarction. Approximately in 60% of non ST elevation myocardial infarction cases ventricular arrhythmias occurred after 48 hours[12].

Inherited cardiomyopathies like short QT syndrome, long QT syndrome, brugada syndrome, hypertrophic cardiomyopathy, genetic variants and catecholaminergic polymorphic VT increased the incidence of VA[13]. In this study frequency of VA was found 5.29% in non STEMI patients. Numerous studies available on VA in STEMI patients but controversially VA incidence in NSTEMI patients was reported in very few studies. Number of reports suggested early invasive planning on these patients[14].

Main outcomes variable of our study was in hospital VA in NSTEMI patients. Drew et al[15] conducted a sub analysis after collecting data from four clinical trials and reported that incidence of in hospital VA is 2.1% in NSTEMI patients and mean time of 1st arrhythmic event was 78 hours from randomization. History of COPD, presence of ST segment changes at the time of admission were predictors of VA and VA is the strong predictor of in hospital mortality. Another recent analysis was done by McDaniel et al[16] on this topic and reported in hospital incidence of VA in 1.5% of NSTEMI patients and in 50% of them arrhythmias occurred after 48 hours of patients' enrolment. This study concluded that VA associated with number of risk factors like increased platelet count, body weight, heart rate elevated troponin, Kellip class above 1 and angina. In hospital mortality is associated with VA occurred in NSTEMI patients during hospital admission.

A single centered study was conducted by Rahimiet al[17] in 2006 on NSTEMI patients and reported incidence of VA 2.6% and it was not associated with increased death incidence. Early invasive coronary intervention was done in these patients. Similarly Gupta et al[18] reported 4.3% VA cases, 40% of events occurred after 48 hours. Time above 48 hours is the strongest predictor of in hospital mortality within 30 days.

During decision making about treatment plan risk of VA and sudden death because of cardiac events is the main concern. Recent guidelines suggested that aggressive and continuous monitoring of ECG should be done in NSTEMI patients till 48 hours after admission. It was also mentioned in literature that VA may occur at any time during hospitalization. Furthermore, VA consistently associated with in hospital mortality[19].

In this usual practice, admissions of NSTEMI patients in CCU and ICU are showingan increasing clinical challenge. In this emerging conditionlimited availability of invasive therapy and hospital beds is main challenge. So, evaluation of risk at the time of admission of NSTEMI patients problematic for developing triage algorithmic rule to recommend most easy care level[20]..

CONCLUSION

The incidence ofSustained ventricular arrhythmias in patients of non-ST elevation myocardial infarction (NSTEMI) is 5.29%. The occurrence of such events remains difficult to predict. Cardiac monitoring should be done in all patients to monitor occurrence of such Sustained ventricular arrhythmias in these patients.

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

Quality of Life Among Hypodontia Children

Functional Limitations and Impaired Quality of Life Among Hypodontia Children

Qurrat-ul-Ain Fatima[1], Iqra Tariq[1], Mehwish Liaqat[1], Asiyah Ahmad[1], Aman Fatima[2] and Wali Dad[2]

ABSTRACT

Objective: To find out the functional limitations and impaired quality of life among hypodontia children.
Study Design: A cross-sectional comparative study
Place and Duration of Study: This study was conducted at the Outpatient Department of Nishtar Institute of Dentistry, Multan from July 2015 to January 2016.
Materials and Methods: A total of n=80 subjects were included in this study. They were divided into 2 groups' namely hypodontia group and control group. Each group comprised of 40 subjects. Patients and healthy controls were selected by non-probability convenient sampling technique without any gender discrimination. The age of the selected patients and controls was 11-14 years. Oral health was checked by using dental examination instruments. Data were entered and analyzed using SPSS 20. Mean and the standard deviation was given for quantitative variables like age, etc. Frequencies and percentages were given for qualitative variables like gender, oral clinical changes, etc. The data were analyzed by applying the Chi-Square test and Fisher's exact test. The p-value ≤ of 0.05 was considered statistically significant. Urdu Proformas was used for a better understanding of children.
Results: Mean age of the patients suffering from hypodontia was 11.8 (± 0.90) years and the mean age of healthy controls was 11.9 (± 0.98). Out of n=40 patients, about 11(27.5%) presented with pain, 8(20%) with sores in their mouth, about 29(72.5%) presented with bad breath in their mouth, about 35(87.5%) presented with food stuck in their mouth, about 36 (90%) presented with taking a long time to eat, about 36(90%) presented with difficulty in bite, about 35(87.5%) presented with difficulty in words and about 35(87.5%) presented with difficulty in food.The experimental group showed significantly different results (P-value=0.000) in contrast to the control group.
Conclusion: Hypodontia can have a substantial influence on the life of children, causingoral symptoms, functional limitations. Patients suffering from hypodontia were dissatisfied with their appearance and had a poor quality of life as compared to normal individuals.
Key Words: Hypodontia, Functional limitations, Mastication, Quality of life.

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INTRODUCTION

An extremely common and expensive dental anomaly is congenitally missing teeth or as generally referred to as hypodontia. Patients with misplaced teeth can experience malocclusion, periodontal damage, and inadequate growth of the alveolar bone, decreased chewing capacity, incoherentaccent, &further problems in addition to an unfavorable appearance[1].

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Hypodontia may occur individually, in association with a disease, or with other dental abnormalities. If all teeth are missing, it is called exodontia. It usually occurs in hypohidrotic ectodermal dysplasia[2]. In children and adolescents, lower Quality of life is associated with the domain of functional limitations when posterior teeth were missing; while missing anterior teeth exhibited the reduced quality of life on the social and emotional wellbeing domain[3].

The prevalence of hypodontia in the general population is 4.6% with no genderpredilection[4]. Hypodontia is more common in maxillary teeth and then in the mandibular teeth[5]. Most commonly misplaced tooth is the maxillary adjacent incisor (excluding the third molar) exhibiting a prevalence of 2.1% in the general population. The second premolar is absent in 1.9% people[6]. Most of the patients exhibit mild hypodontia with one or two missing teeth. About 10% of patients have four or more missing teeth which are also categorized as mild hypodontia. While less than 1% have six or more teeth missing which is considered a severe form of hypodontia[7].

Hereditary and environmental elements are included in the etiology of hypodontia. It occurs due to limited space in the dental arches, physical barriers, destruction of the dental lamina, and purposeful anomalies of odontogenic epithelial layer or the unable mesenchyme to initiate the process[8, 9].Hypodontia may be passed down as an autosomal dominant, autosomal recessive or x-linked pattern. Different home box DNAs involved in etiology of hypodontia include Msx1, Msx2 and Pax9[10]. The ecological aspects included in the etiology of hypodontia are toxicities, medicines, metabolic, hormonal instabilities& irradiations[11].

All over the world, many investigations have been carried out about the effects of hypodontia on the worth of patients' lives. WHO defined Quality of life as "individual's perception of their position in life in the context of the culture and value systems in which they live and about their goals, expectations, standards, and concerns". Quality of life is complex and multidimensional and is related to Oral health.[12] There is an oral health concept well-defined by Dolan, which states that OH means "a comfortable and functional dentition that allows people to continue in their desired social role." This definition includes OH's role already in the individual's performance in daily activities. Through this, we can see that oral health is not only a medicinal state, but the collective factors such as the daily effect of pain or the level of incapacity & dysfunction. These days, as a vital part of the human body, the importance of the oral cavity is acknowledged. Not only the teeth, but some other structures such as gums, associated tissues, muscles, bones, firm & lenient palate, soft tongue of mucosal tissue, lips, salivary glands, chewing muscles, jaws, and temporomandibular joints are conceptualised.[13]

Quality of life instruments help to assess both the psychosocial and physical effects of the illness. Evaluating influence of the sickness on a person which decrease communication gap among parents, patients, &expertsdentist. It provides information about the effect of adverse oral health problems on the lives of children &their families and gives guidance on the everyday effect of the daily issues of patients.[14]

MATERIALS AND METHODS

A cross-sectional comparative study was conducted in the outpatient department of Nishtar institute of dentistry, Multan, from July 2015 to January 2016. A total of n=80 subjects were included in this study. They were divided into 2 groups' namely hypodontia group and control group.Each group comprised of 40 subjects. Patients and controls were selected by non-probability convenient sampling technique without any gender discrimination. Patients with other chronic ailments and patients with other dentofacial anomalies were excluded from the study. Patients with mental disorders were also excluded from the study. The age of the study subjects was 11-14 years.

Written informed consent was signed by the participants. Socio-demographic information (name, age, gender, occupation, full address, and family history) was obtained by using proforma-I. Urdu Proformas were used for a better understanding of children. Child perception questionnaire proforma II for children aged 11-14 years was given to the children and they were asked to complete the proforma. The Child perception questionnaire (CPQ) comprised of 17 questions allocated into 4 health domains: oral symptoms, functional limitations, emotional well-being, and social well-being. Sufficient time was given to complete the Proformas and it was reassured that the results would remain confidential. Data were entered and analyzed using SPSS 20. Mean and the standard deviation was given for quantitative variables like age, etc. Frequencies and percentages were given for qualitative variables like gender, oral clinical changes, etc. The data were analyzed by applying the Chi-Square test and Fisher's exact test. The p-value ≤ of 0.05 was considered statistically significant.

RESULTS

Out of 80 subjects, n=36 (45%) were males while n=44 (55%) were females. Regarding experimental group consisting of n=40 subjects, n=19 (47.5%) were males while n=21 (52.5%) were females. Whereas, in control group comprising n=40 individuals, n=17 (42.5%) were males while n=23 (57.5%) were females. Overall mean age of our study cases 12.6 years with a range of 11 to 14 years.The mean age of the patients suffering from hypodontia was 11.86± 0.90 years and the mean age of healthy controls was 11.9± 0.98.

Out of n=40 subjects in experimental group, central incisor was missing in n=5 (12.6%), lateral incisor was missing in n=20 (50%), second premolar in n=1 (2.6%), both lateral incisors in n=2 (5%), central and lateral incisor in n=10 (25%), lateral incisor and canine in n=2 (5%).

Regarding pain (CPQ), in experimental group n=0 subjects presented with no pain, n=0 with once or twice pain, n=29 (72.5%) with often pain and n=11 (27.5%) with poor health. In control group, subjects presented with no pain, n=36 (90%), with once or twice pain, n=4 (10%), sometimes, n=0 and with often pain n=0.

The experimental group showed significantly different results (P-value=0.000) in contrast to the control group.Regarding sores in subject's mouth (CPQ), experimental group showed statistically significant results (p-value =0.000) as compared to control group.Bad breath from subject's mouth,food stuck in patient's mouth,took longer time for eating,difficulty in words and biteexperimental group showed difficulty in bitestatistically significant results (p-value=.000), (p-value=.000), (p-value=.000), (p-value=.000) and (p-

value=.000)respectively were observed in experimental group as compared to control group.(Table-1).

Table No.1: Comparison of child perception questionnaire between patients suffering with hypodontia and healthy controls

Group	Never	Sometimes	Often	Everyday	Total	p-value
CPQ Pain in Mouth						
Patients suffering with hypodontia	0 (0%)	29(72.5%)	11 (27.5%)	0 (0 %)	40 (100%)	**< 0.001**
Healthy Controls	36 (90%)	4 (10%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Sores in Mouth						
Patients suffering with hypodontia	2 (5%)	30 (75%)	8 (20%)	0 (0%)	40 (100%)	**< 0.001**
Healthy Controls	38 (95%)	2 (5%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Bad Breath From Mouth						
Patients suffering with hypodontia	0 (0%)	11 (27.5%)	29 (72.5%)	0 (0%)	40 (100%)	**< 0.001**
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Food Stuck in Mouth						
Patients suffering with hypodontia	0 (0%)	0 (0%)	35 (87.5%)	5 (12.5%)	40 (100%)	**< 0.001**
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Taking Longer Time to Eat						
Patients suffering with hypodontia	0 (0%)	0 (0%)	36 (90.0%)	4 (10.0%)	40 (100%)	**< 0.001**
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Difficulty in Bite						
Patients suffering with hypodontia	0 (0%)	0 (0%)	36 (90%)	4 (10%)	40 (100%)	**< 0.001**
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Difficulty in Words						
Patients suffering with hypodontia	0 (0%)	1 (2.5%)	35 (87.5%)	4 (10%)	40 (100%)	**< 0.001**
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Difficulty in Food						
Patients suffering with hypodontia	0 (0%)	1 (2.5%)	35 (87.5%)	4 (10.0%)	40 (100%)	**< 0.001**
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	

DISCUSSION

This cross-sectional comparative study was conducted to find out the functional limitations and impaired quality of life among hypodontia children. The results of our study were quite comparable with the study done by Sheena Kotecha and colleagues in Birmingham in 2011. Their results showed that a mean age of 12.6 years with a range of 11 to 14 years[11].Another study performed by Turner and his colleagues in 2014 reported that the mean age of their patients was 13 years[15].

A study performed by Al-Ani and his colleagues in 2017 showed similar results to our study. According to their results, patients suffering from hypodontia experience great difficulty in mastication due to a reduced occlusal table. In a current cross-sectional study, it was found that patients suffering from hypodontia have more mastication difficulties if the primary teeth related with the missing permanent teeth had been exfoliated.[16]

Another, the study performed by Ceyhan and his colleagues in 2014 showed similar results to our study. According to their results, Hypodontia haveinfluences on aesthetics, speech and function of muscles in the mouth. As a result, hypodontia can have harmful impacts on the quality of life, though the condition can be well managed and treated by dentists and orthodontists.[17]Another study performed by Wong in 2006 showed similar results to our study. According to their results, 88% of hypodontia children showed functional limitations.[18]

The study performed by Laing in 2010 showed different results from our study. According to their study, hypodontia had no impact on the psychosocial domain of the patients, however,trouble in mastication was found.[19]Study performed by Ahmed in Pakistan showed similar results, and According to their results,

Individuals with inherited craniofacial abnormalities showed greater disappointment with their facial profile, low confidenceand poor quality of life.[20]Alsumait and his colleagues in 2015 showed similar results to our study. According to their study, about 58%children with more than four missing teeth experienced functional limitations.[21].

CONCLUSION

Hypodontia can have a substantialinfluence on the life of children, causingoral symptoms, functional limitations. Patients suffering from hypodontia were dissatisfied with their appearance and had a poor quality of life as compared to normal individuals. As the number of missing teeth increases functional limitations becoming worse. Therefore, early management of hypodontia is recommended for better oral functioning.

Author's Contribution:

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Original Article

Pediatric External Ventricular Drain Infection: Experience from a Tertiary Care Hospital of Pakistan

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ABSTRACT

Objective: To determine the frequency of external ventricular drain Infection in a pediatric population presenting with hydrocephalus.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Liaquat University of Medical & Health Sciences Hyerabad, Sindh, Pakistan for the period of one year from 30th June 2019 to 30thJune 2020 after approval from the Ethical review committee Liaquat University of Medical & Health Sciences Hyerabad, Sindh, Pakistan.

Materials and Methods: A total of 91 patients were included in this study. Demographic information like age, gender, the weight of the child and duration of symptoms and positive culture were taken as EVD infection. All the data were analyzed in SPSS version 22.0.

Results: EVD infection was in 13(14.3%) patients 78(85.7%) patients have no infection. Mean age7.14 was with standard deviation 3.965 and the weight of the children was 17.5±4.98 (in kg).41 (45.1%) patients were male and 50(54.9%) were female. the proportion of females was more than male.

Conclusion: EVD is a popular neurochirurgical technique used to treat a range of neurochirurgical conditions like hydrocephalus.A clearly defined guideline on different aspects of integration and maintenance can be a useful approach for reducing the frequency of EVD-related infections.

Key Words: Cerebrospinal, Children, External Ventricular Drain, Fluid, Hydrocephalus, Infection

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INTRODUCTION

External ventricular drain (EVD) is a catheter inserted into the ventricles of the brain. The other end of the catheter is connected to a closed drainage system. The column of cerebrospinal fluid (CSF) in the drain tubing indicates intracranial pressure (ICP).

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EVD is therefore used to measure intracranial pressure and drain cerebrospinal fluid (CSF). Acid hydrocephalus is used because of intracranial hemorrhage, traumatic brain damage, cancers or tumors.[1]

However, the benefits of an EVD can be compromised by complications linked to catheter diseases, such as infection, malfunction, bloodshed, malposition, or obstacle.

They are associated with significant morbidity and mortality.Studycondected by Ratilal et al. who found that contaminated deaths, seizure disorders, and academic output decreased after recovery.[2]Infection rates in adults range from 0% to 45% with a mean of 10% to 17%.[3]Quang at al 2009 described EVD related complication in the pediatric population in that infection rate in 96 patients is 9.4 %.[4]

A team approach including pediatric neurology leads to a standardized checklist bundle and continued attention to practices leads to improved patient outcomes and reduced infections in the pediatric population.[5]

In high-risk cases, up to 22 % are instances of EVD-related infection.[8]

ERI causes disease and death and lengthens hospital stays, increases the cost of hospitalization and even results in several operations.[10]

Thus, the ERI was highly attracted by experts and a recent meta-analysis has shown that a variety of risk factors, including period EVD surveillance, systemic infection, intravenous hemorrhage, basil skull fractures with CSF leakage, catheter manipulation and EVD catheter leakages, have been establishedleak, catheter manipulations, and leakage around the EVD catheter.For children suffering from EVD, however, few reports are published, especially after surgery of the brain tumor.

There is no data on EVD infection from Pakistan. We, therefore, decided to determine the rate of EVD infection in the pediatric population at a tertiary care center of Pakistan. This may also help us identify factors for increased or decreased rates of infection. This Study will generate local data and give us the magnitude of infection post-EVD pediatric patients with hydrocephalus.

MATERIALS AND METHODS

This cross-sectional study was conducted in Liaquat University of Medical & Health Sciences Hyerabad, Sindh, Pakistan for the period of one year from 30th June 2019 to 30th June 2020 after approval from the Ethical review committee Liaquat University of Medical & Health Sciences Hyerabad, Sindh ,Pakistan. A total of 91 patients were included in this study. All patients with age from 1-16 years undergoing EVD insertion was included duration more than 24 hours of symptoms both genders were included. Patients with the infection on in CSF before insertion of EVD were excluded. Patients with previous surgery were also being excluded. Patients who came in the ER with hydrocephalus meeting inclusion criteria were included in this study. Prior to inclusion, the purpose of procedure Risks and Benefits was explained to parents.

EVD was done under GA by R3 TO R5 under supervision. Post procedure CSF sample was sent to Labs for culture, and the report was obtained on day 4,as positive culture was taken as EVD infection. This information along with age, Gender, the weight of child and duration of symptoms was noticed in proforma.

Data Analysis: Data was analyzed using SPSS IBM version 22.0 (Chicago Illinois).We calculated frequencies and percentages for categorical variables like gender, EVD infection. Mean and the standard deviation was calculated for continuous data like age, the weight of the child (in Kg),duration of symptoms. The frequency of infection was stratified according to age and duration of symptoms, weight, and gender. A chi-square test was applied to compare the proportions between groups (EVD infection yes /no). A p-value of less than or equal to 0.05 was considered significant.

RESULTS

A total of 91 patients who fulfilled the inclusion criteria were enrolled in the study; In Table 1 descriptive statistics of age in terms mean 7.14 and standard deviation 3.965 are presented.

In Table 2 descriptive statistics of weight in term of mean and standard deviation was presented, that was 17.5±4.98 (in kg).

In Table 3 descriptive statistics of the duration of symptoms in term of mean and standard deviation was presented, that was 45.6±10.5 (in hours).

In Table 4 distribution of gender was presented, in the study, there were 41 (45.1%) patients were male and 50(54.9%) were female. the proportion of females was more than male.

In this study, distribution of EVD infection was presented 78(85.7%) were infection-free and only 13(14.3%) were having the infection.

In this study stratification of EVD infection was stratified with respect to effect modifiers. it was seen that EVD infection found in 8 patients who were less than 8 years old and in the same group, 33 patients free from infection wherein more than 8 years old children in 5 patients who have found infection remaining were having no infection there is no significant difference in EVD infection in different ages (p-value=0.19)

EVD infection found in 11 patients have symptoms for <48 hours. and in the same group, 22 patients were without infection where the duration of symptoms more than 48 hours only 2 patients were having an infection and 56 patients with more than 48 hours were having no infection there is a significant difference in EVD infection in different categories of duration of symptoms (p-value=0.002)

Table No.1: Descriptive statistics of age, weight, duration of symptoms(n=91)

	No.	Min.	Max.	Mean	Std. Deviation
Age	91	1	16	7.14	3.965
Weight(in kg)	91	5.9	39	17.5	4.98
duration of symptoms	91	24	72	45.6	10.5

Table N0.2: Distribution of patients according to gender and EVD infection (n=91)

Gender	Frequency	Percent
Male	41	45.1
Female	50	54.9
EVD Infection		
No	78	85.7
Yes	13	14.3

EVD infection found in 7 patients who have <15 kg weight. and in the same group, 40 patients were without infection were more than 15 kg weight 6 patients were having an infection and 38 patients were having no infection there is a non-significance difference in EVD

infection in different categories of weight(p-value=0.10)

EVD infection found in 8 male and in the same group 33 patients were without infection where 5 were female patients were having an infection and 45 patients were having no infection there is a non-significance difference in EVD infection and gender(p-value=0.90).

Table No.3: Stratification of EVD infection with respect to effect modifiers(n=91)

Variables		EVD infection Yes (n=13)	EVD infection No (n=78)	Total	P-value
Age in groups:	< 8 years	8(61.5 %)	33(42.3 %)	41(45.0 %)	0.19
	≥8 years	5(38.4 %)	45(57.6 %)	50(54.9 %)	
Duration ofsymptoms:	< 48hr.	11(84.6 %)	22(28.20 %)	33(36.2 %)	0.002*
	≥48hr.	2(15.3 %)	56(71.7 %)	58(63.7 %)	
Weight	<15 kg	7(53.8 %)	40(51.2 %)	47(51.6 %)	0.10
	≥15 kg	6(46.1 %)	38(48.7 %)	44(48.3 %)	
Gender	Male	8(61.5 %)	33(42.3 %)	41(45.0 %)	0.90
	Female	5(38.4 %)	45(57.6 %)	50(54.9 %)	

*=significance

DISCUSSION

In our sample, the overall incidence of EVD-related infections was 14.3% and was thus comparable to previous studies released.[10,11]The device-associated infection rate found in this analysis is higher than Scheithauer et al.'s (6.3 per 1000 device days) report rate (10.4 per 1000 EVD days), This has been reported to date as the only equipment-associated infection rate.[12]

There was no coherence between the two, as in previous research health-associated disease body and the individual patient's EVD-related infection body.[6]

Lozier et al.[6] showed that the length of the risk of EVD-related infection through catheterization was investigated in several studies. Although the actual daily rate of infection is unclear. Among previous studies, 62% of patients with EVD-related infects had coagulase-negative Staphylococci as their bacteria mainly isolated. Enterococcus spp. and Enterobacter spp. and Staphylococcus aureus are other common organisms.[14]

The hypothesis is currently that EVD-related infections are caused either by pathogen inoculation during EVD placing and/or by the EVD device contamination and colonization following surgery.[6] The infection rate of 27.6% in our patients falls within the 0-40% range of other research mentioned.[18] The high rate of infection is partly because of our lower standards in comparison to those of other students who only have culturally supportive ventriculitis identified.[15,16]

While Mayhall et al.[17] have chosen positive cultural definitions of EVD associated ventriculitis, the strong similarities between pleocytosis of CSF and ventriculiti s have been focused on.It was also established that SAH resulted in CSF pleocytosis with lower sugar levels and higher protein levels. The high level of infection is also because our patients needed a long ventricular catheter compared with other studies that were more likely to become infected by it. EVD length was 7.5 days on average before infection.[2,18]

A few studies have indicated that the flush of catheters (using antibiotic solutions), as opposed to documented protection in other studies, is a risk factor for ventriculitis.[20]

Several trials have shown that ventricular flushing is a risk factor for ventriculitis, compared with the recorded safety in a second trial.[25]

In addition to immune suppression, subsequent trauma and operating procedures, patients who had another neurochirurgical procedure performed could also have a substantial increase in risk for a predisposing impact.[22]

In a study by Sundbärg et al,.[21] this trend was also reported.

The technique is safe on one hand and using a freehand approach in emergencies such as contaminated or hemorrhagic hydrocephalus.[23–25]

Where image control is possible, the accuracy of positioning in the lateral ventricle front horn can be improved.[26]

It is without a doubt useful in neurosurgical procedure in patients with a potential fatal fatality, Hydrocephalus, IVH/SAH, or tumor of the brain, because of elevated intracranial pressure.[27]

These differences in the EVD or age distribution indicate were also identified by studies elsewhere. The principal reason for hydrocephalus ventricles, IVH should not drain the blood, but drain the CSF. Unchanging, the ventricle may have some blood drainage.

EVD time is variable as well. Research has shown that the incidence of EVD infection with EVD antibiotic sets has decreased.[28]

EVD prevents acute Sylvius aqueduct hydrocephalus, as well as from the risk of cerebellum edema triggering a CSF outflow obstruction for post-fossa tumor surgery. Several discussions were held concerning the impact of drainage length and infection rate. It is a good practice in a randomized study by Wong et al. and others, and there is proof that the EVD collection was left as long as necessary.

CONCLUSION

EVD is a common neurochirurgical procedure used to treat many neurochirurgical conditions, such as

hydrocephalus. The ICP Monitoring and controlled release of CSF is a useful and reliable timing method. Infection can lead to significant and serious EVD complications causing serious morbidities and even deaths

Many risk factors have been reported for EVD infections, and preventive measures have been established to reduce these factors.

A clearly defined protocol covering various insertion and servicing aspects would likely be a good way to minimize the incidence of infections associated with EVD.

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Author's Contribution:

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Original Article

Relationship of Oxyresveratrol on Expression Levels of Tumor Necrosis Factor Alpha and Interferon Gamma in Isoniazid Induced Hepatotoxicity in Experimental Model in Mice

Protective effect against isoniazid induced hepatic-toxicity

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ABSTRACT

Objective: To determine the protective effect against isoniazid induced hepatic-toxicity on expression levels of TNF-α and IFN-γ in immunomodulatory activity of oxyresveratrol.

Study Design: Experimental study

Place and Duration of Study: This study was conducted at the Department of Pharmacology, University of Health Sciences, Lahore, Pakistan from 1st July 2019 to 31st December 2019.

Materials and Methods: Mice were given a number from 1 to 35 and were assigned to five groups using lottery method. Each mouse was allotted a number that was written on a piece of small paper. A blinded person picked papers and a mouse whose number was written on paper was assigned group.

Results: The mRNA expression levels of TNF-α were significantly high in INH group as compared to control group (795.9 ± 47.45 vs 417.4 ± 6.55). Oxyresveratrol treatment significantly downregulated expression levels of TNF-α as compared to INH group (372.3 ± 10.27 vs 795 ± 47.45). Oxyresveratrol treatment significantly reduced expression levels of IFN-γ as compared to INH group (225.7 ± 15.57 vs 798 ± 36.9). Combination therapy showed a significant decreased in expression levels of IFN-γ as compared to INH group (117.7 ± 33.89 vs 798 ± 36.9). Oxyresveratrol showed a significant reduction in interferon γ expression levels as compared to silymarin (225.5 ± 15.57 vs 368.9 ± 22.80).

Conclusion: Oxyresveratrol possesses a protective effect against the isoniazid induced hepatic-toxicity. The decrease in expression levels of TNF-α and IFN-γ may explain immunomodulatory activity of oxyresveratrol.

Key Words: Tumor Necrosis Factor, Alpha, and Interferon Gamma, Isoniazid Induced Hepatotoxicity

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INTRODUCTION

The world's most often used for tuberculosis care isoniazid (INH) and rife-ampicin (RFP), but hepatotoxicity is an important issue throughout clinical therapy. Previous studies have shown that these drugs have induced liver oxidative stress and several antioxidants have reduced their effect.[1] Isonazide (INH) and Rifampicin (RFP) are first-line anti-TB therapy drugs, but the hepatotoxicity that comes from using them remains an important clinical problem.[2]

The dichotomy occurring among protective or non-protective immune responses is likely to be linked to cytokine patterns formed during initial surviving stages of the pathogen within macrophagen by various subpopulations of lymphocytes. Interferon acts as a strong macrophage activator, increasing the expression of the key histocompatibility complex of class II and enhancing cell responses, including cytokine production, nitric oxide and increasing cytolytic activity, with a main role in Th1 form[3]

Studies performed with [4] and[5] found that the Mice were unable to battle M-infection without the IFN gene. The illness TB. People with genetic mutations in IFN receptors were found highly susceptible to infections caused by atypical mycobacteria6 in humans, indicating that the IFN plays an important role in protecting TB. [5]

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The purpose of this study is to determine the protective effect against isoniazid induced hepatic-toxicity on expression levels of TNF-α and IFN-γ in immunomodulatory activity of oxyresveratrol**.**

MATERIALS AND METHODS

The Experimental study was carried out at the Department of Pharmacology, Resource lab and Department of Morbid Anatomy and Histopathology, University of Health Sciences, Lahore, Pakistan for six months from 1st July 2019 to 31st December 2019. The present study was approved by Ethical Review Committee and Advanced Studies and Research Board of UHS Lahore. The sample size was calculated to be 35 mice keeping in view the statistical reliability and validity of sample.[7]

It was simple random sampling using lottery method. Mice were given a number from 1 to 35 and were assigned randomly to five groups I, II, III, IV, and V using the lottery method in which each mouse was randomly allotted a number that was written on a piece of small paper. All the papers were folded and mixed. A blinded person randomly picked the papers and the mouse whose number was written on paper was assigned the group. The first seven were assigned control group and so on.

Preparation of Experimental Animals: All mice were housed at controlled room temperature (23±2°C), moisture (50±5 percent) and light and dark cycles of 12 hours each at UHS' Experimental Research Laboratory. The animals had a normal diet and water ad libitum feeding on the rodent. At first, and then regularly in alternative days, the animals' body weight was registered.

Determination of mRNA Expression Levels of TNF-α and IFN- γ

Total RNA was extracted from the liver using a commercially available kit (TRIzol Plus RNA Purification kit). The reverse transcription-polymerase chain reaction was performed to produce cDNA from mRNA.[8] Appropriate primers for TNF-α and IFN-γ were synthesized and used for production of copies by PCR.[8]

RNA isolation from liver tissue by TRIzol method

Homogenization of Liver Tissue[9]

Added 0.75 mL i.e., 750 ul of TRIzol LS Reagent /50–100 mg of the liver tissue sample. Then homogenized the sample using an ultrasonic homogenizer till the color of TRIzol changed, usually, it was 15 to 30 seconds.

Phase Separation[9]

Incubated the sample at room temperature (15-30° C) for 5min, to allow complete dissociation of the nucleoprotein complex. Then added 200ul of chloroform per 0.75 mL of TRIzol LS Reagent used for homogenization. The tube was caped securely. Shook tube by hand for 15 seconds. Then incubated it for 2–15 minutes at room temperature. Centrifuged at 13,500 RPM for 15 minutes at 4°C to obtain the aqueous phase.

RNA Precipitation[9]

Transferred the aqueous phase into new tubes. Then added 0.5 mL of 100% isopropanol to the aqueous phase, of 0.75 mL TRIzol LS Reagent.Incubated the tubes at room temperature for 10 min after vortexing for 15 seconds. Centrifuged at 13,500 RPM for 10 minutes at 4°C to obtain a gel-like RNA pellet on the side and bottom of the tube.

RNA Wash [9]

Removed the supernatant from the tube, leaving behind the RNA pellet.Washed the RNA pellet, with 1 mL of 75% ethanol per 0.75 mL of TRIzol LS reagent. The sample was vortexed to mix. Centrifuged the sample at 10,000 RPM for 5 minutes at 4°C, and discarded the supernatant. Then air dried the RNA pellet for 5–10 minutes.

Polymerase Chain Reaction for mRNA expression Levels of interferon γ and TNFα[9] The cDNA prepared by reverse transcription was further amplified by polymerase chain reaction using gene-specific primers. Added the following to a PCR reaction tube for a final reaction volume of 20 µl and placed in a thermal cycler:

PCR Pre Mix = 10 µl
Template cDNA = 1 µl
Primers (forward)= 1 µl
Primers (reverse) = 1 µl
RNase free water up to= 20 µl[9]

PCR cycle

- Initial denaturation at 95°C for 10 to 15 min.
- Denaturation at 95° C for 10 sec
- Annealing at 58° C to 62° C for 15 sec
- Elongation at 72° C for 15 to 30 sec
- Number of cycles 35 to 55 times

Specific primers for TNF-α and IFN- γ were synthesized from a commercial manufacturer. GAPDH gene was used as a reference gene. PCR product was visualized by using gel electrophoresis and densitometry was used for semi quantification of PCR product. The relative density of bands represented mRNA expression of inflammatory cytokines .[9]

Primer for TNF-α [10]

Forward 5-CAGGCGGTGCCTATGTCTC-3
Reverse 5-CGATCACCCCGAAGTTCAGTAG-3

Primer for Interferon-γ[11]

Forward 5-CCATCGGCTGACCTAGA-3
Reverse 5-GCCACTTGAGTTAAAATAGTTATTCAGAC-3

Statistical Analysis: All the data was entered and analyzed by using the SPSS version 26.0. Data were

expressed as mean ± SD. One-way ANOVA was applied to observe the difference in groups. Post-Hoc Tukey test was applied to observe which group mean is different from others. A P-value ≤ of 0.05 was considered statistically significant.

RESULTS

Effect of INH, Silymarin, and Oxyresveratrol on mRNA level of TNF-α

The results showed that the mRNA expression levels of TNF-α were significantly high in the INH group as compared to the control group (795.9 ± 47.45 vs 417.4 ± 6.55). Oxyresveratrol treatment significantly down regulated the expression levels of TNF-α as compared to the INH group (372.3 ± 10.27 vs 795 ± 47.45). Similarly, silymarin also significantly reduced the TNF-α expression levels as compared to the INH group (226.4 ± 20.75 vs 795 ± 44.45). Combination therapy resulted in a significantly higher reduction in the expression levels of TNF-α as compared to the INH group (141.9 ± 36.30 vs 795 ± 47.45). Silymarin showed a significant reduction in TNF α expression levels as compared to oxyresveratrol (226.4 ± 20.75 vs 372.3 ± 10.27).

Effect of INH, silymarin, oxyresveratrol on the mRNA expression level of IFN-γ

The graph shows the expression levels of IFN-γ were significantly high in the INH group as compared to the control group (798 ± 36.9 vs 419.9 ± 11.46). Oxyresveratrol treatment significantly reduced the expression levels of IFN-γ as compared to INH group (225.7 ± 15.57 vs 798 ± 36.9). Silymarin also significantly reduced the IFN-γ expression levels as compared to INH group (368.9 ± 22.80 vs 798 ± 36.9). Combination therapy showed a significant decreased in the expression levels of IFN-γ as compared to the INH group (117.7 ± 33.89 vs 798 ± 36.9). Oxyresveratrol showed a significant reduction in interferon γ expression levels as compared to silymarin (225.5 ± 15.57 vs 368.9 ± 22.80).

Table No.1: Result showing PCR values for TNF α and Interferon γ after 30 days of the experimental protocol (n=7).

PCR	Control	INH	INH+OXY	INH+Sily	INH+Oxy+Sily
TNF α	417.4 ± 6.55	795.5 ± 47.45###	372.3 ± 10.27***	226.4 ± 20.75***	141.9 ± 36.3***
Interferon γ	412.9 ± 11.46	798.0 ± 36.9###	225.7 ± 15.7***	368.9 ± 22.8***	117.7 ± 33.8***

* P < 0.05 represents comparison of treatment groups with INH.
** P < 0.01 represents comparison of treatment groups with INH.
*** P < 0.001 represents comparison of treatment groups with INH.
# P < 0.05 represents comparison of INH with control.
P < 0.01 represents comparison of INH with control.
P < 0.001 represents comparison of INH with control.
^^^ P< 0.001 represents significant comparison of oxyresveratrol and silymarin

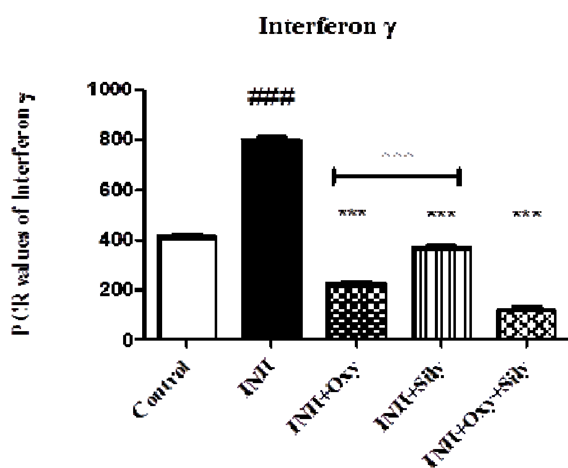

Figure No.1: Mean ± SD of IFN-γ expression levels in mice groups (n=7) * shows p < 0.001 and indicates significant difference as compared to INH group. ### shows p < 0.001 and indicates significant difference as compared to control group, while ^^^ shows significant difference between INH+Oxy and INH+Sily groups.**

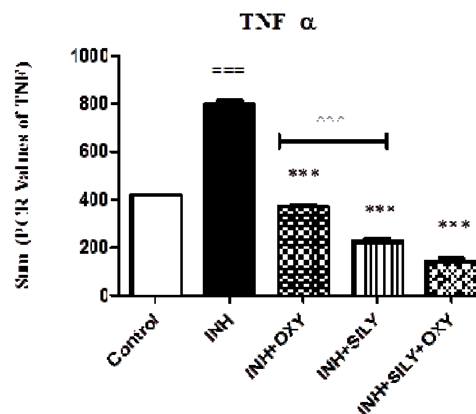

Figure No.2: Mean ± SD of TNF-α expression levels in mice groups (n=7) * shows p < 0.001 and indicates significant difference as compared to INH group. ### shows p < 0.001 and indicates significant difference as compared to control group, while ^^^ shows significant difference between INH+Oxy and INH+Sily groups**

DISCUSSION

TNF-α is a pleiotropic cytokine which triggers cellular responses, such as proliferation, the development of inflammatory mediators, and cell death.12 TNF-a plays a dichotomic function in the liver, not only acting as mediator of cell death, but also induce proliferation and regeneration of the hepatocytic cells. Macrophages and other cell forms, such As a product of lymphoid, mast, endothelial and neuronal cell, are primarily used in TNF-α. TNF-α is generated. The development of TNF-α is increased in response to inflammation and bacterial products.[14]

Even though TNF-α can function as a powerful activator both pro-inflammatory and pro-apoptotic pathways, such signalling paths interact at many levels in a complex network and one pathway activity also depends on another pathway's inactivation, which indicates that cells are able to point the TNF-α mediated signal to the proper answer.

In our study, we found significantly raised expression levels of TNF-α in the INH group. These raised levels were significantly reduced by oxyresveratrol. A similar study reported a decrease in gene expressions of TNF-α in Guinea pigs by Ascorbic acid.[15]

IFN-γ also exerts pleiotropic effects including antiviral and bactericidal activities, activation of macrophages and NK cells, and up-regulation of MHC class II expression on macrophages. It is produced mainly by NK cells and Th1 cells[16] and already has been reported to be involved in various kinds of liver injury models.[16,17] Enhanced IFN-γ expression is thought to induce inflammatory responses, leading to parenchymal cell damage in the liver. In the present study, we observed that the gene expression of IFN-γ was significantly enhanced in the livers of mice treated with INH. Treatment with oxyresveratrol alone as well as in combination with silymarin significantly attenuated IFN-γexpression levels. Attenuation of expression levels of TNF-α and IFN-γ by oxyresveratrol in our study might have led to the amelioration of isoniazid-induced liver injury. Also, oxyresveratrol more significantly decreases the IFN-γ as compared to silymarin. A study carried out in the US also showed that silymarininhibited the proliferation and secretion of tumor necrosis factor-alpha (TNF-α), interferon-gamma (IFN-γ), and interleukin-2 (IL-2) by PBMC stimulation with anti-CD3.[18]

CONCLUSION

The results of the present study indicate that oxyresveratrol possesses a protective effect against the isoniazid induced hepatic-toxicity. These hepato-protective effects might have been the result of immunomodulatory and anti-inflammatory activities of oxyresveratrol. The decrease in the expression levels of TNF-α and IFN-γ may explain the immunomodulatory activity of oxyresveratrol, whereas, reduction in inflammation of the parenchyma and portal tract area, vascular congestion, and pyknosis may account for the anti-inflammatory activity of oxyresveratrol.

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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

Compare the Sublingual and Per Rectal Routes of Misoprostol Administration in Third Stage of Labor in Terms of Average Blood Loss

Maryam Naeem, Memona Latif, Faiza Nawaz, Munazza Latif and Sana Aftab

ABSTRACT

Objective: To compare the sublingual and per rectal routes of misoprostol administration in third stage of labor in terms of average blood loss.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the in Obstetrics and Gynaecology Department, District Headquarter Hospital, Gujranwala during 23-6-2018 to 24-12-2018.

Materials and Methods: 100 patients were selected form the outpatient/ emergency department of District Headquarter Hospital, Gujranwala. The patients were divided in two groups A and B via lottery method. After the delivery of the baby the group A patients received 400 micro grams of misoprostol sublingually while the group B patients received the same amount of misoprostol via rectal route as suppository. Immediately after cord clamping and division, a kidney dish was firmly placed against perineum to collect the blood.

Results: Mean age of women in this study was 31.61±5.2 in Group-A and 29.94±4.54 years in Group-B. Mean amount of blood loss in Group-A and in Group-B was significantly higher in Group-B women i.e. Group-A: 313.14 vs. Group-B: 412.90, p-value=0.000.

Conclusion: Sublingual route of misoprostol administration in third stage of labor in terms of average blood loss was more effective as compared to per rectal route.

Key Words: Sublingual, Per Rectal, Misoprostol, Administration, Third stage, Labor, Blood loss

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INTRODUCTION

The third stage of labor is the shortest of all three stages of labor. It refers to the period between the delivery of newborn until the complete delivery of placenta and attached membranes.[1] The main complication of the third stage of labor is the postpartum hemorrhage (PPH). Most of the complications in third stage of labor occur in the low risk women and therefore most of the institutions have specific strategies to deal with unexpected outcomes.[2]

The World Health Organization estimates that 25% of the total maternal deaths are due to the PPH.[3]

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The women with PPH have long hospital stay and have more chance to develop the iron deficiency anemia and delay in initiation of breastfeeding. All these factors reflect the requirement of effective and simple measures to prevent the incidence of PPH.[4] The administration of uterotonic agents, early cord clamping and controlled cord traction can be useful to prevent PPH.[5]

There are many uterotonic agents available and each has its own limitations and drawbacks i.e. oxytocin has reduced potency in suboptimal environment and similarly methylergometrine is unstable at high temperatures. Nowadays, misoprostol is used globally and an active uterotonic agent as it is stable at room temperature and is inexpensive.[6,7]

The routes of the misoprostol can be oral, sublingual (SL) per-rectal (PR) or per vaginal. In 2017, Sreelatha, S., et al. conducted a study in which the average blood loss during the third stage of labor was 305.20 ± 102.04 ml for sublingual route of misoprostol while for the rectal route it was 398.20 ± 119.28 ml (p value <0.001).[8]

Rationale: The purpose of my study is to add in existing body of knowledge as misoprostol can be used by various routes. No studies have been carried out to date in Pakistan to establish the best route of

misoprostol for the active management of 3rd stage of labor. In my study, I want to compare the sublingual and parenteral routes of misoprostol in terms of blood loss in DHQ teaching hospital Gujranwala. These results will help us to reduce the incidence of PPH, which in turn reduce the hospital stay, hospital costs and maternal mortality.

MATERIALS AND METHODS

This Randomized controlled trial was conducted in Obstetrics and Gynaecology Department, District Headquarter Hospital, Gujranwala during 23-6-2018 to 24-12-2018.

Sample Size

Sample size of 100 cases (50 in each group) is calculated with 80% power of test, 95% confidence interval and taking mean blood loss in third stage of labor as 305.20±102.04 ml[8]in SL group versus 398.20±119.28 ml[8]in PR group.The data was collected through non-probability consecutive sampling technique.

Inclusion Criteria

1. Patients having normal vaginal delivery
2. Singleton pregnancy assessed via ultrasound
3. Full term pregnancyassessed via ultrasound
4. Age range between 20 to 40 years

Exclusion Criteria

1. Hemoglobin < 8 g/dl
2. Patients with multiple pregnancies i.e. parity ≥ 4
3. Patients with malpresentations, uterine fibroids assessed via ultrasound
4. Patients with bleeding diathesis i.e. prothrombin time >20 seconds
5. Patients who have taken NSAIDS in last 07 days
6. Immuno compromised patients including corticosteroid therapy.
7. Patients with gestational diabetes mellitus
8. Previous history of any chemotherapy or radiotherapy, any history of repeated infections.
9. Patients with severe hepatic, renal, CVS dysfunction

Data Collection Procedure: After permission from the concerned authorities and ethical committee and after fulfilling the inclusion / exclusion criteria 100 patients were selected form the Obstetrics and Gynaecology outpatient/ emergency department of District Headquarter Hospital, Gujranwala. Hospital registration numbers and informed consent was taken from all patients.

The patients were divided in two groups A and B via lottery method. After the delivery of the baby the group A patients received 400 micro grams of misoprostol sublingually while the group B patients received the same amount of misoprostol via rectal route as suppository.

Immediately after cord clamping and division, a kidney dish was firmly placed against perineum to collect the blood. The placenta was delivered via controlled cord traction method. The blood collected in kidney dish was measured in milliliters and was recorded on the specially designed Performa attached as annexure A.

Data Analysis: Data was analyzed using SPSS version 22. The variables to be analyzed was quantitative data like age, BMI, parity and blood loss in third stage of labor. Mean and standard deviation was calculated for quantitative data. Both groups were compared in terms of average blood loss during third stage by independent sample t test.

RESULTS

Mean age of women in this study was 31.61±5.2 in Group-A and 29.94±4.54 years in Group-B. In both groups minimum and maximum age was 23 and 40 years. In Group-A 22(44%) women's BMI was normal, 15(305) were overweight and 13(26%) were obese, while in Group-B 17(34%) women BMI was normal, 17(34%) were overweight and 16(32%) were obese.

Table No.1: Age of women in study Groups

	Group-A	Group-B
n	**50**	**50**
Mean	31.62	29.94
Standard Deviation	5.20	4.546
Minimum	23	23
Maximum	40	40

Parity status of women in both treatment groups can be seen in table-3 in detail. Mean amount of blood loss in Group-A and in Group-B was significantly higher in Group-B women. i.e. Group-A: 313.14 vs. Group-B: 412.90, p-value=0.000. Women in age group 23-30 years (Group-A: 315.70±64.26 vs. Group-B: 412.36± 59.19) and 36-40 years (Group-A: 283.85±47.75 vs. Group-B: 439.66±66.43) had significantly higher blood loss in Group-B as compared to Group-A women.

Table No.2: Parity of women in study Groups

	Group-A	Group-B	Total
1	27(54%)	15(30%)	**42**
2	8(16%)	23(46%)	**31**
3	15(30%)	12(24%)	**27**
Total	**50**	**50**	**100**

Table No.3: Amount of blood loss in study Groups

	Group-A	Group-B
N	**50**	**50**
Mean	313.14	412.90
Standard Deviation	59.85	63.59
Minimum	220	287
Maximum	415	515
p-value	0.000	

Women with normal BMI (Group-A: 322.18 vs. Group-B: 394.17), overweight (Group-A: 304.53 vs. Group-B: 435.41) as well as obese women (Group-A: 307.76 vs. Group-B: 408.87) had significantly higher blood loss in Group-B as compared to Group-A. Women with parity status 1,2 and 3 had significantly higher blood loss in Group-B as compared to Group-A.

Table No.4: Amount of blood loss in study Groups in relation to age of women

Age	Group-A	Group-B	p-value
23-30	315.70±64.26	412.36±59.19	**0.000**
31-35	352.00±39.94	402.57±72.68	**0.071**
36-40	283.85±47.75	439.66±66.43	**0.000**

Table No.5: Amount of blood loss in study Groups in relation to BMI of women

BMI	Group-A	Group-B	p-value
Normal	322.18±61.89	394.17±54.04	0.001
Overweight	304.53±58.03	435.41±69.43	0.000
Obese	307.76±60.98	408.87±62.96	0.000

DISCUSSION

There are numerous advantages with regard to the administration of Misoprostol, as it can be administered through various routes, orally, rectally, sublingually or by the vaginal route[9]. Moreover, it is commonly used in developing nations, as it is inexpensive, easy to store, and stable at room temperature. Earlier studies have successfully established the prophylactic use of misoprostol for the reduction of blood loss after delivery, when compared with the conventional uterotonics[10].

Although it can be used by various routes, no studies have been carried to date, to establish the best route of misoprostol administration for the active management of the third stage of labor[11]. Even as previous researches have established the superiority of conventional uterotonics to misoprostol, they have also recommended the use of misoprostol during the non-availability of these conventional uterotonics as well as during unsafe circumstances[12].

The effectiveness of Misoprostol in reducing blood loss and preventing PPH has been proved by various studies[13]. But the most effective route has not been established yet. Most of randomized trials studied oral and rectal routes,[13] one systematic review, and another meta-analysis suggested sublingual misoprostol to be the most promising route[14].

In this study SL and PR routes of misoprostol administration was compared. Findings of this study showed that patients who were in Group-B among them mean blood loss was significantly higher as compared to Group-A patient's blood loss. Group-A: 313.14 vs. Group-B: 412.90, p-value=0.000

Findings of this study is consistent with the findings reported by Sreelatha, S., et al who showed minimal blood loss with sublingual group as compared to rectal route[15-18].

CONCLUSION

Results of this study conclude that sublingual route of misoprostol administration in third stage of labor in terms of average blood loss was more effective as compared to per rectal route.

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Original Article

Patterns and Prevalence of Dyslipidemia in Diabetics Presenting with STEMI VS Non-STEMI in Local Population of Sialkot, Pakistan

Zeeshan Hassan[1], Muhammad Arsalaan Naveed[2] and Ali Javaid Chughtai[2]

ABSTRACT

Objective: The prospect of this study is to ascertain the safe ranges of TGs in diabetics to prevent the mortality and morbidity associated with transmural infarcts (STEMI).
Study Design: Observational study.
Place and Duration of Study: This study was conducted at the Cardiology Department of Allama Iqbal Memorial Teaching Hospital, Sialkot during Nov 2019-Nov 2020.
Materials and Methods: A total of 1000 patients having age ranges 20-80 years were inducted during Nov 2019-Nov 2020 presenting in ER with chief complaint of typical chest pain having concomitant diabetes. HbA1c performed with Rosche Cobbas C311.
Results: The data was collected from 1000 patients. The mean age of the patients was 51.3 ± 11.5 years in STEMI patients and 57.4 ± 9.4 in NSTEMI. 45 (45%) have diabetic history with STEMI and 55 (55%) with NSTEMI patients. 81 (81%) have smoking history and 17 (17%) have family history of CVD with STEMI. Our study revealed that patients with poor control of their glycemic indexes, HbA1c >7 had deranged cholesterol profile especially triglycerides were significantly raised beyond >150mg/dl.
Conclusion: The intricate balance of natural antithrombins and atherogenic factors is hence disturbed in context of the people having diabetes and hypertriglyceridemia together, paving the way for the most fatal variants of Acute Coronary Syndrome (STEMI>NSTEMI).
Key Words: Dyslipidemia, Diabetics, STEMI, NSTEMI, Local Population, Sialkot

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INTRODUCTION

We have witnessed an increased incidence of Acute Coronary Syndrome (Unstable Angina, NSTEMI, STEMI) in the recent past years, chiefly due to the shifting trends of lifestyle, eating habits, urbanization etc, inflicting all sectors of the community. Despite numerous advances and achievements in understanding the pathophysiology and mitigating the acceleration of atherosclerosis we are still unable to halt the formation of fatty streaks in vessel walls which starts in early childhood of all the contributing Modifiable Factors, Hyperlipidemia especially Triglycerides remain the main culprit determining the stability of atherosclerotic plaque[1].

As soon as the endothelial health is compromised through the toxic insult of diabetes, hypertension, hyperuricemia, smoking, trans-fats, alcohol, soft drinks etc. Inflammatory and oxidative modifications at the susceptible sites of endothelial malfunction lead to the lipid retention, intimal thickening and ballooning of the atheroma having internal core fibrous cap[2]. Ultimately due to sheering stress the rupture of thin cap fibro atheroma occurs exposing TGs causing the more atherogenic LDL-C to come in contact with the platelets and thus an avalanche of cascades operate causing the recruitment, migration and stimulation of vascular endothelium to promote the systhesis of plasminogen activator inhibitor (PAI-1)[3].

The result of this catastrophic event is the formation of platelet plug which hampers the oxygen and nutrients delivery to the end organ resulting in ischemia, Acute Coronary Syndrome in this case. It is an established fact that the diabetics experience a higher mortality and morbidity in acute and post ACS period respectively[4]. Optimizing the glycemic control in terms of HbA1c <7 can not only improve the metabolic profile of the

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patients but also bridle the psychosocioeconomic burden associated with the acute coronary syndrome[5-7].

MATERIALS AND METHODS

The study was conducted in Cardiology Department of Allama Iqbal Memorial Teaching Hospital, Sialkot A total of 1000 patients having age ranges 20-80 years were inducted during Nov 2019-Nov 2020 presenting in ER with chief complaint of typical chest pain having concomitant diabetes.

Inclusion Criteria:

- Age 20-80 years
- HbA1c >7
- Quantitative Troponin I value > 0.5
- Typical Chest Pain with relevant EKG changes on presentation.
- Not previously diagnosed cases of Ischemic heart disease.

Exclusion Criteria:

- Age <20 and >80 years
- HbA1c <7
- Other causes of myocardial infaction such as anemia, trauma and surgery.

Data collection: After presentation in ER of Cardiology Department of Allama Iqbal Memorial Teaching Hospital Sialkot, necessary history and examination was followed by a 12 leads EKG. Acute STEMI was diagnosed by convex ST elevation of 2 mm in precordial or 1mm in limb, in 2 contiguous leads and presence of reciprocal depression in other leads, ST elevations with T wave inversions and absence of Q waves. NSTEMI was diagnosed by horizontal ST depressions and T wave inversions in any leads with elevated Troponin I >0.5. The serum lipid profile was done by the venous blood drawn within 12 hours of onset of chest pain and before administration of any anti lipid medication.

Statistical analysis: The data was collected and analyzed by using SPSS version 19. All the values were expressed in mean and standard deviation.

RESULTS

The data was collected from 1000 patients. The mean age of the patients was 51.3 ± 11.5 years in STEMI patients and 57.4 ± 9.4 in NSTEMI. 45 (45%) have diabetic history with STEMI and 55 (55%) with NSTEMI patients. 81 (81%) have smoking history and 17 (17%) have family history of CVD with STEMI. All the data is represented in table 01. Patients with NSTEMI were more established than those with STEMI, and introduced all the more regularly history of hypertension, past MI and coronary revascularization techniques, and clinical indications of metabolic disorder.

Variation of lipid profile values with high and low Lp concentrations is stated in Table 2. Our study revealed that patients with poor control of their glycemic indexes, HbA1c >7 had deranged cholesterol profile especially triglycerides were significantly raised beyond >150mg/dl. Resultantly the incidence of STEMI was higher in such pool because of the infliction caused by the rupture of thin cap fibro atheroma plaque compromising endothelial health and propagating clot burden towards a transmural infarct.

Table No.1: Demographic data of patients with STEMI and NSTEMI

	STEMI	NSTEMI	P^2
Age, years	51.3 ± 11.5	57.4 ± 9.4	
Cardiovascular risk factors			
Diabetes, n (%)	145 (45%)	55 (55%)	0.045
Hypertension,n(%)	234 (34)	66 (66)	< 0.001
Smoking habit, n (%)	181 (81)	19 (19)	0.001
Family history, n (%)	117 (17)	83 (83)	0.159
Previous CABG, n (%)	71 (71)	29 (29)	< 0.001
PCI, n (%)	113 (13)	87 (87)	< 0.001
AMI Previously, n (%)	121 (10)	39 (33)	< 0.001
Stroke history, n (%)	5 (2)	6 (5)	0.187
AMI characteristics			
Anterior, n	38	62	< 0.001
Inferior, n	76	24	0.002
Other, n	4	96	< 0.001
Left ventricle ejection fraction,%	46.8 ± 8.2	43.4 ± 13.1	
Patients with LVEF < 40%, n	43	57	0.005
Patient with heart failure at initial admission, n	15	75	0.002

Table No.2:Lipid profile parameters in patients with ACS in diabetic patients

Lipid test	STEMI	NSTEMI
TC (< 200 mg/dL)	154.6 ± 32.2	143.3 ± 39.6
LDLc (< 100 mg/dL)	95.4 ± 28.9	84.4 ± 33.5
HDLc (> 40 mg/dL)	34.3 ± 7.4	33.0 ± 11.9
TG (<150)	128.7 ± 47.0	138.5 ± 77.0
TC:HDLc (< 5)	4.6 ± 1.2	4.6 ± 1.4

DISCUSSION

Dyslipidemia preponderated among the nine major risk factors (smoking, diabetes, hypertension, visceral obesity, psychosocial stress, sedentary life, low fruit and vegetable consumption and alcohol consumption), and alone accounted for more than 50% of population attributable risk. Dyslipidemia, manifested by elevated levels of total- and low density lipoprotein cholesterol (TC, LDL-C)[8], low levels of high density lipoprotein cholesterol (HDL-C) and high levels of triglycerides (TG), is an important risk factor for CAD. Recent advances in cardiometabolic drug delivery and targets have created new horizons of safety and faith associated

with prognostic window of the Acute Coronary Syndrome[9]. Time tested studies have proven diabetes to be an independent risk factor for deranged lipid levels in the serum making the population prone to cardiovascular hazards[10]. Framingham Risk Score also shows that diabetes alone doubled the risk in men and tripled it in women in comparison with other variables like age, hypertension, smoking and left ventricular hypertrophy[11]. The complications arise from the generation of advanced glycation end products (AGE), lipid oxidation, chemical modification of lipoproteins, vascular inflammation, leading to endothelial dysfunction forming a lipid rich atherosclerotic plaque with thin fibrous cap[12]. The stability of the plaque is challenged by the above mentioned CV risk factor causing either its rupture or erosion[13]. Thus an avalanche of platelets and coagulation factors forms a platelet plug compromising the perfusion of the end organ, heart here[14].

Hence HbA1c has the potential to be used as prognostic tool to assess the metabolic functioning of a body beyond its glycemic significance[15-16].

CONCLUSION

It is concluded that patients having sub optimal to poor control of their glycemic levels HbA1c >7 are more prone to develop dyslipidemias specifically the atherogenic fractions LDL-C, Triglycerides and HDL-C are markedly deranged in the patients developing STEMI (trasmural infarcts) as compared to NSTEMI.

HbA1c being a dynamic tool can be used to assess the cardio metabolic status, predict the incidence and prognosis of acute coronary syndrome in high risk diabetics for prompt intervention with high dose anti lipid drugs and thus reducing the psychosocioeconomic burden associated with cardiovascular events.

Author's Contribution:

Concept & Design of Study:	Zeeshan Hassan
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Data Analysis:	Ali Javaid Chughtai
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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

Prevalence of Wound Complications Due to Diabetes in Patients Undergoing Abdominal Surgery

Liaqat Ali and Adnan Badar

ABSTRACT

Objective: The main objective of the study is to analyze the wound complications due to diabetes in patients undergoing abdominal surgery.
Study Design: Cross sectional study
Place and Duration of Study: This study was conducted at the Anatomy Department, Swat Medical College, Swat during March 2020 to August 2020.
Materials and Methods: A wide range of routine stomach medical procedures aside from those done in crisis were remembered for the investigation.
Results: The data was collected from 120 patients. The mean age of the complete example was 55.5 years. Most of the example was male (51.1%), non-smokers (95.6%) and didn't have hypertension (67.8%). The normal span after conclusion of diabetes mellitus was 6.1 (SD 6.3) a long time.
Conclusion: It is concluded that it is difficult to treat the wound complication in diabetic patients. It can be difficult to differentiate local soft tissue infection and inflammation from osteomyelitis.
Key Words: Wound, Complications, Diabetes, Foot ulcer, Abdominal

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INTRODUCTION

Diabetic wound complications are the most common cause of non-traumatic lower extremity amputations in the industrialized world. The danger of lower furthest point removal is 15 to multiple times higher in diabetics than in people who don't have diabetes mellitus. Moreover, twisted confusions are the most successive purpose behind hospitalization in patients with diabetes, representing up to 25 percent of all diabetic confirmations in the United States and Great Britain[1].

By far most of diabetic injury intricacies bringing about removal start with the development of skin ulcers. Early recognition and suitable treatment of these ulcers may forestall up to 85 percent of removals. For sure, one of the illness counteraction goals sketched out in the "Healthy People 2000" task of the U.S[2]. Division of Health and Human Services is a 40 percent decrease in the removal rate for diabetic patients. Family doctors have an indispensable part in guaranteeing that patients with diabetes get early and ideal care for skin ulcers[3].

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Patients with diabetes may likewise be at higher danger of antagonistic occasions while going through a medical procedure. This is a significant concern since it is assessed that the greater part of the diabetic population will need at any rate 1 surgery during their lifetime[4]. Postoperative complexities stretch emergency clinic stay, increment the financial weight, and increment mortality. Hyperglycemia, hypoglycemia, and huge glycemic changeability all disturb the infection conditions of patients and increment the occurrence of carefully related unfriendly events[5].

Stomach a medical procedure is one of the commonest Surgery acted in optional care just as tertiary care showing clinics everywhere on the world. Normally the difficulty rate in controlled settings isn't extremely high and wound recuperating happen in up to 14 days with practical recuperation of practically all the patients with no premorbid factors[6]. Normal injury inconveniences of different sorts of stomach medical procedures incorporate dying, injury herniation, wound disease and so forth Numerous variables incline the people towards the injury inconveniences and postponement in the recuperation. Foundational sicknesses including diabetes incline the person towards the injury inconveniences going through the stomach surgeries[7].

MATERIALS AND METHODS

This cross sectional study was conducted in Swat Medical College, Swat during March 2020 to August 2020. The data was collected with the permission of ethical committee of hospital.

Exclusion criteria: Hypothyroidism, pernicious anemia, discopathy, harm since they can likewise prompt neuropathy, and lower appendage edema and congestive cardiovascular breakdown, since they can meddle with the appraisal of neuropathy in assessment and length of diabetes under 5 years in patients with type I on the grounds that in this period neuropathy has still not created were avoided from this examination. Patients who were going through second a medical procedure in under one month time were additionally avoided.

Inclusion criteria: All the patients age range 20 to 60 years and suffering from type II DM were included in this study.

Collection of data:

The data was gathered through a questionnare. A wide range of routine stomach medical procedures aside from those done in crisis were remembered for the investigation. A survey including age, sex, BMI, diabetes term, sort of treatment, HbA1C, distortion, neuropathy indications, vascular manifestations, history of twisted, reason of stomach a medical procedure, past preparing with respect to wound care, smoking, history of retinopathy and nephropathy was finished for all patients. Post-usable agony was additionally estimated through visual simple score. The patients were assessed for deformation: contractured toe, unmistakable metatarsal heads and Halux valgus. Questions with respect to indications of neuropathy and vascular issue including deadness and shivering of toes and legs, torment and feeling hot or cold sensation in the legs, discontinuous claudication, rest torment, dainty skin, shiny and somewhat blue skin staining and wound ulcer or removal were asked from the patients.

Statistical analysis:

The data was collected and analysed using SPSS version 19.

RESULTS

The data was collected from 120 patients. The mean age of the complete example was 55.5 years. Most of the example was male (51.1%), non-smokers (95.6%) and didn't have hypertension (67.8%). The normal span after conclusion of diabetes mellitus was 6.1 (SD 6.3) a long time. The lion's share didn't have fringe neuropathy (81.1%), missing fringe beats (90.0%), pre-ulcerous states (90.0%), insensitive (89.9%), crevices on feet (64.4%), nail pathology (97.1%), injury disfigurement (93.3%) or incapacity (94.4%). The larger part were on treatment with diet and oral enemy of diabetic prescription (90.0%).

Longer duration of illness and high BMI also had significant association with the presence of wound complication among the patients undergoing abdominal surgery as summarized in table 02.

Table No.1: Risk factors for developing wound in patients with diabetes mellitus

Characteristic	Cases *n*(%)	Univariate statistics		Multivariate statistics	
		Odds ratio (95% CI)	*P*-value	Adjusted odds ratios (95% CI)[1]	*P*-value
Gender- Male	22 (48.9)	0.84 (0.37-1.91)	0.673	0.83 (0.36-1.90)	0.652
Age- Over 55 years	25 (55.6)	1.20 (0.52-2.74)	0.673	1.21 (0.53-2.78)	0.652
Body mass index >25	24 (54.5)	0.88 (0.38-2.03)	0.759	1.27 (0.55-2.95)	0.578
Hypertension on treatment with ACEI	10 (22.2)	0.39 (0.16-0.98)	0.042	0.29 (0.10-0.80)	0.018
Smoker	2 (4.4)	2.00 (0.18-22.89)	0.570	2.47 (0.21-29.76)	0.477
Duration of diabetes in years >3	28 (62.2)	1.72 (0.74-3.99)	0.203	1.20 (0.52-2.78)	0.669
Treated with anti-hyper-glycemic medication or insulin	33 (82.5)	2.36 (0.82-6.76)	0.106	2.39 (0.82-6.92)	0.11
Treated with insulin	8 (17.8)	9.51 (1.14-79.60)	0.014	11.05 (1.29-94.54)	0.028
Undergoing abdominal surgery	34 (18.9)	2.39 (0.92-5.76)	0.01	2.39 (0.92-5.76)	0.06

Table No.2: The correlated factors relating to presence of wound complications among the Patients with type II diabetes undergoing abdominal surgery

Parameters	p-value	Odds Ratio	Confidence Interval	
			Lower	Upper
Age (ref. is >30 years)	0.552	0.883	0.373	2.095
Duration of illness (ref. is <5 years)	<0.001	13.088	3.978	43.066
Gender (ref. is male)	0.540	1.239	0.612	2.511
Education (ref. is ≥ matriculate)	0.340	0.684	0.313	1.493
BMI (ref. is BMI <24)	<0.001	4.228	1.998	8.947

DISCUSSION

Wound ulcers is a disabling complication and not uncommon among people with diabetes mellitus. The incapacity and conceivable movement to the misfortune (removal) of digits and appendages make it a difficult issue[8]. This investigation endeavored to analyze the danger factors for twisted ulceration because of stomach a medical procedure in sort II DM patients. Wound heartbeats were utilized in the clinical appraisal, and their nonattendance is normally connected with an ABI of <0.769. Past examinations indicated that a higher bit of patients with tumors, cracks, and cardiovascular and cerebrovascular infections was found in the diabetic population than in the ordinary population and along these lines a higher part of patients with diabetes mellitus was seen in those requiring careful treatments[10].

General a medical procedure was autonomously connected with postoperative antagonistic occasions in patients with diabetes, contrasted and elective muscular medical procedure. General a medical procedure covers a wide assortment of medical procedure types to a wide assortment of organs, a significant number of them being fundamental organs (e.g., throat, stomach, little inside, colon, liver, pancreas, gallbladder, and bile ducts)[11].

CONCLUSION

It is concluded that it is difficult to treat the wound complication in diabetic patients. It can be difficult to differentiate local soft tissue infection and inflammation from osteomyelitis. Special attention should be paid to the individuals with longer duration of illness.

Author's Contribution:

Concept & Design of Study:	Liaqat Ali
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Data Analysis:	Adnan Badar, Liaqat Ali
Revisiting Critically:	Liaqat Ali, Adnan Badar
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Original Article

Use of Chlorhexidine on Umbilicus in Prevention of Neonatal Sepsis

Abdul Qayyum[1], Shumaila Asghar[2], Saiqa Yaseen[2] and Irum Shahzadi[3]

ABSTRACT

Objective: The main objective of the study is to analyse the use of chlorhexidine on umbilicus in prevention of neonatal sepsis.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynaecology, Lady Willingdon Hospital, Lahore during March 2020 till September 2020.

Materials and Methods: The data was collected through non-probability consecutive sampling technique. The data was collected from 100 infants. Arrangements with a grouping of 4.0% free chlorhexidine were set up by weakening 20% chlorhexidine digluconate to the proper fixation with cleaned water.

Results: The data was collected from 100 neonates. All the demographic values which include age, gender, gestational age and mode of delivery were calculated. According to baseline values the birth weight of chlorhexidine group was 1.87 ± 0.463kg and dry cord group was 1.69 ± 0.421 kg. All the values is present in table 01.

Conclusion: It is concluded that chlorhexidine umbilical cord care is more appropriate than the currently WHO recommended dry cord care.

Key Words: Chlorhexidine, Umbilicus, Neonatal Sepsis

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INTRODUCTION

Neonatal mortality is still high in Pakistan at 55 neonatal deaths per 1000 live births (DHS 2012–13). Each year, approximately 202,000 newborns die within 28 days of birth in Pakistan. Tainting of the umbilical line can prompt omphalitis, portrayed by discharge, stomach erythema, or expanding. Microorganisms can enter the circulatory system through the patent vessels of the recently sliced line and lead to fast death, even without obvious indications of rope infection[1]. Sterile conveyance and postnatal-care rehearses are broadly elevated as significant intercessions to lessen danger of omphalitis and passing. There are not many explicit data, notwithstanding, on omphalitis rate and little proof for ideal rope care practices to forestall string diseases and mortality locally, so better examinations are desperately needed[2].

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Examiners in clinic based examinations in agricultural nations have portrayed the attributes of omphalitis, and revealed a scope of occurrence gauges (2−77 per 1000 medical clinic conceived newborn children). Locally, where irresistible test is higher and numerous cases go unrecognized, danger could be higher. An audit of omphalitis in Oman noticed that the occurrence rate in home-conveyed youngsters was occasions 5.8 higher than in clinic births. Local area based case-control examines have zeroed in on danger factors for neonatal lockjaw, and give some proof that effective cleaning agents on the string are protective[3]. In settings where neonatal lockjaw has been killed yet unhygienic string rehearses keep on putting infants in danger, effective germ-killers may ensure against infection[4].

In the agricultural nations, where incompetent and unhygienic neonatal care rehearses are normal, there is a consistent prerequisite of reasonable and safe local area based mediations with demonstrated adequacy to forestall contamination in babies. Since umbilical stump diseases may quickly advance to foundational sepsis, ideal line care is particularly significant in anticipation of neonatal sepsis. Without adequate proof preferring job of effective anti-microbials in counteraction of sepsis, dry rope care is for the most part suggested. Chlorhexidine effective application on string stump has been appeared to diminish umbilical colonization, umbilical sepsis and consequently potentially foundational sepsis[5].

MATERIALS AND METHODS

This cross sectional study was conducted in Lady Willingdon Hospital, Lahore during March 2020 till September 2020. The data was collected through non-probability consecutive sampling technique. The data was collected from 100 infants. Arrangements with a grouping of 4.0% free chlorhexidine were set up by weakening 20% chlorhexidine digluconate to the proper fixation with cleaned water. The cleanser and water purifying arrangement was set up by weakening Ivory Liqui-Gel, a gentle purging specialist reasonable for infant skin, with filtered water. In groups relegated to chlorhexidine or cleanser and water purging, guardians got instructive messages about clean rope care and line purifying with the allocated arrangement at each visit inside the initial 10 days of life. Subsequent to washing their hands with cleanser and water, the specialist dampened a cotton ball with arrangement and tenderly spotted the umbilical rope stump. Data were additionally gathered on birth history, parental proficiency, and occupation. The essential results for the line purifying intercession study were occurrence of neonatal omphalitis and neonatal mortality.

Statistical analysis: The data was collected and analysed using SPSS version 19. All the values were expressed in mean and standard deviation.

RESULTS

The data was collected from 100 neonates. All the demographic values which include age, gender, gestational age and mode of delivery were calculated. According to baseline values the birth weight of chlorhexidine group was 1.87 ± 0.463kg and dry cord group was 1.69 ± 0.421 kg. All the values is present in table 1.

Table No.1: Baseline characteristics of selected patients

Parameter	Group I Chlorhexi-dine group	Group II Dry cord care group
Neonatal parameters		
Birth weight (kg)	1.87 ± 0.463	1.69 ± 0.421
Period of gestation (weeks)	32.35 ± 1.64	33.87 ± 1.81
Male/female	23/27	39/11
Cesarean delivery	49	51
Premature rupture of membranes	13	25
UTI	0	1
Fever in last trimester	2	3

Table 02 shows the comparison of outcomes of group I and group II. Time of cord separation in group I is 7.82 ± 2.67 and 10.31 ± 3.23 in group II. Umbilical sepsis is observed in only 1 patient in group I and in 3 patients in group II. Only single mortality was observed in group I and in 6 neonates in group II.

Table No.2:Comparison of outcome parameters

Parameter	Group I	Group II	p value
Time of cord separation (days)	7.82 ± 2.67	10.31 ± 3.23	0.02
Umbilical sepsis	1	3	–
Probable sepsis	20	5	0.043
Culture-proven sepsis	2	15	0.001
Meningitis	1	16	0.060
Duration of antibiotics received (days)	8.67 ± 5.61	13.1 ± 6.78	0.04
Duration of hospital stay (days)	11.4 ± 5.16	14.7 ± 6.62	0.04
All cause mortality	1	6	0.03

DISCUSSION

Our discoveries propose the part of chlorhexidine neighborhood application as a straightforward, reasonable and effectively accessible mediation for counteraction of culture-demonstrated neonatal sepsis in an asset helpless setting; nonetheless, slight alert is prompted while summing up our outcome to the populace at large[6]. The subjects in our investigation were conveyed and overseen at a tertiary care reference setting with a recognized setting of microbiological verdure, openings to intercessions, accessibility of types of gear, techniques and conventions, significantly unique in relation to a typical local area neonatal care setting[7].

In Germany, Kapellen et al. directed randomized controlled investigation to think about adequacy and security of chlorhexidine (CX) powder versus dry care (DC) in umbilical rope care of infant. The noticed string partition time was (mean ± SD) 7.0 ± 2.5 (territory 2.5–18.9) days in CX-treated youngsters and 7.8 ± 2.9 (territory 2.2–20.7) days in DC ($p < 0.001$). The mean distinction between the two treatment bunches was 18.9 h[8]. In an emergency clinic based examination from New Zealand assessing the effect of day by day rope purifying in 234 children, it was seen that string detachment happened at a mean of 10 days with Iodosan and 20 days with chlorhexidine. Meberg et al. (1990) saw that partition of the umbilical line happened altogether later in the hydrophobic material gathering than in the chlorhexidine–ethanol gathering (6.2 ± 2.2 versus 5.8 ± 2.1 days). Bhutta et al. (2010), in an

enormous local area based bunch randomized controlled preliminary, announced the mean line partition time as 7 days in chlorhexidine group[9-12].

CONCLUSION

It is concluded that chlorhexidine umbilical cord care is more appropriate than the currently WHO recommended dry cord care. It is a basic do-capable mediation that could well add to diminishing neonatal sepsis, a significant supporter of neonatal mortality in our country. This modest and straightforward intercession can save countless infant lives in agricultural nations.

Author's Contribution:

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Data Analysis:	Irum Shahzadi
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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

Effect of Thyroxine Replacement on Sertoli Cell Function in Men With Hypothyroidism

Aisha Rabel[1], Irfan Siddiqui[2] and Fatima Abid[1]

ABSTRACT

Objective: The main objective of the study is to analyse the effect of thyroxine replacement on sertoli cell function in men with hypothyroidism.

Study Design: Descriptive study

Place and Duration of Study: This study was conducted at the Jinnah Postgraduate Medical Center Karachi During January2019 till June 2019.

Materials and Methods: The data was collected from 40 male patients. Those participants who were not willing were not included in this study. Venous blood sample was collected for the analysis of baseline characters. The blood was drawn for the estimation of thyroid levels, FSH, LH, prolactin and testosterone.

Results: The data was collected from 50 patients. The mean age was 25.67±5.67 years. According to our analysis the total motile sperm at baseline was 29% and 80% at follow up. But total progressive motile sperms was 18% at baseline and 45% at follow up. The levels of FSH at baseline was 6.45mIU/mL and after follow up was 6.46 mIU/mL.

Conclusion: It is concluded that sertoli cell function is effected through hypothyroidism and sperm motility is also effected. We can say that hypothyroidism directly effect on the gonads function and sperms motality.

Key Words: Thyroxine, Sertoli Cell, Hypothyroidism

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INTRODUCTION

All things considered, for a long time, the effect of thyroid issues on male generation stayed questionable[1]. Early investigations in the 1950's exhibited that testicles were basically free of thyroid chemical impacts. Consequently, the capability of thyroid chemical in the regulation of male regenerative capacity was not decided[2].

Nonetheless, in the previous twenty years, clinical investigations have exhibited that thyroid chemical assumes a significant part in testicular turn of events and capacity. It is currently settled that T3 manages the development and development of testis, controlling Sertoli cell and Leydig cell multiplication and separation during testicular improvement in rodents and other warm blooded animal species[3].

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The proficiency of spermatogenesis, reflected by every day sperm creation in adulthood, relates to the absolute number of utilitarian Sertoli cells set up during prepubertal life. Moreover, changes in thyroid chemical levels during early testis improvement have been appeared to influence testicular development and multiplication sometime down the road[4].

The predominance of unmistakable hypothyroidism goes from 4.6% to 10.95%. Hypothyroidism is more uncommon in guys. Assessing gonadal capacity in hypothyroid patients is regularly interesting as the typical manifestations of hypogonadism like dormancy, diminished muscle strength, loss of body hair, discouraged disposition, and charisma are basic in essential hypothyroidism fundamentally[5]. Lab evaluation of hypogonadism and sexual brokenness includes the estimation of serum gonadotropins, serum testosterone, and semen examination. Be that as it may, there are issues with assessment of serum testosterone-like enormous intraindividual everyday inconstancy, diurnal variety (values will in general diminish during the early afternoon and night time frame), the precision and unwavering quality of the free testosterone examines, and helpless relationship with intra testicular testosterone[6].

The predominance of unmistakable hypothyroidism goes from 4.6% to 10.95%. Hypothyroidism is more uncommon in guys. Thyroid chemicals assume a huge part in the expansion, separation, and capacity of the Sertoli cells and Leydig cells. Assessing gonadal

capacity in hypothyroid patients is regularly precarious as the typical indications of hypogonadism like torpidity, diminished muscle strength, loss of body hair, discouraged mind-set, and moxie are normal in essential hypothyroidism fundamentally. Research facility appraisal of hypogonadism and sexual brokenness includes the estimation of serum gonadotropins, serum testosterone, and semen examination. Nonetheless, there are issues with assessment of serum testosterone-like immense intra singular everyday changeability, diurnal variety (values will in general diminish during the early afternoon and night time frame), the precision and dependability of the free testosterone examines, and helpless relationship with intra testicular testosterone[7].

MATERIALS AND METHODS

This descriptive study was conducted in Jinnah Postgraduate Medical Center Karachi during January 2019 till June 2019.The data was collected from 40 male patients. Those participants who were not willing were not included in this study. Venous blood sample was collected for the analysis of baseline characters. The blood was drawn for the estimation of thyroid levels, FSH, LH, prolactin and testosterone. History and detailed examination was done for all participants. The data was collected through systematically designed questionnaire. The semen analysis was also done after 1 hour of collecting the semen. A *P* value of <0.05 was taken as significant. All data analysis was performed using SPSS version 19.0 (SPSS).

RESULTS

The data was collected from 50 patients. The mean age was 25.67±5.67 years. According to our analysis the total motile sperm at baseline was 29% and 80% at follow up. But total progressive motile sperms was 18% at baseline and 45% at follow up. The levels of FSH at baseline was 6.45mIU/mL and after follow up was 6.46 mIU/mL.

Table No.1: Changes in semen analysis and hormones at baseline and follow-up

Parameter	Baseline	Follow-up	*P*
Semen analysis			
Total motile sperm %	29	80	<0.01
Total progressive motile sperm %	18	45	<0.01
Total non-progressive motile sperm %	5	25	<0.01
Sperm count/ejaculate (million)	155	276	<0.01
Serum FSH (mIU/mL)	6.45	6.46	0.47
Serum LH (mIU/mL)	3.35	4.54	0.03
Serum prolactin (ng/mL)	10.765	8.09	<0.01
Serum testosterone (ng/dL)	151.525	421.56	<0.01
Serum TSH (mIU/mL)	162.45	2.37	<0.01

This is just a minor difference at the level of FSH at baseline and follow up. After treatment, all patients with abnormal sperm motility showed significant improvement except one with azoospermia. The level of TSH was 162.45mIU/mL at baseline and 2.37 mIU/mL after follow up. The p-value for TSH level was <0.01.

All the data is presented in table 01.

DISCUSSION

Thyroid disappointment in the pre-pubertal period is related with testicular extension just as modifications in sexual chemicals. Hypothyroidism started in outset may happen in association with macroorchidism without virilization, albeit the pathogenesis stays dubious[7]. The more extended the hypothyroidism perseveres, the more noteworthy is the level of harm to the testicles. When enough treated with thyroid chemical, nonetheless, young men with intrinsic hypothyroidism progress through adolescence typically and at the fitting time. Morphological changes might be seen in pubertal and grown-up men testicles with constant untreated hypothyroidism, albeit the outcomes are clashing. Griboff[8], explored five hypothyroid patients and all showed ordinary sperm tallies, though different creators discovered morphological and spermatogenic modifications in testicular biopsies of prepubertal and grown-up hypothyroid patients. Hypothyroid prepubertal testis may give a prevalence of cylindrical compartment beginning stage of spermatogenesis and no expansion in the quantity of Leydig cells[9]. Grown-up testis, in any case, may introduce fibrosis and hyalinization of rounded dividers, fibroblastic multiplication, peritubular and interstitial fibrosis with inadequate Leydig cells, just as decrease of cylindrical distance across, interstitial edema and rounded basal film tenacity[10].

In people, comparative investigations done work currently are heterogeneous, concerning the quantity of patients included, the manner in which semen examination was accounted for, and if the posttreatment impact was dissected. Studies on the impact of hypothyroidism on semen boundaries done work presently show an insignificant impact of hypothyroidism on semen volume, aside from one by Corrales et al., where a measurably critical contrast was found in the mean semen volume among patients and controls (2.7 ± 1.4 versus 3.7 ± 1.2). Sperm motility and sperm tally, the two significant sperm boundaries were differentially influenced in our investigation[11].

Sperm motility was the most influenced boundary in our examination not at all like that in the investigation by Corrales et al. where it was typical. Sperm check at standard was not influenced essentially like the investigations by Krassas et al. also, Nikoobakht et al Hypothyroidism can influence sperm motility through different instruments like expansion in the degrees of

responsive oxygen species (ROS) which adjust the sperm cell film, changes in the pH of the semen, irregular action of Na+ K+ ATPases, modified transmembranous transport of calcium in the sperm cell layer, mitochondrial number, articulation of mitochondrial qualities, and discharges from the prostate and original vesicle[12].

CONCLUSION

It is concluded that sertoli cell function is effected through hypothyroidism and sperm motility is also effected. We can say that hypothyroidism directly effect on the gonads function and sperms motality.

Author's Contribution:

Concept & Design of Study:	Aisha Rabel
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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

Influence of Cavity Depth and Liner on Postoperative Hypersensitivity in Posterior Composite Restorations

Beenish Abbas[1], Faiza Gulfam[2], Fizza Sahar Anwar[3], Batool Zara[4], Sidra Aamer[5] and Saima Zafar[5]

ABSTRACT

Objective: To determine the effect of cavity depth and liner application on postoperative hypersensitivity in posterior composite restorations.

Study Design: Quasi Experimental Study

Place and Duration of Study: This study was conducted at the Department of Operative Dentistry, Foundation University College of Dentistry and Hospital, Islamabad for six months August 2020 to January 2021.

Materials and Methods: Patients of both genders 18 to 60 years of age in need of posterior composite restorations due to carious lesions, defective restorations and secondary caries were included in the study. On the first visit posterior teeth, both molars and premolars having good occlusal contact with antagonist and with the adjacent teeth showing positive response on electric and thermal vitality testing, were selected. After complete caries excavation depth of cavities were measured using WHO probe and cavities were divided into three groups; shallow depth 2mm (Group 1),medium depth 3mm(Group 2) and deep cavities measuring 4mm or more (Group 3). Group 1 cavities received light cured composite restoration without any liner or base material. In Group 2 cavities, resin modified glass ionomer base was applied before composite restoration. In Group 3 cavities, calcium hydroxide medicated liner was applied in deepest part of cavity, medicated liner was then protected with resin modified glass ionomer base before restoring cavities with posterior light cured composite restorative material. For evaluation of pain associated with postoperative hypersensitivity patients were asked to use a VAS (Visual Analogue scale) to record whether they experienced postoperative hypersensitivity. Patients were asked to fill the pain score forms at 24 hours,7th day,15th day and 30th day after the procedure. Additionally patients were instructed to record whether postoperative hypersensitivity was spontaneous or induced by heat,coldor mechanical stimulus.

Results: Total 273 patients enrolled in the study with a mean age of 35.65±9.1 years and age-range of 17-64 years.One-way ANOVA and significant differences were further explored for within-group comparison via bonferroni post-hoc test. Other comparisons were made by using independent samples t-test and Chi-square test as appropriate. A significant value of ≤0.05 was considered significant.

Conclusion: In posterior resin composite restorations post-operative hypersensitivity increased with depth of cavities and was not affected by placement of protective layers beneath the restoration. This postoperative sensitivity in deep cavities restored with resin composite however, reduced over a period of time.

Key Words: Cavity depth, liner, posterior composite restoration, post-operative hypersensitivity

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INTRODUCTION

Composite resin is popular material for restoration of carious posterior teeth recently being increasingly used due to phasing down of amalgam, longitudinal studies show comparable longevity and clinical performance in both composite and amalgam restoration. However postoperative hypersensitivity is common in posterior composite restoration resulting in significant patient discomfort[1]. In contemporary dental practice trend towards the use of posterior composites as restorative material of choice is growing owing to improvements in handling characteristics, physical properties, and advancements in adhesive systems all these leading to better longevity and enhanced performance of these restorations .Important factors that led to more common use of posterior resin restorations are Minamata Convention phase- down of the use of dental amalgam for restoration of cavitated teeth, as well as move away from extension for prevention philosophy and growing

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trend towards preventively oriented, minimal intervention dentistry[2].

Minamata Convention to phase down the use of mercury containing dental amalgam has been signed by 128 countries including UK. Resin based composite restorations are mercury free, have improved aesthetics, comparable longevity as more traditional posterior restorative materials. There are certain limitations for use of posterior composite restorations rubber dam isolation is critical to strength of bond formed between adhesive and underlying dentine .Placement of composite is technique sensitive and time consuming as incremental layering is currently recommended in order to ensure complete curing and reducing polymerization shrinkage. However, this technique can lead to presence of restoration voids and partially cured composite at the base of restoration which results in postoperative sensitivity and restoration failure[3]. Another mercury free tooth coloured alternative could be glass ionomer material but in vitro studies have shown that it has significantly inferior compressive and tensile strengths when compared to modern resin based composites[4]. To reduce technique sensitive application of large RBCs bulk fill RBCs are available with depth of cure up to 4 - 10mm considerably shortening the restoration of time[5]. Bulk fill RBCs use also claim to minimize polymerization shrinkage which is main cause of microleakage resulting in secondary caries, marginal staining and postoperative hypersentivity[6].

Clinical studies across the globe has demonstrated successful application of RBCs in wide range of clinical procedures ranging from aesthetic full mouth rehabilitation, restoring carious complex multi surface cavitated lesions to minimally invasive preventive resin restorations[7]. Optimization of every clinical step and specialized skill is required to place a good quality posterior composite resin restoration which is demanding in terms of clinical time and clinician must keep up with latest evidence-based protocols. As with any other clinical procedure proper case selection is of utmost importance need for meticulous moisture control requires rubber dam isolation[6]. Posterior resin restoration placement is technique sensitive which requires allocation of appropriate time for appointment , attention to every step must be given to minimize factors resulting in increased polymerization shrinkage stresses .composites should be avoided in patients who have history of allergy to adhesive or resin based materials. Alternative tooth coloured material which is mercury free is glass ionomer, but it has inferior aesthetics and compressive strength when compared with composite resin restoration. In an attempt to improve mechanical properties and wear resistance of resin modified glass ionomer is developed by adding components like nanoparticles and photopolymerizable resin particles but still RMGICs are not restoration of choice for posterior carious lesions[8].

MATERIALS AND METHODS

Patients were interviewed briefly counselled about the procedure written and verbal informed consent was taken. At first appointment detailed history extraoral, intraoral examination was recorded in all patients with necessary monitoring of patient vital signs. Patient safety is ensured by adhering to inclusion and exclusion criteria which is an utmost concern in dental treatment. All participants were informed about nature of study before enrolment.

The minimum sample size required for this quasi experimental study was 273 calculated by open epi calculator, with 95% confidence level and 5% margin of error where the hypothesized frequency of postoperative hypersensitivity was considered to be (23%+/-5) as reported by sabbagh et al(7).

Patients of both genders in age range between 18 to 60 years of age in need of posterior composite restoration due to carious lesion, defective restoration ,and secondary caries were included in clinical trial .Posterior teeth both molar and premolar having good occlusal contact with antagonist and adjacent teeth showing positive response on electric and thermal vitality testing were selected .Participants in need of endodontic teeth ,nonvital teeth ,showing radiographic and clinical signs of apical periodontitis, periodontal problems ,reporting history of allergy to resin based materials were excluded from the study. Pregnant, breast feeding women, patients taking anti - inflammatory drugs, analgesics and psychotropic drugs were also excluded before selecting participants in the study.

All cavities were prepared with high speed rotary instrument with air water coolant under rubber dam isolation. After complete caries excavation depth of cavities were measured using WHO probe and cavities were divided in three groups shallow measuring 2mm (group 1),medium depth 3mm(group 2),deep cavities measuring 4mm or more(group 3) .Group 1 cavities received light cured composite restoration without any liner or base material .In group 2 cavities resin modified glass ionomer base was applied before composite restoration. In group 3 cavities calcium hydroxide medicated liner was applied in deepest part of cavity medicated liner was then protected with resin modified glass ionomer base before restoring cavities with posterior light cured composite restorative material .Atraumatic finishing and polishing was performed 20 minutes after restoration placement. All restorations were placed by operators having 5 or moreyears of clinicalexperience. For evaluation of pain associated with postoperative hypersensitivity patients were asked to record whether they experienced postoperative hypersensitivity using a VAS scale .Patients were explained in the 0-10 VAS scale, the participants had to place a line perpendicular to a 10 mm line, with zero at

one end, indicating ''no sensitivity,'' and at 10 mm in the other end, indicating ''unbearable sensitivity. Patients were asked to fill the pain score forms at 24 hours ,7th day ,15th day and 30th day after the procedure. Additionally patients were instructed to record whether postoperative hypersensitivity was spontaneous or induced by heat, cold, or mechanical stimulus.

Statistical analysis: The data was entered and statistically analysed by using IBM SPSS (version 23.0) data management software. The descriptive statistics for continuous data were presented as mean and standard deviation, while categorical data was presented as frequency and percentages. The dependent variable, mean VAS score was compared with independent study groups by using one-way ANOVA and significant differences were further explored for within-group comparison via bonferroni post-hoc test. Other comparisons were made by using independent samples t-test and Chi-square test as appropriate. A significant value of ≤0.05 was considered significant.

RESULTS

Data for 274 patients was considered for analysis in this study. The mean age of study participants was 35.65±9.1 years, with age range of 17 – 64 years. There were 131 (47.8%) males and 142 (51.8%) females in the study group, where mean age of males was 36.53±9.6 years and 34.85±8.5 years for females (p=0.128). In 205 (75.1%) patients, cavity of molar tooth was involved, whereas premolar cavities were there for 68 (24.9%) of the patients.

There were three study groups made on the basis of cavity depth, each with 91 patients. Among shallow cavities group, there were 39 (42.9%) males and 52 (57.1%) females, among medium cavities group there were 44 (48.4%) males and 47 (51.6%) females, whereas in deep cavities group there were 48 (52.7%) males and 43 (47.3%) females. There was no significant difference in gender distribution of all three groups (p=0.409) as shown in table 2. On the other hand, a significant difference was observed in terms of age distribution among shallow, medium and deep cavities group (37.38±9.2 vs 35.96±9.7 vs 33.62±8.0, p=0.018) where deep cavities were more frequently observed in younger age group. Deep cavities were significantly more common in among molars as compared to premolars, while shallow cavities were more frequently encountered in premolars (p<0.001) as summarized in table 2.

A significant difference was observed between mean VAS score at 24 hour post-treatment and three study groups where VAS score was highest for deep cavities, followed by medium and shallow cavities (3.89±1.1 vs 3.20±0.95 vs 2.52±0.93, p<0.001). Bonferroni post-hoc test revealed significant within-group mean difference between three study groups as shown in table 4. Similarly, mean VAS score at 7 days was significantly higher in deep cavity group as compared to medium and shallow cavities (2.92±0.79 vs 2.15±0.68 vs 1.86±0.73, p<0.001) with significant within-groups mean differences among all three study groups.

At 15 days post treatment, the mean VAS score for dental sensitivity pain was still significantly higher in deep cavity group as compared to medium and shallow cavity group (2.91±1.0 vs 1.98±0.74 vs 1.75±0.88, p<0.001). According to Bonferroni post hoc within-group comparison, significant difference was found between deep cavity and medium/shallow cavity groups but mean score at 15 days post treatment was not significantly different between medium and shallow cavity groups as depicted in table 4. On the other hand, at 30 days post treatment, no significant difference was observed in mean VAS score of deep, medium and shallow cavity groups (1.87±0.82 vs 1.60±0.71 vs 1.74±0.80, p=0.076).

Table No.1: Summary of demographic characteristics of study group (n=274)

Sr. No.	Characteristics	Frequency (n)	Percentage (%)
1	Age (mean±SD)	35.65±9.1 years	
2	Age range	17 – 64 years	
3	Gender Male Female	 131 142	 47.8% 51.8%
4	Tooth type Molar Premolar	 205 68	 75.1% 24.9%

Table No.2: Comparison of demographic characteristics among study groups (n=274)

Sr.	Charac-teristics	Study Groups			p-value
		Shallow cavity (n=91)	Medium cavity (n=91)	Deep cavity (n=91)	
1	Age (mean± SD)	37.38±9.2	35.96±9.7	33.62±8.0	0.018
2	Gender Male Female	 39 (42.9%) 52 (57.1%)	 44 (48.4%) 47 (51.6%)	 48 (52.7%) 43 (47.3%)	0.409
3	Tooth type Molar Premolar	55 (60.4%) 36 (39.6%)	72 (79.1%) 19 (20.9%)	78 (85.7%) 13 (14.3%)	<0.001

Table No.3: Comparison of VAS score at different time points post-treatment between study groups (n=274)

Sr. No.	VAS Score time points	Mean VAS Score among study groups (mean±SD)			p-value
		Shallow cavity (n=91)	Medium cavity (n=91)	Deep cavity (n=91)	
1	VAS score at 24 hour post-treatment	2.52±0.93	3.20±0.95	3.89±1.1	<0.001
2	VAS score at 7 days post-treatment	1.86±0.73	2.15±0.68	2.92±0.79	<0.001
3	VAS score at 15 days post-treatment	1.75±0.88	1.98±0.74	2.91±1.0	<0.001
4	VAS score at 30 days post-treatment	1.60±0.71	1.74±0.80	1.87±0.82	0.076

Table No.4: Within-group mean VAS score comparison between study groups (Bonferroni post-hoc test)

VAS Score	Study groups		Mean Difference	p-value
VAS score at 24 hour post-treatment	Deep Cavity	Medium Cavity	-0.692	<0.001
		Shallow Cavity	-1.374	<0.001
	Medium Cavity	Shallow Cavity	-0.681	<0.001
VAS score at 7 days post-treatment	Deep Cavity	Medium Cavity	-0.769	<0.001
		Shallow Cavity	-1.066	<0.001
	Medium Cavity	Shallow Cavity	0.297	0.022
VAS score at 15 days post-treatment	Deep Cavity	Medium Cavity	-0.934	<0.001
		Shallow Cavity	-1.165	<0.001
	Medium Cavity	Shallow Cavity	-0.231	0.250
VAS score at 30 days post-treatment	Deep Cavity	Medium Cavity	-0.132	0.764
		Shallow Cavity	0.264	0.069
	Medium Cavity	Shallow Cavity	0.132	0.764

DISCUSSION

In this study that included 274 patients, 3 groups were made with equal number of patients. The division into three groups was based on cavity depth. There was no influence of gender distribution on cavity depth however age effected the cavity depth[9]. Individuals in the younger age group showed increased frequency of deep cavities as compared to those in an older age group which is in contrast to the reported higher incidence of caries in older age groups than younger ones[10,11] but consistent with the higher and more aggressive rate of caries spread in deciduous teeth than permanent teeth[12].

In the present study each group received composite restorations. The composite restorations in shallow depth cavities (Group 1) were placed without any protective layer under the restoration material. While in Group 2 of medium depth cavities a resin modified glass ionomer was used as a base under the composite restoration. In group 3 which consisted of deep cavities a medicated liner with resin modified glass ionomer base were applied beneath the restorative material. The placement of liners and bases in medium and deep cavity group in this study is consistent with other similar studies[13] where these protective layers are applied only in deep and medium depth cavities as shallow cavities do not require extra layer of protection[14,15].

In this study Visual Analog Scale (VAS) was used to assess postoperative sensitivity in the participants of all three groups. The results of VAS score after 24 hours showed highest occurrence of post-operative sensitivity in group 3 which had the deepest prepared cavities. These results are consistent with a similar study in which post-operative sensitivity was experienced by patients within 48 of restorative treatment with composite.[16] The increased occurrence of postoperative sensitivity in deep cavities can be attributed to multiple factors. One is that the large cavity design in posterior teeth requires a larger bulk of composite for restoration which contributes to polymerization shrinkage and shrinkage stress. In addition to this the reduced thickness of the residual dentin also contributes to postoperative sensitivity as in the deeper the cavity the dentin tubular density increases and dentin tubular permeability increases[1].

In the present study the VAS score for the deep cavities group were also high on day 7 and 15 after treatment compared to that for shallow and medium depth cavities, while there was no significant difference between medium and shallow cavities. The important finding was no significant difference in the VAS score for the three groups on day 30. This is in accordance with the results of similar studies which show that the occurrence of postoperative sensitivity reduces over time in posterior teeth restored with resin composite

and is not affected by cavity depth and use of protective layers under composite restoration[17,18].

CONCLUSION

In posterior resin composite restorations post-operative hypersensitivity increased with depth of cavities and was not affected by placement of protective layers beneath the restoration. This postoperative sensitivity in deep cavities restored with resin composite however, reduced over a period of time.

Author's Contribution:

Concept & Design of Study:	Beenish Abbas
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Original Article

Medicolegal Examination of Sexual Assault Survivors

Medicolegal Examination of Sexual Assault Survivors

Filza Ali[1], Sarba Khalid[2], Pervaiz Zarif[3], Maria Safdar[3], Mazhar Murtaza[3] and Fariha Tariq[4]

ABSTRACT

Objective: To identify the reasons of discrimination in medico-legal assessment and reports of sexual assault survivor.

Study Design: Retrospective study.

Place and Duration of Study: This study was conducted at the Study Department of Forensic Medicine, Nishtar Medical College (NMU) Multan, Pakistan during January 2020 to March 2020.

Materials and Methods: Record of 133 cases of sexual assault reported during a period of two years from January 2017 to January 2019 to the medico-legal section of Forensic Medicine Department of Nishtar Medical University, Multan were examined in detail and transferred to a designed Performa. Statistical analysis was done using SPSS version 20.

Results: Of the total 133 cases, 73.6% were examined more than 72 hours after the incidence while only 4.5% examined in first 24 hours. Majority (64.6%) belonging to the age of 11-20 years were reported to be victimized in this heinous crime. Most common type of injury was tear / laceration involving (80.4%) cases including both fresh (18%) and healed (62.4%). Abrasion and bruising of labia minora in 13(9.7%) and bruise of vagina was present in 7(5.2%) of the total cases. Medical reports and laboratory findings were consistent in (43.6%) cases whereas; 73(54.8%) cases showed discrepancy between the medical reports and laboratory data.

Conclusion: Sexual assault is more common in younger females. Late presentation for examination is one of the root causes of discrepancy between medico-legal assessment and reports of Forensic Science Laboratory. There is need to educate the young people regarding sexual assault and training of forensic examiners to evaluate such cases properly with meticulous collection of evidence so that justice can prevail.

Key Words: Medicolegal Examination, Sexual Assault Survivors

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INTRODUCTION

Sexual assault is becoming a worldwide rampant, affecting close to a billion women throughout the world. It is an offense which is frequently encountered by healthcare professionals and forensic scientists as the World Health Organization highlights [1,2]. The major hazards in evidence collection from a sexual assault survivor are deferrals in their medical examination, and improper collection and packaging of evidentiary material. These perils compromise the probative biological evidence. Task of Forensic experts regarding collection of trace evidence and furnishing opinion in the light of reports of Forensic Science Agencies is of immense importance[3].

Although injury can provide evidence of penetration but cannot determine consent. Biological evidence like semen, sperm or saliva may provide evidence of contact or sexual penetration. Usually the legal representatives involved in sexual assault cases will mostly rely on the probative value of injury and biological evidence depending on case characteristics, whether it be proving sexual contact or corroborating a physical struggle [4]. The most vulnerable age bracket for sexual assault is 10 to 17 years of age; the risk being higher as compared to adults. Due lack of awareness, majority of victims could not reach the healthcare facility for medical advice as well as medicolegal certification [5]. Careful examination of clothes / linen is very important for collection of evidentiary material subject to the condition that survivor didn’t take shower or change her clothes. Associated injuries on different parts of the body of victim in addition to those found in genital areas are also helpful during examination & provides clue about sexual act being forceful or with consent. [6,7].

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Collection of evidence in a sexual assault survivor necessitates a multidisciplinary approach which ensures a quality communication between police, medical examiners, laboratory professionals at Forensic Science Laboratory & judiciary[8]. Standard protocol for medicolegal examination of victims and collection of evidentiary material should be adopted to ensure that adequate evidence has been saved.

MATERIALS AND METHODS

Data collected by examining the record of sexual assault cases maintained by initial medicolegal examiners at Nishtar Hospital Multan and reports of Punjab Forensic Science Agency (PFSA) were also incorporated.

Inclusion criteria:

- Cases of sexual assault reported for examination from January 2017 to January 2019
- The age group 7-50 years.
- Survivors of sexual activity against their consent.

Exclusion criteria:

- Age below 7 years and more than 50 years.
- Survivors with no vaginal penetration.
- Those having sexual intercourse with consent.

RESULTS

Of the total 168 cases of sexual assault, 133 survivors fulfilling the mentioned criteria were included in study. The age range of victims was 7-50 years, with the (SD) of 18 (7.4). Majority (64.6%) belonged to the age group of 11-20 years whereas, a huge number (73.6%) were examined about 72 hours after the incidence. Genital injury was absent in 6(4.5%) cases and present in 127(95.4%) cases.

Table: 1Age Group of Survivor showing cases with percentage.

Age group of Survivor (years)	No of cases	Percentage %
7-10	7	5.2
11-20	86	64.6
21-30	27	20.3
31-40	11	8.2
41-50	02	1.5

Table No. 2: Detail of cases with regard to Time between incidence and examination

Time between incidence and examination	No of cases	Percentage %
Within 24 hrs	6	4.5
24-48 hrs	10	7.5
48-72 hrs	19	14.2
More than 72 hrs	98	73.6

Only 6(4.5%) cases were examined within first 24 hours while 98(73.6%) cases presented more than 72 hours after the incidence as depicted in Table-2.

Table No.3: Site of injury with type of genital injuries.

Site of injury	Type of genital injuries	No of cases		Percentage %
Hymen Posterior fourchette	Laceration / Tear	No tear	6	4.5%
		Fresh tear	24	18%
		Healed tear	83	62.4%
Labia (minora)	Abrasion & Bruise	13		9.7%
Vagina (posterior wall)	Abrasion & Bruise	7		5.2%

Among total 133 cases, 113 presented with laceration of hymen and/or posterior fourchette. Out of these 113 survivors, 24(18%) presented with fresh tear/ laceration, 83(62.4%) with healed tear and 4.5% with absolutely no tear. Abrasion and bruising of labia minora and inter-labial area were present in 13(9.7%) cases and bruise of vagina was present in 7(5.2%) cases only.

Table No. 4: Medical report with laboratory findings.

Medical report	Laboratory findings	No of cases	Percentage %
Positive for penetration	Spermatozoa present	58	43.6%
Positive for penetration	Spermatozoa present	69	51.8%
Negative for penetration	Spermatozoa present	4	3%
Negative for penetration	Spermatozoa present	2	1.5%

Out of 133 cases, findings were consistent in (43.6%) cases only where the penetration was proved on medical examination and Spermatozoa was also found (43.6%) in the samples as per reports of Punjab forensic science agency (PFSA). On the other hand, no correlation in 69 cases (51.8%) where penetration was proved on examination but no sperm was found in the samples collected from the survivor. Another 1.5% cases are negative for both penetration and Spermatozoa in the given samples.

DISCUSSION

The initial medico-legal examination and reports of Forensic Science Agency proved occurrence of sexual act in 58(43.6%) women. Most of the time, victims were brought by police officials & examination done on

the request of police. As per records of two years data only 13 cases reported for medicolegal examination at their own while information of the incidence alongwith certificate were provided by the examining medicolegal officer. Sexual assault being problem of all socioeconomic classes; has been under-reported, under-valued and uncorroborated throughout the world. Forensic specialist plays vital role in investigating sexual offences because their statement can either make or break the case. Although collection of trace evidences is no more challenging, but due to non-availability of trained technical staff may lead to the loss of opportunity to collect appropriate samples. It is documented in research that the victims of sexual crimes are not given proper medical care & support whiles their examination. Such complaints are common against healthcare providers in Europe [9,10]. The victims belonging to the age of 11-20 years were found to be involved in 64.6% of the cases. These finding are in line with those of Ingemann & Acierno et al [11,12]. Only 6(4.5%) of the victims reported for a medical examination in first 24 hours and about 73.6% reported after a passage of 72 hours. The finding are similar to the study conducted in Bangladesh by Islam MN et al [13] where only 23.7% were examined within 72 hour while a local study conducted by Rehman H et al [14] at Sahiwal reported that 25% of the victims were examined more than 72 hrs after the incidence. Victims and their family may be guided further regarding significance of earlier medicolegal examination required to convict the accused [15, 16].

Tears & laceration were common injuries involving (80.4%) including both fresh (18%) and healed (62.4%) tears, consistent with findings of Zilkens et al[17]. Recent studies have shown the involvement of young adolescent to be victims of sexual assaults[18]. The misdetection and recording of injuries can be cofactor in creating discrimination between medico-legal assessment and reports of Forensic Science Laboratory. The most common injured genital area was hymen and posterior fourchette. These finding are consistent with Suttipasit et al [19]. Detection of minute genital injuries are difficult but other techniques such as colposcopy as well as ultraviolet light will be beneficial for their detection [20-22].

Out of 133 cases, the findings of 58(43.6%) cases were in line while 73(54.8%) were inconsistent. There can be multiple reasons of this discrimination between medico-legal assessment and reports of the sexual assault survivor. Sometimes, either the forensic consultant records the evidences very briefly or history of survivor is not taken properly. Delayed collection of swabs & not mentioning this fact can be one of the reasons along with late reporting of the survivor i.e. after 72 hours. DNA contamination during collection of biological material is another reason which necessitates focusing to the examination & cleaning steps, to identify the site of contamination [23]. Observing standard measures during handling the specimens will be more fruitful [24].

CONCLUSION

It is mandatory for healthcare professionals to provide support to the victims of sexual assault to help the law enforcing agencies while investigating the crimes of sexual [25]. People should be educated for the benefits of early reporting for the purpose of medicolegal evidence in order to assist the law enforcing agencies & convicting the accused. A concrete effort regarding correct medicolegal certification in collaboration with all stakeholders will be beneficial in decreasing the discrepancies in medico-legal assessment and reporting of sexual assault survivors.

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Original Article

Osteoporosis in Women Having Age ≥ 40

Frequency of Osteoporosis in Women Having Age ≥ 40 Years (The Multidisciplinary Study)

Faheem Ahmed Memon[1], Siraj Ahmed Butt[1], Muhammad Kashif Shaikh[2], Shakeel Ahmed Memon[1], Aamir Usman Memon[1] and Abdul Ghani Shaikh[3]

ABSTRACT

Objective: To determine the frequency of osteoporosis in women having age ≥ 40 years.
Study Design: Cross sectional study
Place and Duration of Study: This study was conducted at the Liaquat University Hospital, Hyderabad / Jamshoro during January 2018 to April 2018.
Materials and Methods: This study was conducted on the women aged ≥40 years while the exclusion criteria were patients already on treatment of osteoporosis, known cases of connective tissue disorders (RA / SLE), and already on corticosteroids and immunosuppressive therapy. All the relevant females were explored for osteoporosis by taking detail clinical history, specific physical examination and along with baseline investigations the bone mineral density was determined through DEXA-BMD (dual energy x- ray absorptiometry) machine. The procedure is non-invasive and subjects with T- score less than -2.5 were considered as osteoporotic, the score between -2.5 & -1 was considered as osteopenic and the score > -1 were taken as normal. The frequency and percentages were computed for categorical variables whereas the mean ± SD was computed for numerical variables.
Results: During four months study period total fifty women of age ≥40 years were recruited and studied had mean age ± SD identified as 58.51±7.71 (yrs). The diabetes mellitus was observed in 22 (44%), regarding residence urban and rural population were identified as 20 (40%) and 30 (60%) while the hypertension was observed in 22 (44%) whereas regarding the BMD the osteoporosis was seen in 28 (56%), osteopenia in 10 (20%) while it was normal in 12 (24%) women.
Conclusion: The osteoporosis is a silent disorder reflected as low bone densit and ultimately leads to fractures.
Key Words: Osteoporosis, Women and Old age

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INTRODUCTION

Osteoporosis is a disease characterized by microarchitectural deterioration of bone tissue and low bone mass leading to enhanced bone fragility and increase risk of fracture.[1] It is a common health trouble responsible for mortality and morbidity with rise in socioeconomic burden.[2] Two hundred million women are estimated to be affected with osteoporosis worldwide and around one-tenth of female aged 40 years.[3]

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In neighbored country, one out of three female presents with osteoporosis, making the country as one of the biggest affected country in the world.[4] The osteoporotic fractures are responsible for morbidity and impaired the daily life activities. It is a silent disease and is presented as low bone density, till fracture occurs and leads to increased burden of fractures annually worldwide.[5] Till yet, osteoporosis considered as under recognized disorder & labeled to be morbid ageing consequence. The perceptions have been altered and awareness has been seen since studies highlights the disease burden on health care organizations, hospitals and the adverse events faced by millions of individuals worldwide.[6] During past decades, there had been major improvements in diagnostic tools & evaluation facilities; it is now convenient to identify the disorder before the fractures occurs.[7] Thus, the rationale is to screen and detect this medical disease at an early stage, so can have early intervention and management which leads to reduction in morbidity, morbidity and permanent disability. Therefore, the present study was conducted on female population of age ≥40 years presented at Liaquat University Hospital Hyderabad / Jamshoro.

MATERIALS AND METHODS

The cross sectional study was conducted at Liaquat University Hospital, Hyderabad / Jamshoro during January 2018 to April 2018 on the women aged ≥40 years while the exclusion criteria were patients already on treatment of osteoporosis, known cases of connective tissue disorders (RA / SLE), and already on corticosteroids and immunosuppressive therapy. All the relevant females were explored for osteoporosis by taking detail clinical history, specific physical examination and along with baseline investigations the bone mineral density was determined through DEXA-BMD (dual energy x- ray absorptiometry) machine. The procedure is non-invasive and subjects with T- score less than -2.5 were considered as osteoporotic, the score between -2.5 & -1 was considered as osteopenic and the score > -1 were taken as normal. It is the most reliable tool to diagnose osteoporosis and osteopenia. The proforma was designed for proper data collection while analyzed in SPSS 21. The descriptive statistics was used to describe the data and present the study results.

RESULTS

Table No. I: The clinical and demographical profile

Parameter	Frequency (N=50)	Percentage (%)
AGE (yrs)		
40-49	05	10
50-59	08	16
60-69	12	24
70-79	14	28
80+	11	22
DIABETES MELLITUS		
Yes	22	44
No	28	36
RESIDENCE		
Urban	20	40
Rural	30	60
EDUCATION		
Primary	05	10
Middle school	07	14
Higher secondary	04	8.0
Graduate	07	14
Illiterate	27	54
HYPERTENSION		
Yes	22	44
No	28	56
SOCIO-ECONOMIC		
Upper class	10	20
Lower class	40	80
BMD		
Osteoporosis	28	56
Osteopenia	10	20
Normal	12	24

During six months study period total fifty patients having age ≥40 year were recruited and studied had mean age ± SD identified as 58.51±7.71 (yrs). The demographical and clinical profile of study population is presented in Table I.

DISCUSSION

Osteoporosis makes the bones weak and fragile. It is a silent disease and is reflected by low bone density, till a fracture occurs. In women during peri-menopausal period and menopause there is maximum bone loss and as the age increases the prevalence of osteoporosis also increases.[8-10]

In present series, the mean age of the study subjects was 58.51±7.71 yrs. This is supported by study conducted by Vaasanthi PA et al, 252(63%) were in the age group of 40-49 years with the mean age of 50.91.[11,12] In the study by Vaasanthi PA, et. al 80.1% had attained menopause and 114.7% were still menstruating and among them 53.07% had attained menopause at the age of 40-45years.[12] In current study majority of the study subjects 54% were illiterate, 14% had studied up to middle school, similar finding was observed Ayesha et al study where 36% were illiterate.[13] In a study done by Das BG, et al in 2016, 66 % of females belonging to lower socio-economic scale.[14] The mean BMI was 26.92 + 7.74 years. In a study done by Lan-Juan Zhao, et al shown no any association of body fat on bone mass.[15] The cross sectional survey on osteoporosis among women conducted by Agrawal T, et al was observed that 38.6% of ladies were normal according to WHO T score criteria while the 48.1% had osteopenia whereas 13.3% had osteoporosis.[16] Since the awareness was poor among the study population, thus the health education regarding the risk factor and benefits of exercise, foods rich in calcium and vitamin D and benefits of sun exposure, prevention, treatment and early screening tests should be initialized in multidisciplinary pattern.

CONCLUSION

The osteoporosis is a silent disorder reflected as low bone densit and ultimately leads to fractures. In women during peri menopausal period and menopause there is maximum demineralization while the disease is directly proportional to advance age.

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

Vitamin D Deficiency in Patients with Sepsis

Vitamin D Deficiency in Sepsis

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ABSTRACT

Objective: To determine the vitamin D deficiency in patients with sepsis.

Study Design: cross sectional study

Place and Duration of Study: This study was conducted at the at Tertiary Care Hospital Hyderabad / Jamshoro during July 2018 to December 2018.

Materials and Methods: The inclusion criteria were the patient of age ≥ 18 years along with any two or more of the mentioned components as (I) fever (II) increase heart rate (III) increase respiratory rate and (IV) increase or decrease total leukocyte count with 10% immature form while the exclusion criteria were pregnant and lactating women, patient already on vitamin D supplements or anti epileptic therapy, chronic liver / renal disease, malabsorption syndrome and the patients known case of malignancy and osteomalacia. The vitamin D levels were measured in all these patients at the time of admission or within 24 hours whereas each patient was followed till discharge or expired or left the hospital against medical advice and the outcomes was measures. The frequency and percentages were computed for categorical variables whereas the mean ± SD was computed for numerical variables.

Results: During study period total fifty women of sepsis were recruited and studied had mean age ± SD identified as 55.54±7.63 (yrs). Regarding gender the male and female population was observed as male 30(60%) and female 20 (40%), diabetes mellitus as 27 (54%), residence as urban 15 (30%), rural 35 (70%), type of infection as wound infection 30 (60%), abdominal infections 08 (16%) and soft tissue infections 12 (24%) while the sepsis severity as septic shock 11 (22%), severe sepsis 12 (24%) and sepsis 27 (54%) and outcomes as mortality 08 (16%), discharge from hospital 38 (76%), and left against medical advise 04 (8.0%) and vitamin d deficiency was detected in 35 (70%) patients with sepsis.

Conclusion: This study shown that the persons who have vitamin D deficiency are more prone to infection and sepsis and have higher mortality rate and poor outcome.

Key Words: Vitamin D, Sepsis and Septic shock

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INTRODUCTION

Sepsis is Systemic Inflammatory Response Syndrome (SIRS) that has a proven or suspected microbial etiology leads to severe sepsis, septic shock and multiple organ failure requires intervention to table the homeostasis.[1,2] Despite clinical research during decades, the pathogenesis of sepsis and immune mechanism still not fully understood.[3]

However, the systemic exposure to microorganism leads to production of lipopolysaccharide which generates complex and impaired the immune system.[4,5] The vitamin D is an important hormone and has active form which facilitates its biological properties by binding to receptor as vitamin D receptor (VDR) and increase the induction and production of antimicrobial peptides (AMP) and β defensin which act as body's front line defense against virus, bacteria, fungi and mycobacterial pathogen.[6-8] Thus, by keeping the hypothesis in mind, the study was designed to conducted on the patient hospitalized with sepsis and to explore the status of vitamin D level among such population at tertiary care teaching hospital Hyderabad / Jamshoro.

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MATERIALS AND METHODS

The cross sectional study was conducted during July 2018 to December 2018 at tertiary care hospital Hyderabad / Jamshoro. The inclusion criteria were the patient of age ≥ 18 years along with any two or more of the mentioned components as (i) fever (ii) increase heart rate (iii) increase respiratory rate and (iv) increase or decrease total leukocyte cunt with 10% immature form while the exclusion criteria were pregnant and

lactating women, patient already on vitamin D supplements or anti epileptic therapy, chronic liver / renal disease, malabsorption syndrome and the patients known case of malignancy and osteomalacia. The patients with sepsis were evaluated with detailed history, clinical examination and routine hematological and biochemical laboratory investigations. The patients were categorized in sepsis, severe sepsis and septic shock according to reference definitions while the vitamin D levels were measured in all these patients at the time of admission or within 24 hours whereas each patient was followed till discharge or expired or left the hospital against medical advice and the outcomes was measures. The proforma was designed to collect the data and analyzed in SPSS 21 and the descriptive statistics were used to compute the study variables.

RESULTS

Table No.I: The clinical and demographical profile

Parameter	Frequency (N=50)	Percentage (%)
AGE (yrs)		
18-29	03	6.0
30-39	10	20
40-49	12	24
50-59	13	26
60+	12	24
GENDER		
Male	30	60
Female	20	40
DIABETES MELLITUS		
Yes	27	54
No	23	46
RESIDENCE		
Urban	15	30
Rural	35	70
TYPE OF INFECTION		
Wound infection	30	60
Abdominal infections	08	16
Soft tissue infections	12	24
SEPSIS SEVERITY		
Septic shock	11	22
Severe Sepsis	12	24
Sepsis	27	54
OUTCOMES		
Mortality	08	16
Discharge	38	76
Left against medical advise	04	8.0
VITAMIN D DEFICIENCY		
Yes	35	70
No	15	30

During study period total fifty patients with sepsis were recruited and studied had mean age ± SD identified as 55.54±7.63 (yrs). The demographical and clinical profile of study population is presented in Table I.

DISCUSSION

This study revealed the prevalence of vitamin D insufficiency among septic individuals.

Sudhir U, et al. Shown the incidence of sepsis was more in patients aged over 50 years (60%). The age distribution is consistent to the studies conducted around the world.[9] Martin, GS et al observed higher incidence of sepsis in subjects aged above 57 years. The mean age in an epidemiological study of sepsis was 54.9 years.[10] Agnus DC, et al shown that the incidence and severity of sepsis increases with age.[11]

Todi S, et al. found from a multicentre trial done at 12 centers in neighboring country that sepsis was more common among male population.[12]

Jeng L, et al. study shown that the vitamin D insufficiency was exists in 100% of critically ill subjects with sepsis, 92% of critically ill individuals without sepsis and 16.5% in healthy controls.[13]

Ginde AA, et al. observed in their study that serum vitamin D level less than 30 ng/ml were more likely to have severe sepsis.[14] The present study also consistent with the study done by Sudhir U, et al.[9]

According to Calandra T, et al. few common infection sites are responsible for sepsis were pneumonia, surgical wound and blood stream infection.[15]

Cecchi A, et al was identified that Vitamin D levels were low in septic population but lacks to consider it as a mortality predictor on multivariate analysis.[16]

CONCLUSION

This study shown that the persons who have vitamin D deficiency are more prone to infection and sepsis and have higher mortality rate and poor outcome.

Author's Contribution:

Concept & Design of Study:	Siraj Ahmed Butt
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Data Analysis:	Santosh Kumar, Muhammad Hasnain, Abdul Ghani Shaikh
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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 and Clinical Variants of Oral Lichen Planus Among Dental Patients: A Cross-Sectional Multicenter Study

Oral Lichen Planus Among Dental Patients

Daud Mirza[1], Waqas Iqbal[3], Perveen Memon[4], Seema Naz Soomro[4], Khalid Mustufa Memon[2] and Shahzaman Memon[5]

ABSTRACT

Objective: The aim of this present study was to investigate frequency, clinical variants and its correlation with gender and age.

Study Design: Cross-sectional multicentre study

Place and Duration of Study: This study was conducted at the different dental clinics of Karachi and Hyderabad from August, 2018 to August 2020.

Materials and Methods: A total of 55 clinically diagnosed patients of oral lichen planus of both gender were included in this study. The age range was 10 to 90 years of age. Frequency of OLP was investigated among both gender and data was transferred on SPSS version 23 and Chi-square was applied and the level of significance was considered p= ≤ 0.05.

Results: Out of 55 subjects, 29(52.7%) were male and 26(47.3%) females. The mean age and standard deviation was 59.01 SD ±11.61. The present study findings showed higher predilection of oral lichen planus was seen among males 29(52.7%) than females 26(47.3%). The reticular types of oral lichen planus was highly seen in both gender and least observed was plaque type of OLP and no statistically significant findings were found P> value .455. The OLP was reported higher in 31-60 years age group 30(54.55%) least reported in 10-30 years age group 1(1.82%). This study also revealed the association of OLP among hypertensive and diabetes patients.

Conclusion: Oral lichen planus is a chronic disease with multifactorial aetiology. This study showed higher prevalence of OLP in males particularly in 31-60 years of age group. The OLP has been reported with other comorbidities like hypertension, diabetes, psychosomatic ailments. The clinician should be aware about OLP and its systemic association for timely diagnosis and its management to halt the disease process.

Key Words: Autoimmune, basal keratinocytes, oral lichen planus, corticosteroids

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INTRODUCTION

The term lichen planus is derived from the Greek word 'leichen' meaning tree moss and Latin word 'planus' means flat.[1]

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Thelichen planus is the most common dermatological disease which manifest in the oral cavity with the name of oral lichen planus (OLP). It is a chronic inflammatory, autoimmune disease of the stratified squamous epithelium that affects mouth and other parts of the body such as skin, scalp, nails and genital mucosa. The oral lichen planus is the mucosal counterpart of the cutaneous lichen planus.[2]The onset of disease has been reported between the 30 to 70 years of age and higher prevalence seen in females with a ratio of 1:4:1.[3] Researches has been shown that OLP has been seen in more in women than men.[4] In this context a local study conducted in Lahore, Pakistan showed female dominance.[5]

The incidence and prevalence of OLP is not exactly known, but this lesion may present throughout the world with variable frequency. The prevalence of OLP being ranging from 1.9% in Swedish population, 0.5% in Japanese, 2.6% in Indian and 0.38% in Malaysian subjects.[6] Oral lichen planus has shown the association with tobacco habits, the relative risk was reported approximately 3.7% in people with mixed oral habits, lowest 0.3% in non-users of tobacco and highest

prevalence of OLP (13.7%) seen in those who smoked and chewed.[7]

The etiology of OLP is remains fully elucidated; but it is considered as multifactorial in origin. Different triggering factors such as malnutrition, infectious, stress, endocrine disorders and psychological trauma and genetic susceptibility play an important role in the etiopathogenesis of this disease.[8,9] Study has shown that HLA associated genetic factors play a role in the development of oral lichen planus. This association has been observed with HLA-A3, A11, A26, A28, B3, B5, B7, B8, DR1, and DRW9 in Chinese patients.[10,1] The use of systemic drugs also contribute in the etiology of oral lichenoid reaction such as: angiotensin-converting enzyme (ACE) inhibitors, beta blockers, NSAIDs, sulfonylureas, antimalarial and tooth paste flavoring agents particularly cinnamate[11,12,10] The research has shown that the commonly used dental materials may also trigger oral lichen planus. These materials includes gold, palladium, silver amalgam, epoxy resins (composites). The OLP has also been reported in patients who used denture for longer duration.[11,13]

Clinically, OLP present as radiating white lines, grey, thread like papules,annular and retiform arrangement forming typical lacy, reticular patches, rings and streaks forms Wickham striae (these are tiny white elevated dots are present at the intersection of white lines known as Wickham striae),[7]The lesion is usually asymptomatic in majority of cases particularly reticular type of OLP. It may present bilaterally, symmetrically anywhere in mouth. The most common location of OLP in oral cavity is buccal mucosa followed by gingiva, floor of mouth, tongue, lips and palate.[1]

The clinical presentation of OLP may ranges from asymptomatic white keratotic lesion to painful erosions and ulcerations. There are six distinctive clinical variants of OLP have been recognized so far. They include: keratotic reticular, papular, plaque-like white patches, erosive, atrophic, and bullous (ulcerative) type of OLP.[14]

The diagnosis of OLP is not complex process but history and clinical examination of oral lesions and skin involvement are usually sufficient to make clinical diagnosis of the disease. However, a biopsy is the recommended for the definitive diagnosis of OLP to differentiate it from other lesions of oral cavity. The aim of this study is to investigate the frequency and different clinical variants of oral lichen planus among both genders.

MATERIALS AND METHODS

This cross-sectional multicenter study was conducted at the department of dentistry of Mamji Hospital, and different clinics of Karachi and Hyderabad from August, 2018 to, August 2020. The sample size was calculated by using software OpenEpi.com by using prevalence of oral lichen planus 3.8%, 95% Confidence interval and 2160 was the population size for 3 years estimated. The required sample size was found 55 from formula.

Sample size n= [DEFF*Np(1-p)] / [(d2/Z2 1-a/2*(N-1)+p*(1-p)

A total of 55 patients of both genders with age ranging from 20 to 80 years of age group were included in this study. All patients were clinically and histologically diagnosed with oral lichen planus. The ethical approval was obtained from Hospital committee. A non-probability convenient sampling technique was used for this study. Informed consent was taken prior to oral examination of each patient. The demographic and clinical details such as age, gender, systemic disorders and related medications and different types of OLP present in oral cavity were also investigated. The names of different clinical variants includes: 1) keratotic reticular 2) papular 3) plaque like 4) atrophic 5) erosive 6) bullous (ulcerative) type. The exclusion criteria include patients under 20 years of age and those patients who did not give consent for the participation in this study. The data was recorded on a proforma and analyzed by Statistical Package for the Social Sciences (SPSS) version 23. The comparison of parameters of age and gender between the types of analyzed by using Chi-square test and results were considered significant if $p < 0.05$.

RESULTS

A total of 55 clinically diagnosed patients participated in present study, out of which 29(52.7%) males and 26(47.3%) were females. The minimum age of participants was 32 years and maximum 88 years. The mean age and standard deviation was 59.01 SD ±11.61 as shown in Table 1. Our study findings showed higher predilection of oral lichen planus was seen among males 29(52.7%) than females 26(47.3%). Table 2 depicts the clinical variants of OLP according to gender showed that the reticular types of oral lichen planus was highly seen in both gender and least observed was plaque type of OLP. Statistically no significant findings were found when gender and types of oral lichen planus was cross tabulated P> value .455 (Table 2).

Table No.1: Showing gender distribution of OLP.

Gender	Patients (n)	SD ±
Male	29 (52.7%)	11.61SD ±
Female	26(47.3%)	
Total	55	

In present study, the oral lichen planus was further analyzed with respect to age group which revealed that the oral lichen planus was reported higher in 31-60 years age group 30(54.55%) followed by 61-90 years 24(43.64%) and 10-30 years age group 1(1.82%). The relationship of multiple comorbidities like hypertension, diabetes, hepatitis and stress/anxiety was also reported. Higher cases of OLP were recorded

among hypertensive and diabetes patients and least observed in hepatitis patients.

Table No.2: Cross tabulation of OLP variants with respect to gender.

Clinical variants of OLP	Male (%)	Female (%)	P-value
Reticular	22(75.8%)	17(65.3%)	.455
Atrophic	4(13.7%)	2(7.6%)	
Erosive	3(10.3%)	5(19.2%)	
Plaque	-	1(3.8%)	
Bullous	-	1(3.8%)	
Total	**29**	**26**	

*Chi-square test was applied, P-value ≤0.05 considered to be statistically significant

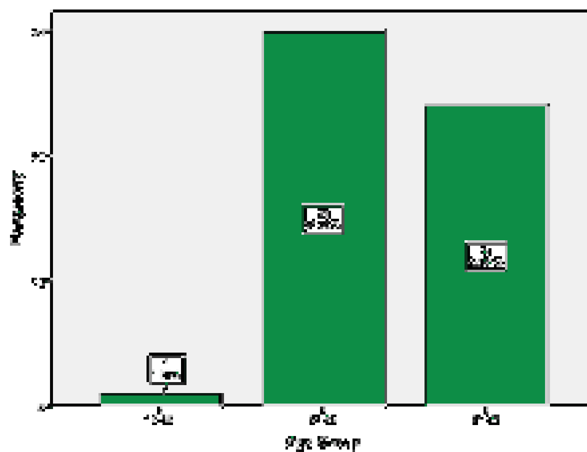

Figure No.1: Distribution of OLP with age groups.

DISCUSSION

Oral lichen planus is a common dermatological disorder, which may affect the skin and oral mucosa. This was described by Erasmus Wilson in 1869. This condition is linked with undue emotional stress, anxiety and depression. OLP usually affects 1-2% of the adult population. Literature has shown that it affects more predominantly female as compared to males with a ratio of 1.4:1 particularly middle aged women[15,16]A case control study on Indian patients showed female dominance which are in accordance with our findings.[17]The OLP is a geriatric disease with multifactorial etiology. It has been linked with some system diseases. The present study also confirms that the most frequent comorbidity associated with OLP was the hypertension followed by diabetes and liver diseases. In clinical study of Lopez-Jornet found that the hypertension was observed in 19.2% followed by diabetes (Type 2) 11.5% of cases. This result also supports our present findings. This may be due to autoimmune nature of OLP and effects of prolonged use of particular type of antihypertensive drugs.[18]

Numerous researches have been carried out over the last few decades to find out the relationship of hepatitis C with OLP[19,20] Studies performed in some parts of the world like in China,[21]Brazil,[19]USA[22]showed positive association of OLP with hepatitis C in a greater amount when compared with controls. The present study findings are in accordance with above mentioned studies. This is true in our sample the association was reported in both gender with a very small figure. The author also recommends take large sample size to authenticate finding.

The role of psychosomatic factors and its association with dermatological disorders is still controversial.[15] The stress and anxiety is the possible factors which are also linked with OLP. In present study, these elements were highly observed in females than males. In this context, a study conducted in Kerala, India revealed 57% of patient of OLP had stress factor with erosive type of lichen planus. Majority of patients as has a mutual consensus on that, the stress or anxiety may aggravate their condition and lead to discomfort and finally affect their quality of life.[4] Similar type of study was conducted in Iranian patients reported, the erosive type of lichen planus had significantly more stress ($Z = 4.123$; $p < 0.05$) than the controls subjects.[23] This study also confirms the role of stress, anxiety and depression has a relationship with OLP which later on affects the quality of life of an affected individual.

In current study, the reticular type of oral lichen planus was the commonly observed followed by erosive and atrophic type in both gender. The plaque type of OLP was less observed in present findings. The bilateral symmetrical involvement of the buccal mucosa was highly dominant in most of the patient of reticular type. This study was also supported by Ingafou study.[24] Monica conducted a retrospective on study on Brazilian patients showed the reticular type was most frequently seen in females with buccal mucosa involvement.[25] Another study conducted in United Kingdom oral medicine specialist and they observed that reticular form of OLP was the most common intra-oral presentation seen in British patient with 95% of bilateral involvement of buccal mucosa.[24]A clinicopathological study by C Petrou-Amerikanou showed in type I diabetic patients the OLP was found 5.76%, in type II DM 2.83%, and 1.82% in their control subjects. This finding clearly indicates the OLP is an autoimmune phenomenon and T cell immune responses respectively may contribute critical role in the presentation of OLP in type I diabetes mellitus patients.[26]

CONCLUSION

Oral lichen planus is a chronic autoimmune disease with multifactorial aetiology. The oral lichen planus has been reported with other comorbidities like hypertension, diabetes, psychosomatic ailments. In present study OLP were found higher in female as compared to males in elderly population. In present study, hypertension, diabetes, hepatitis and stress and depression patients reported OLP with higher frequency. In Author opinion the OLP data should be taken to other hospital to correlate OLP with other ailments to authenticate the findings with respect to

gender. The timely diagnosis of oral lichen planus may play an important role to improve the quality of life of affected individual and halt the disease progression.

Author's Contribution:

Concept & Design of Study:	Daud Mirza
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Final Approval of version:	Daud Mirza

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

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Original Article

Association of Serum Calcium Level and Febrile Fits

Serum Calcium Level and Febrile Fits

Ubedullah Bahalkani[1], Sheeraz Ahmed[1], Bakhtiar Ahmed[1], Mumtaz Ali Bharo[2] and Kamran Ali[1]

ABSTRACT

Objective: To study the Association of Serum Calcium level and febrile fits.
Study Design: Observational study
Place and Duration of Study: This study was conducted at the Department of Pediatrics, Khair Pur Mirs Medical College, Khair Pur Mirs during January 2019 to December 2020.
Materials and Methods: This observational study was done on fifty children (six months to five year old) detected with febrile fits as the cases and forty year matched febrile children as the control group. Serum calcium, levels were measured. Results were analyzed with SPSS (version 20) using Student t-test. The informed consent of parents in every case was taken before collecting the samples. The permission of Ethical Committee was taken before collection of data and get published in Medical Journal.
Results: The age of patients of febrile fit was 35±13.2 and in control age was 36±10.99 and p value was P=0.09. There were 22 (44%) male and 28 (56%) female children in control and 24 (48%) male and 26 (52%) female children in control and P value was P=0.7. There was 8.72±0.46 mg calcium in febrile fit patients and 9.15±0.58 mg in control children and P<0.001 which was significant difference
Conclusion: Deficiency of calcium was correlated significantly with febrile fits, while further investigations on trace elements are required.
Key Words: Calcium, Febrile convulsion, Children

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INTRODUCTION

Febrile fits is a highly common problem of neurology at childhood[1]. Approximately, two to five percent of children are found to undergo at least one fit during a febrile illness before they get five year old[2], accounting for thirty percent of all fit among children. Fit is associated with fever though there is no evidence of brain infection or a definite cause for it[1,2]. The mechanisms underlying febrile fit have multi factorial cause, complicated by the fact that the pathology of febrile fits is unknown in most cases.

Febrile fits represents the point between a low fit threshold and components of genetic. Several essential elements play important roles in reactions of redox, in connective tissue or cell membranes, in stabilization molecules of biology, and in control of biological processes by helping the binding of molecules to receptor sites on cell membranes[3]. While disturbance in serum electrolytes is considered as a pathology theory of febrile fits, it has not been detected confirmed as yet. Low levels of some elements such as iron and sodium (Na) in the blood play roles in repeated occurrence of febrile fits[4]. We aimed to investigate some trace elements among children admitted with febrile compared with those of febrile without fit attacks.

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MATERIALS AND METHODS

This study was conducted at the Department of Pediatrics, Khair Pur Mirs Medical College, Khair Pur Mirs during January 2019 to December 2020. This observational study was done on fifty children (six months to five year old) detected with febrile fits as the cases and forty year matched febrile children as the control group. Serum calcium, levels were measured. Results were analyzed with SPSS (version 20) using Student t-test. The informed consent of parents in every case was taken before collecting the samples. The permission of Ethical Committee was taken before collection of data and get published in Medical Journal.

RESULTS

The age of patients of febrile fit was 35±13.2 and in control age was 36±10.99 and p value was P=0.09.

There were 22 (44%) male and 28 (56%) female children in control and 24 (48%) male and 26 (52%) female children in control and P value was P=0.7 as shown in table 1.

Table No. 1: Comparison between Cases and Controls regarding Age and Gender

Group	Cases (n=50)	Controls (n=50)	P-value
Variable			
Age (months)	35 ± 13.2	36 ± 10.99	P=0.09
Sex			
Male	22 (44%)	24 (48%)	P=0.7
Female	28(56%)	26 (52%)	

Table No. 2: Comparison between Cases and Controls regarding calcium

Group	Cases (n=50)	Controls (n=50)	Independent t-test
Variable			
Ca	8.72 ± 0.46	9.15 ± 0.58	P<0.001

There was 8.72±0.46 mg calcium in febrile fit patients and 9.15±0.58 mg in control children and P<0.001 which was significant difference as shown in table 2.

DISCUSSION

Febrile fits is the most common cause of seizures among children. It has been known since very old time that fits mostly accompany fever in young children. The exact pathogenesis is unknown but involves factors such as genetic predisposition and alterations. In the present work, we found the levels of trace elements and major element concentrations among children with febrile fits. Our results showed that calcium levels were affected in children with febrile fits. The changes in calcium in febrile fits explained the response of the metabolism. (5) It exerts a voltage dependent blockage of Nmethyl-Daspartate (NMDA) receptor channel (6,7, 8-10 (11, 12), while Sadeghzadeh et al. did not found any clear abnormalityin serum, Ca levels in children with febrile fits although his study did not have a control group (13) (14). In the current study, a significantly low Ca concentration was found in patients with febrile fits as compared with the controls. Ca concentrations in the febrile fits group were lower than in the control group (3). results(6) but concide with Heydarian et al.'s (15). While this was a case–control study with a sound design, it suffered from some deficiency such as we did not perform the detection of Cerebro Spinal Fluid level of the trace elements.

In conclusion, Ca, levels were significantly lower in children with simple febrile fits in comparison with febrile children without fit. It can stress the hypothesis that there is a relation between some serum elements' levels and febrile fits in children.

CONCLUSION

Deficiency of calcium was correlated significantly with febrile fits, while further investigations on trace elements are required.

Author's Contribution:

Concept & Design of Study:	Ubedullah Bahalkani
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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

Antenatal Breast Feeding Counseling of Mother and Family for Early Initiation of Breast Feeding and Improving of Milk Production is a Major Tool

Bakhtiar Ahmed[1], Ubedullah Bahal Kani[1], Mumtaaz Ali Bharo[2], Kamran Ali[1] and Sheraz Ahmed[1]

ABSTRACT

Objective: To study the Antenatal breast feeding counseling of mother and family for early initiation of breast feeding and improving of milk production is a major tool.

Study Design: Community-based cross-sectional study

Place and Duration of Study: This study was conducted at the This study was conducted at the Department of Pediatrics, Khair Pur Mirs Medical College, Khair Pur Mirs during Jan 2020 to Dec 2020.

Materials and Methods: Three hundred mothers and their family community-based cross-sectional study was conducted in Imran Idris teaching Hospital Sialkot during Jan 2020 to Dec 2020. The Antenatal breast feeding counseling of mother and family was done for early initiation of breast feeding and improving of milk production is a major tool. The informed written consent was taken before taking the data. The permission of Ethical Committee of the institute was taken before collecting the data and get publishing in Medical Journal. The results were made by SPSS version twenty.

Results: The incidence of breast feeding was maximum 160 (53.33%) at age group 16-26 years and was minimum 20 (6.66%) at age group 38-40 years. The mothers visited for antenatal care were 284 (94.6%) and 16 (5.3%) did not visited for antenatal care. The incidence of breast feeding in children was maximum 210 (70%) at age group 1-10 months and was minimum 20 (6.66%) at age group 21-24 months

Conclusion: It was concluded that the practice of early initiation of breastfeeding was low when it is compared to World Health Organization recommendation. World Health Organization suggested that every newborn baby has to feed breast milk within one hour after birth and feed colostrum.

Key Words: Feeding of colostrum, Early initiation, Breast feeding

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INTRODUCTION

Human breast milk is very important feeding for all children[1]. World Health Organization defines early initiation of breastfeeding as it is the initiation of breast milk feeding within one hour after delivering the baby.[2, 3, 4]

Neonatal mortality can be prevented by 33% if early initiation of breastfeeding is practiced by mothers[5,6].

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A study from Zimbabwe revealed that delayed breastfeeding increases the risk of developing neonatal sepsis within the first 1 week of life[7–10].

Colostrum is the first milk that is very important for newborns baby in protection of infections. As the first milk is rich in immunoglobin G, colostrum has a importance in resistance of disease. According to different research, children who didn't take first feed as colostrum develop many infections, slow growth, insufficient weight, and progressively weaker[11–14].

Since research were done in Ethiopia to estimate early initiation feeding of breast milk is not enough and no research done in the research area, the objective of this study to measure early initiation of breastfeeding and colostrum feeding practice among mothers of children aged less than twenty four months in Debre Tabor town.

MATERIALS AND METHODS

Three hundred mothers and their family community-based cross-sectional study was conducted This study was conducted at the Department of Pediatrics, Khair

Pur Mirs Medical College, Khair Pur Mirs during Jan 2020 to Dec 2020. The Antenatal breast feeding counseling of mother and family was done for early initiation of breast feeding and improving of milk production is a major tool. The informed written consent was taken before taking the data. The permission of Ethical Committee of the institute was taken before collecting the data and get publishing in Medical Journal. The data was analyzed for results by SPSS version 20.

RESULTS

Table No. 1: Age distribution of mothers in Imran Idris Teaching Hospital Sialkot

Sr. No.	Age of Mother	No of Cases (300)	Percentage %
1	16-26	160	53.33
2	27-37	120	40.00
3	38-40	20	6.66

The incidence of breast feeding was maximum 160 (53.33%) at age group 16-26 years and was minimum 20 (6.66%) at age group 38-40 years (table 1).

Table No.2: Reproductive characteristics of mothers

Variables	Frequency (N)	Percentage %
Having ANC visit		
Yes	284	94.6%
No	16	5.3%
Total	300	100%

The mothers visited for antenatal care were 284 (94.6%) and 16 (5.3%) did not visited for antenatal care as shown in table 2.

Table No. 3: Age distribution of children

Sr. No.	**Age (month)**	**Cases**	**Percentage%**
1	1-10	210	70%
2	11-20	70	23.33%
3	21-24	20	6.66%
Total		300	100%

The incidence of breast feeding in children was maximum 210 (70%) at age group 1-10 months and was minimum 20 (6.66%) at age group 21-24 months as shown in table 3.

DISCUSSION

The finding of our study showed that the early initiation of breastfeeding was done by seventy six point eight percent of mothers (CI; seventy two percent to eighty one point five percent). This result was coincided to a study done in Mota which shows that the incidence of early initiation of breastfeeding is seventy eight point eight percent. Similarly, a study done in Dembecha district showed that the incidence of early initiation of breastfeeding is seventy three point one percent which is almost coincide to our finding[15].

In our current study, we also assessed colostrum feeding given by mothers and the finding showed that colostrums feeding is given by three-fourths (seventy four point four) of mothers which is resemble to a study done in Mizan Tepi (seventy six point two percent)[16]. A finding from Gondar shows that colostrum feeding is given by thirty one percent of mothers which is lower than the recent study[17]. This difference may be due to time difference. In addition to this, higher practice of colostrums feeding in our study is may be due to that the current study was done between urban mothers whereas the back study was conducted among rural mothers[18]. In contrary to this, the current study is lower than studies done in Raya Kobo[19] and Kombolcha[20] which show that colostrum feeding is given by eighty six point five percent and eighty eight point six percent mothers respectively. This difference may be due to that socio economic variable between the recent and the back study. The difference also may be due to the fact that beliefs of culture may be are not common for all population. Beliefs of culture are more seen in Debre Tabor population than in Kombolcha and Raya because Debre Tabor societies are more be loving for religion.

CONCLUSION

It was concluded that the practice of early initiation of breastfeeding was low when it is compared to World Health Organization recommendation. World Health Organization suggested that every newborn baby has to feed breast milk within one hour after birth and feed colostrum.

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

An Assessment of Inheritance Pattern and Gender Wise Distribution of Lip Prints Among Biological Families in Pakistan

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ABSTRACT

Objective: To access the uniqueness of lip prints which aids in personal identification and sex determination and to ascertain whether there is any hereditary pattern in lip prints among families with siblings and biological babies.
Study Design: A descriptive study
Place and Duration of Study: This study was conducted at the Department of forensic medicine & toxicology, WM&DC, Abbottabad, and Holy family Hospital, Rawalpindi from January 2018 to June 2018.
Materials and Methods: A total of 216 individuals (father, mother, both children's), who underwent descriptive study of lip impression collection without any anesthesia or drug, were enrolled into the present study. Father, mother and both babies of each family were selected. Lip prints of Father, mother and both babies of each family were recorded. Each lip of 54 offspring's was compared with the corresponding lip of his/her father mother and other baby. The segments of each lip of the offspring's that matched/ resembled with either of father mother and biological babies were recorded.
Results: Out of 54-total families, biological babies of 19(35.18%) families observed resemblance with father, where as biological babies of 35(64.81%) families observed resemblance with mother. There was no definite identical lip print observed in any of the children. Furthermore, the prevalence of Type II lip prints was most higher type present in males and in females.
Conclusion: Lip prints of study participants did not match with each other, distinctive similar to finger prints it is considered feasible to apply lip prints features in personal identification.
Key Words: Cheloscopy, Lip prints, Personal identification, biological Family

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INTRODUCTION

Identification by lip prints analysis is a less common applied procedure. Although it is very simple to be perform, less time consuming, easy to document, very much less expensive and no need of sophisticated machines requirements[1,2].

Lip patterns can be identifying in intra uterine life of sixth week and by 9th week the formation of upper lip will be almost completed and remain unchanged for the rest of human life[3,4,5].

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If a definite description of the lip print patterns of an individual is established by detailed study, this anti-mortem record of lip prints pattern can be used in postmortem records for personal identification, in sexual offences, in identification especially in cases of missing persons of biological family.

Presence of lip prints are irrefutable fact if the suspect has visited the crime site. If visited and consumed some drink or food stuff, touched some frame glass or used crockery, cloths etc then Lip print presence will provide relationship between suspect and crime scene. A detained record of individual lips can be used to match with lip prints on crime scene for identification of culprits.

The identification of misplaced persons can be very helpful in the practice of misery resolve of friends and family[6]. Individual Identification is a preliminary for death documentation and also for subjective, communal and legitimate motives[7].

Keeping in view the importance of lip print patterns in personal identification, the present study was carried out to ascertain resemblance among the biological families involving babies, to determine the hereditary nature of lips.

MATERIALS AND METHODS

This descriptive study was conducted at Department of forensic medicine & toxicology, women medical & dental college, Abbottabad and Holy family Hospital, Rawalpindi, from January 2018 to June 2018.

Non probability convenience sampling technique was used to collect sample. A total of 216 individuals, who underwent for collection of lips impression, were enrolled into the present study. The study was approved by the Ethical Committee of the women medical & dental college Abbottabad, and an informed consent was obtained from the father, mothers, children's (males & girls) /guardians of children. All participants were given brief details of our objectives and answered the questions relating to procedure. In the present study, a total of 216 father, mothers, children's (males & girls) were analyzed, which met the above sample size requirements.

Inclusion criteria: Only individuals having lips with normal transition zone of mucosa and skin were included in the study.

Exclusion criteria: Individuals were excluded from the study if they have: Inflammation of lips, malformation, deformity, surgical scars, and active lesions, Hypersensitive to impression material and No drugs or chemical was used in study subjects.

Individual's lips were cleaned and dried. A thin layer of lipstick was applied in a single motion evenly on the lips of each individual. After two minutes, the individuals were advised to maintain a relaxed lip position. Negligible pressure was sustained while making the lip impression and the glued portion of the cellophane tape fixed on to the white bond paper was used to make the lip impression. Lip prints on non-porous surfaces are better to be snapped and magnified so bond paper was preferred over tissue papers. This cellophane tape on bond paper served as a permanent record. The impressions were afterward visualized with the magnifying lens.

The upper and lower lips were divided through the mid-point by an imaginary horizontal line. A vertical imaginary line was drawn to divide lips into left and right upper and lower quadrants. The right upper quadrant was designated as first quadrant, the left upper as second quadrant, and the left lower as third quadrant, and right lower as fourth quadrant.

Quadrants of lips

RIGHT UPPER LIP Quadrant 1	LEFT UPPER LIP Quadrant 2
RIGHT LOWER LIP Quadrant 4	LEFT LOWER LIP Quadrant 3

Each quadrant was analyzed from the center of the lip outward toward the corner of the lip and the various types of lip prints findings were recorded for each quadrant. The lip prints obtained were given coded number and analyzed while keeping the identity of the respective individuals hidden.

Each individual of the family was numbered alphabetically as follows:

Sr.No.	Individual	Symbol
1	Father	A
2	Mother	B
3	First baby	C
4	Second baby	D

54 families were collected and 4 members per family including father, mother and biological babies. We have divided in to 5 pairs in which we studied;

Father verses 1st baby (AC)
Father verses 2nd baby (AD)
Mother verses 1st baby (BC)
Mother verses 2nd baby (BD)
1st baby verses 2nd baby (CD)

The above mentioned data was recorded on predesigned performa and the lip print patterns were scrutinized in accordance of Suzuki and Tsuchihashi classification (Suzuki, K., Tsuchihashi, Y., 1970).

The data was entered and analyzed using SPSS 20.0 (Statistical Package for Social Sciences). Basic statistical techniques were used. Mean was calculated in all quadrants of individual lips. Frequency and percentages was calculated for resemblance among biological families and for gender. Z-test was applied to test the resemblance of lip prints to mother and father separately in the family. The data was represented in the form of tables and figures.

RESULTS

The available data was used to generate the profile of resemblance of lip prints among various family members. The comparison was made between: father lip prints and both biological babies; mother lip prints and both biological babies; first biological baby and both parents; second biological baby and both parents, and then amongst biological babies.

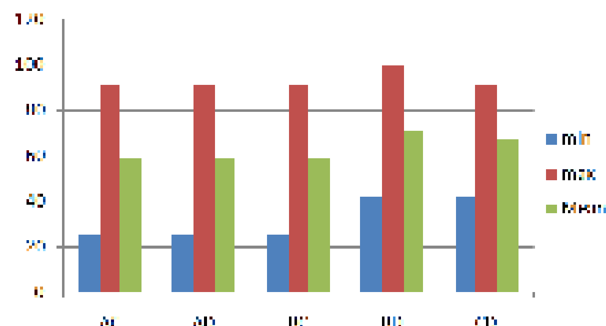

Figure No.1: Mean, Min, Max Resemblance of Parents and babies

The mean resemblance between father and both biological baby was found to be 58.335 while between mother and first baby was as 58.335 and between

mother and second baby was as 70.835. The mean resemblance between first baby and second baby was found to be 58.335.

Table No.1: Minimum and maximum resemblance in families

resemblance	Father to 1st baby	Father to 2nd baby	Mother to 1st baby	Mother to 2nd baby	1st baby to 2nd baby
Min.	25 %	25 %	25 %	41.67 %	41.67 %
Max.	91.67 %	91.67 %	91.67 %	100 %	91.67 %
Mean	58.335 %	58.335 %	58.335 %	70.835 %	66.67 %
Average	58.335	58.335 %	58.335 %	70.835 %	66.67 %

In all of 54 families, fathers resemblance with 1st and 2nd babies were calculated, and then mothers resemblance with 1st and 2nd babies was calculated. In 19(35.18%) families, off-springs found to be having higher resemblance with fathers (z=0.4978, p<0.05), whereas in 35(64.81%) families, children's lip impressions showed higher resembling with mothers (z=0.49917, p<0.05). Lip prints showed a strong positive and statistically significant correlation between parents and their biological babies.

We observed that mother resemblance towards babies was at higher level as compared with father resemblance. Father to mother resemblance ratio is 1:1.8.

Table No.2: Father to mother Resemblance ratio.

Pairs of Family Members	Resemblance
Father vs. 1st Baby (A-C)	62.50%
Father vs. 2nd Baby (A-D)	62.65%
Mother vs. 1st Baby (B-C)	69.13%
Mother vs. 2nd Baby (B-D)	71.76%
1st Baby vs. 2nd Baby (C-D)	72.38%

Out of 54- families, 26 (51.85%) were male babies pairs while 28 (48.14%) were female babies pairs. Male to Female babies' pair ratio was 1: 1.2.

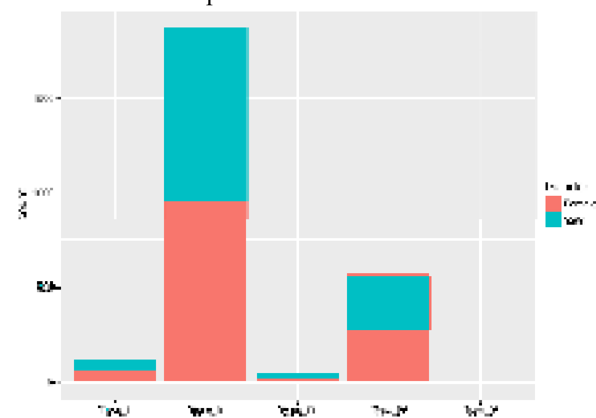

Figure No.2: Percent distribution of Types of Lip Prints in Male and Female

Lip print types of all members of 54 families were studied. Type I, II, III and IV were found in both males and females. Type II was most common type present in males 913(70.8%) and in females 957(72.3%), while Type IV was second most common type in both males 296(22.9%) and in females 271(20.4%), followed by type II in males 49(3.8%) and in females 67(5.0%) and type III in males 30(2.3%) and in females 22(1.6%). Type V was least common in female 5(0.3%). None of the male has type V lip prints.

Table No.3: Types of lipprints and frequency in study population

Lip type	Male	%age	Female	%age	total	%age
Type 1	49	0.038043	67	0.050681	116	4.44
Type 2	913	0.708851	957	0.723903	1870	71.64
Type 3	30	0.023292	22	0.016641	52	1.99
Type 4	296	0.229814	271	0.204992	567	21.72
Type 5	0	0	5	0.003782	5	0.19
Total	1288	100%	1322	100%	2610	100 %

The study samples included more males (106) as compared to females (110). Twenty six pair of male whereas twenty eight pair of female babies was included in the study. Male to female gender ratio was 1:1.02.In all the families father Maximum and Minimum Resemblance was 87.51% & 25% while mother Maximum and Minimum Resemblance was 91.67% & 33% respectively.

DISCUSSION

The present study is a valuable addition to the available data of cheiloscopy on biological families. The study is unique with the largest data set of 54 different families having biological babies as compared to the previous studies and is first of its kind in Pakistan and in the world.

Study of lipprint analysis on biological babies has shown that lipprints are quite similar but not equal and relatives may have some degree of similarity concerning the predominant grooves pattern[8].

There is no significant difference found in parents and biological babies. The resemblance of lip print pattern between father to biological babies (Z-0.4978, P< 0.05) and mother to biological babies (Z-0.49917, P< 0.05) was found to be statistically significant. Pattern of inheritance from father to biological babies and mother to biological babies was statistically significant. Two way ANOVA test showed a substantial variance in type of lip prints found in dissimilar families (p= 0.0001). While no significant difference was observed between parents and biological babies. Overall the average

inheritance from father is 62.618 % and from mother is 70.49 %. Lipprints are not identical in case of identical twins but similarities of lip prints between parents and children's were found accounting for the hereditary to play a major role. This indicates that lip print patterns of biological babies shows a marked similarity with parents and can be used for comparison of lip prints within the family. These results are consistent with previous studies indicating significant level of similarities and genetic factor in biological babies[9,10].

The most important feature of the current study is that the level of resemblance of parents with the biological babies is studied. When individuals were compared for resemblance among biological family, there was no significant difference in parents and off springs as revealed by Z-test (z=0.4978 and z=0.49917 for father and mother respectively) showing positive association with both parents. However, the findings of the study are consistent with the other study findings where they found no significant correlation with parents and biological babies.[11]

Our current study has recorded each and every line of entire lip starting from middle to periphery in each quadrant. Type II lip print pattern of both sexes in all of the 04-quadrents. In female study subjects, lipprint type II was most common finding which is consistent with the results of other observations[12]. Our studies also reveal that all the four quadrants of an individual's lip showed different types of patterns and in each single quadrant there were multiple patterns present. Hence we can confirm that no two lip prints match with each other and unique for individuals.

We observe that individuals don't have particular pattern in them in a particular quadrant of lip but that appeared to have a mixture of different patterns. it was found that they shared some similarity in the grooves but the detail features of lip prints were not same. We found that neither between the biological babies nor the biological babies with their parents had the similarity. Current study shares several features common with other published data in literature[13-18]. In the present study, lip prints of study participants did not match with each other. Thus, this finding validates that lip prints are distinctive similar to finger prints and thus have forensic significance.

Furthermore In the studied individuals, no two lips showed single type of lip print in whole of lip. Mostly mix type of lip prints were seen in all of biological children and their parents. In all families biological children shared features of lip print resemblance with father and mother that was found to have statistically significant association (p=<0.05). None of the biological child in any of the family showed complete lip print resemblance either with father or mother. All biological babies pairs were not absolutely identical but similar and their characteristic resembled either parents, which is similar to the studies performed on children[19,20,21]. biological babies constitute a peculiarity inherent to cheiloscopy. Studies of lip prints on biological babies have shown that prints are quite similar but not equal and that relatives may have some degree of similarity concerning the predominant groove patterns, since lip prints seem to undergo strong influence by heredity.

The biggest limitation of the current study is that When the subjects press his or her lips, there is a possibility that only the central area of lip come in contact while the rest relaxed portion stay away of cellophane tape, which leads to distortion of the prints[22,23,24].

CONCLUSION

Based on the analysis in the current study, lip prints of studied biological families with biological babies participants did not match with each other. it is considered feasible to apply lipprints features in personal identification. Thus, this finding validates that lip prints are distinctive similar to finger prints and thus have forensic significance.

Author's Contribution:

Concept & Design of Study:	Aftab Alam Tanoli, Qurrat Ul Ain
Drafting:	Aftab Alam Tanoli, Atif Hussain, Naila Bangash
Data Analysis:	Farrukh Iqbal, Atif Hussain
Revisiting Critically:	Naila Bangash, Muhammad Asif, Farrukh Iqbal
Final Approval of version:	Aftab Alam Tanoli, Qurrat Ul Ain

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

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Original Article

Polycystic Ovarian Syndrome

Lifestyle Intervention on Feature of Polycystic Ovarian Syndrome in Obese Adolescent Girls

Mahwish Pervaiz[1], Shazia Munir[2], Urfa Taj[1], Samreen Shabbir[2], Faheema Rasul[2] and Shazia Jabeen[2]

ABSTRACT

Objective: To study the lifestyle intervention on feature of polycystic ovarian syndrome in obese adolescent girls.
Study Design: Prospective study
Place and Duration of Study: This study was conducted at the Obstet and Gynecology Department, Jinnah Hospital Lahore and Sardar Begum Teaching Hospital Sialkot during Jan 2019 to April 2020.
Materials and Methods: One twenty five patients of polycystic ovarian syndrome in obese adolescent girls were selected for recent study. The informed consent of every patient was taken before history examination and Ultrasonography. The permission of Ethical Committee was taken before collecting data and get publishing in Medical Journal. The data was analyzed for results by SPSS verison20.
Results: One hundred twenty five girls (mean age fourteen point nine ± zero point eight yr) reduced their Body Mass Index Standard Deviation Status higher than zero point two in the lifestyle intervention, whereas fifty girls demonstrated an increase of Body Mass Index Standard Deviation Status or a reduction of Body Mass Index Standard Deviation Status less than or equal to zero point two (mean age fifteen point one ± zero point seven yr).
Conclusion: The prevalence of ovarian syndrome was maximum seventy five (sixty percent) at age group twelve to fourteen and was minimum fifty (forty percent) at age group fifteen to seventeen.

Key Words: Lifestyle intervention, polycystic ovarian syndrome, fatty adolescent girls

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INTRODUCTION

Polycystic ovarian syndrome is a common disorganization affecting as many as five to ten percent of female of reproductive age[1,2,4]. Being a complex functional disorganization, Polycystic ovarian syndrome is furthermore associated with the metabolic syndrome[1,5–9], perhaps predisposing to heart and blood vessels diseases[1,9,10].
Lifestyle intervention is regarded as treatment of choice for both Polycystic ovarian syndrome and related to metabolism syndrome[1,11–15,16, 17].
A further benefit of examinations of adult girls is that there is usually no capacity uncertain with other sickness or drugs.
Therefore, we determined the benefit of a one-yr style of life stopping on the features of Polycystic ovary syndrome (increase androgen in blood and cycles of menses) and related to metabolism syndrome (damaged tolerance of glucose, increase lipid in blood, high blood pressure, and increased circumference of waist).[18,14,19,20]

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MATERIALS AND METHODS

One twenty five patients of polycystic ovarian syndrome in obese adolescent girls were selected for recent study. The informed consent of every patient was taken before history examination and Ultrasonography. The permission of Ethical Committee was taken before collecting data and get publishing in Medical Journal. The data was analyzed for results by SPSS verison20.

RESULTS

One hundred twenty five girls (mean age fourteen point nine ± zero point eight yr) reduced their Body Mass Index Standard Deviation Status higher than zero point two in the lifestyle intervention, whereas fifty girls demonstrated an increase of Body Mass Index Standard Deviation Status or a reduction of Body Mass Index Standard Deviation Status less than or equal to zero point two (mean age fifteen point one ± zero point seven yr) (Table 1).
The prevalence of ovarian syndrome was maximum seventy five (sixty percent) at age group twelve to fourteen and was minimum fifty (forty percent) at age group fifteen to seventeen.

Table No. 1: Factor of the metabolic syndrome and carotid Immune Modulated Thrombocytopenia in the course of one year in seventy five girls with and fifty girls without successful weight loss in a one year lifestyle intervention

Variable	Successful weight loss (Body Mass Index Standard Deviation Status reduction>0.2)			No Successful weight loss(increase or reduction≤0.2 of Body Mass Index Standard Deviation Status		
	Baseline	1year later	P value	Baseline	1year later	P value
BMI (kg/m^2)	32.1 (3.7)	28.2 (3.4)	<0.001	33.8 (6.8)	34.4 (6.9)	0.031
BMI-SDS	2.54 (0.50)	1.91 (0.60)	<0.001	2.64 (0.74)	2.74 (0.75)	0.011
Waist circumference (cm)	96.8 (16)	94.9 (10)	0.033	97.98 (11)	101.99 (11)	NS
Triglycerides (mg/dl)	137.99 (39)	111.98 (39)	0.022	135.98 (67)	147.96 (77)	NS
HDL-cholesterol (mg/dl)	44.9 (9)	52.94 (13)	<0.001	45.96 (9)	47.98 (15)	NS
Fasting glucose (mg/dl)	84.96 (7)	84.98 (6)	NS	85.96 (9)	87.98 (9)	NS
Insulin (mU/liter)	22.96 (15)	16.98 (10)	0.037	24.96 (14)	32.99 (13)	NS
HOMA	4.7 (3.7)	3.56 (2.0)	0.049	4.7 (3.3)	4.7 (3.1)	NS
2-h glucose in oGTT (mg/dl)	129.96(23)	107.98 (19)	0.009	125.96 (24)	127.98 (28)	NS
Systolic blood pressure (mm Hg)	122.96 (15)	113.98 (11)	0.016	124.97 (16)	124.96 (16)	NS
Diastolic blood pressure (mm Hg)	73.96 (12)	65.95 (13)	0.029	69.96 (9)	70.99 (12)	NS
Metabolic syndrome (IDF definition)	34.96%	3.98%	0.008	35.98%	38.96%	NS
Intima-media thickness (cm)	0.066 (0.005)	0.054 (0.002)	<0.001	0.063 (0.008)	0.064 (0.008)	NS

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Table No. 2: Factors of the polycystic ovarian syndrome in the course of one year in seventy five girls with and fifty girls without successful weight loss in a one year lifestyle intervention

Variable	Successful weight loss (Body Mass Index Standard Deviation Status reduction>0.2)			No Successful weight loss(increase or reduction≤0.2 of Body Mass Index Standard Deviation Status		
	Baseline	**1year later**	**P value**	**Baseline**	**1year later**	**P value**
Testosterone (nmol/liter)	1.97 (0.7)	1.49 (0.5)	0.036	1.79 (0.7)	1.59 (0.6)	NS
DHEA-S (µg/liter)	1681 (861)	1824 (757)	NS	2078 (166)	2152 (1277)	NS
SHBG (nmol/liter)	16.98 (9)	24.98 (11)	<0.001	13.96 (5)	12.99 (4)	NS
Androstendione (ng/ml)	2.7 (1.3)	2.7 (1.6)	NS	3.59 (2.1)	3.29 (1.4)	NS
Free testosterone index	34.96 (14)	25.98 (10)	0.004	36.87 (10)	34.96 (21)	NS
LH (mU/ml)	9.49 (7.5)	5.19 (4.3)	0.005	10.5 (7.4)	7.78 (4.0)	NS
FSH (mU/ml)	4.49 (2.7)	5.29 (3.1)	NS	5.59 (2.7)	4.69 (2.1)	NS
LH/FSH	2.29 (1.5)	1.09 (0.8)	0.002	2.29 (1.6)	1.89 (1.2)	NS
Amenorrhea (%)	68.99	26.96	<0.001	60.99	54.98	NS
Oligomenorrhea (%)	30.98	11.96		38.98	35.96	

Table No. 3: Age distribution

Sr. #	Age (years)	Number of cases	Percentage %
1	12-14	75	60%
2	15-17	50	40%
Total		125	100%

The prevalence of ovarian syndrome was maximum 75(60%) at age group 12-14 and was minimum 50(40%) at age group 15-17 as shown in table no 3

DISCUSSION

Loss of weight due to style of life stoppage was associated with an provement of steroid hormones and irregularities of blood loss during menstrual period. These results are in resemblances with studies in adults[14, 15]. Ornstein and colleagues[19] also showed in a small study an development of irregularities of menses in weight loss of fatty girls with Polycystic ovary syndrome. Hoeger et al[14] noted a decrease of testosterone and an increase of Sex hormone-binding globulin in twenty four adolescent fatty girls treated with lifestyle prevention.

The recent study resulted that, testosterone levels lowered and SHBG concentration elevated notably in the females with PCOS and decrease in weight, so that independent testosterone levels decreased, on the other hand DHEA-S concentration was unchanged. The results of current research were in collaboration with previous studies in which it was indicated that females having PCOS, indicated that decrease in body weight caused a relieve in clinical features of hyper androgenism but caused no effect upon DHEA-S[15]. The results of these studies indicated that testosterone and SHBG are basic important criteria to diagnose PCOS. The previous studies have concluded that both these hormones are linked to increased insulin levels. Testosterone increases and SHBG decreases when insulin increases[1]. So it can be concluded that levels of insulin either decreased or increased leads to increased levels of sex hormones in the polycystic ovary syndrome[1,2]. Insulin and Leutnizing Hormone both co act to elevate the levels of sex hormones. Another action of Insulin is not letting the liver cells to form Sex hormone-binding globulin, which is the most important factor to carry the male sex hormone. This leads to elevated levels of independent male sex hormone. The results of this research also prove it correct that insulin immunity has connection with between obesity and polycystic ovary syndrome and not mass of fat[1].

On the other hand, the androstenedione hormone concentration was not changed in females in whom the weight had decreased level as compared to concentrations of testosterone as explained in previous researches.[15-20]

CONCLUSION

The prevalence of ovarian syndrome was maximum seventy five (sixty percent) at age group twelve to fourteen and was minimum fifty (forty percent) at age group fifteen to seventeen.

Author's Contribution:

Concept & Design of Study:	Mahwish Pervaiz
Drafting:	Shazia Munir, Urfa Taj
Data Analysis:	Samreen Shabbir, Faheema Rasul, Shazia Jabeen
Revisiting Critically:	Mahwish Pervaiz, Shazia Munir
Final Approval of version:	Mahwish Pervaiz

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

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Original Article

Incidence of Hepatitis in Pregnant Women

Hepatitis in Pregnant Women

Qamoos Razaaq[1], Major Asiya Yaqoob[2], Asma Liaqat[3] and Umra Imran[1]

ABSTRACT

Objective: To study the Incidence of Hepatitis in Pregnant Women

Study Design: Retrospective Study

Place and Duration of Study: This study was conducted at the Mansehra Teaching Hospital Abbottabad, PAF Hospital Islamabad from 1st March, 2018 to 28th February, 2020.

Materials and Methods: Four hundred reproductive age pregnant females of group from King Abdullah Teaching Hospital Mansehra and PAF Hospital Islamabad were selected by sampling technique were studied at Mansehra teaching hospital Mansehra and PAF Hospital Islamabad,) The permission of Ethical Committee was taken before collection of data and get publishing in medical journal.

Results: The incidence of hepatitis was maximum 197 (49.25%) at age group 15-25 years and minimum 12 (3.0%) at age group 37-45 years. The incidence of hepatitis was maximum 220 (55%) in District Mansehra & was 180 (45%) in District Sialkot respectively. The incidence of hepatitis was maximum was maximum 190 (47.5%) in Low class of pregnant women & minimum 70 (17.5%) in high gentry of pregnant women. The incidence of hepatitis was maximum at 2nd trimester 170 (42.5%) & minimum at 1st trimester 102 (25.5%). The frequency subjected to ALT & ICT was maximum 175 (43.75%) in discarded after initial testing & was minimum 15 (3.75%) in repeated after 4 weeks. The incidence of hepatitis was maximum at initial screening by ICT positive patients 70 (17.5%) & negative patients 330 (85.5%). The incidence of hepatitis was maximum 80 (50.63%) every 5th sample -ve for HCV by ICT, was minimum 30 (7.5%) sample with high ALT of ELISA tests for HCV antibodies. The incidence of hepatitis C patients was 297 (74.25%) & Hepatitis B Patients was 103 (25.75%) respectively.

Conclusion: Seroprevalence of HCV in pregnant females of District Mansehra & District Sialkot different from the figures already reported from the other parts of Pakistan.

Key Words: Hepatitis C & B, Chronic liver disease, Seroprevalence

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INTRODUCTION

From very long period contamination may be go with by thickening and scarring of connective tissue and lead to degeneration of cells, inflammation, and fibrous thickening of tissue.

Inflammation of liver type C & B virus is a one of the causes of contamination of liver. It is a single grounded Ribo Nuclic Acid virus of the Flaviviridae family. It shows an estimated one hundred seventy million persons internationally, three percent of the world's people (World Health Organization estimates) and three to forty lakhs of newly contaminated people every year.[1,2] It was seen in Nineteen hundred eighty nine.[3] Inspite its large socio economic difference, there is nothing a substance used to stimulate the production of antibodies not much more side effect free treatment against the virus. Hepatitis C Virus contamination is a leading cause of chronic inflammation of liver, liver chronic disease of the liver marked by degeneration of cells and cell of liver carcinoma internationally.[4,5] Contamination with inflammation of liver type C Virus is found in thirty to fifty percent of persons infected with human immunodeficiency virus, human immunodeficiency virus contamination leads to more early growth of chronic hepatitis C to degeneration of cells, inflammation, and fibrous thickening of tissue.[6]

Hepatitis C & B virus is transferred through blood contact.[7,8,9]

Hepatitis C & B virus has become much more public health problem and is incidence in many countries including Pakistan. Hepatitis C virus contamination starts mostly without clinical symptoms and leads in the most of sick persons (seventy to eighty percent) to resistant virus in blood and chronic Hepatitis including a chronic disease of the liver marked by degeneration of cells, inflammation, and fibrous thickening of tissue

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and liver cell cancer.[10] Recent work has been done to determine the incidence of serum of hepatitis C & B in the pregnant women of District Mansehra and District Islamabad.

The measured internationally prevalence of Hepatitis C virus contamination was two point two percent, resembling to about one hundred and thirty millions Hepatitis C virus -positive sick persons world wide.[11]. The lowest incidence (zero point zero one to zero point one percent) has been seen from countries in the United Kingdom and Scandinavia; the Highest incidence (fifteen to twenty percent) has been found from Egypt.[10,] an estimated twenty seven percent of cirrhosis and 25% of Liver cell carcinoma internationally occur in Hepatitis C virus contaminated people.[11] there are both geographical and temporal differences in the sick persons of Hepatitis C virus contamination.[12]

MATERIALS AND METHODS

Four hundred reproductive age pregnant females of group from King Abdullah Teaching Hospital Mansehra, and PAF Hospital Islamabad were selected by sampling technique were studied from 1st March, 2018 to 28th February, 2020 at Mansehra teaching hospital Mansehra, and PAF Hospital Islamabad). The permission of Ethical Committee was taken before collection of data and get publishing in medical journal.

RESULTS

Table No.1: Age distribution of hepatitis

Age Group (years)	No. of patients	Percentage
15–25	197	49.25
26–35	191	47.75
37–45	12	03.0
Total	400	100%

The incidence of hepatitis was maximum 197 (49.25%) at age group 15-25 years and minimum 12 (3.0%) at age group 37-45 years as shown in table 1.

Table No.2: District wise distribution of patients of hepatitis

District	No. of patients	Percentage
Mansehra	200	50
Sialkot	150	37.5
Islamabad	50	12.5
Total	400	100

Table No.3: Distribution of patients of hepatitis according to socio-economic status (n=400)

socio-economic status	Number	Percentage
High	70	17.5
Middle	140	35
Low	190	47.5
Total	400	100%

The incidence of hepatitis was maximum 200 (50%) in District Mansehra & was 150 (37.5%) in District Sialkot and Islamabad 50 (12.5%) respectively as shown in table 2.

The incidence of hepatitis was maximum was maximum 190 (47.5%) in Low class of pregnant women & minimum 70 (17.5%) in high gentry of pregnant women as shown in table 3.

Table No.4: Gestational Period distribution (n=400)

Trimester	Number	Percentage
1st (0–3 Month)	102	25.5
2nd (4–6 Month)	170	42.5
3rd (7–9 Month)	128	32.0
Total	400	100%

The incidence of hepatitis was maximum at 2nd trimester 170 (42.5%) & minimum at 1st trimester 102 (25.5%) as shown in table 4.

Table No.5: Frequencies according to ALT and ICT

Category	Number	Percentage
Initial testing	400	100
Discarded after initial testing	175	43.75
Retained every 5th sample	63	15.75
Repeated after 04 wks	15	3.75
Positive by ICT	80	20.0
Raised serum ALT	67	16.75
Total	400	100%

The frequency subjected to ALT & ICT was maximum 175 (43.75%) in discarded after initial testing & was minimum 15 (3.75%) in repeated after 4 weeks as shown in table 5.

Table No.6: Distribution Results of initial screening by ICT

Positive		Negative	
Patients	% age	Patients	Percentage
70	17.5	330	82.5
	Total	400	100%

Table No.7: Results of enzyme-linked immune-sorbent assay tests for hepatitis C antibodies (n=158)

Group	Tested	Positive		Negative	
		Patients	%	Patients	%
HCV positive by ICT method	48	43	89.5	05	30.37
Samples with high ALT	30	0	0.0	30	7.5
Every 5th sample -ve for HCV by ICT	80	0	0.0	80	50.63
Total	158	43	---	115	---

The incidence of hepatitis was maximum at initial screening by ICT positive patients 70 (17.5%) & negative patients 330 (85.5%) as shown in table 6.

The incidence of hepatitis was maximum 80 (50.63%) every 5th sample -ve for HCV by ICT, was minimum 30 (7.5%) sample with high ALT of ELISA tests for HCV antibodies as shown in table 7.

Table No. 8: Hepatitis C & B distribution

Category of hepatitis	Patients	Percentage
Hepatitis C	297	74.25
Hepatitis B	103	25.75
Total	400	100

The incidence of hepatitis C patients was 297 (74.25%) & Hepatitis B Patients was 103 (25.75%) respectively as shown in table 7.

DISCUSSION

Inflammation of liver type C contamination is a national health issue. As the contamination is mostly severe, people based branch of medicine which deals with the incidence, distribution, and control of diseases works have been done in different parts of the world including Pakistan to measure its prevalence and develop stopping methods. The level of a pathogen in a population, as measured in blood serum of Hepatitis C virus contamination was found to be one point eight percent corresponding to about three point nine million persons in the United States of America.[12]

Prevalence of inflammation of liver type C virus in mothers and children was seen to be nine point thirty five percent and four point zero nine percent in a work done at Lahore.[18] Mother to infant transfer of Hepatitis C virus contamination works at Karachi revealed sixteen point five percent suggesting mothers positive for Hepatitis C virus.[13] These results are different from those of this work.

A study done on thalassaemic children showed thirty six point twenty five percent positive in serum of anti Hepatitis C virus antibodies which increased with the of blood given number. Different the level of a pathogen in a population, as measured in blood serum level were seen in the different groups of religion. [14] the level of a pathogen in a population, as measured in blood serum of Hepatitis C virus was six point three percent in prisoners.

The level of a pathogen in a population, as measured in blood serum of Hepatitis C virus was also founded in healthy looking persons. Blood donating person put out prior to blood donating showed one point one percent positivity of anti Hepatitis C virus antibodies.[22] A similar work done on adolescent before to put out in Armed Forces showed three point sixty nine percent serum positive of anti Hepatitis C virus.[15]

The level micro organism in a people, as measured in blood serum of Hepatitis C virus contamination in general people was measured at five point three percent[18]. So the rate of false positive by Information and Communication Technologies was ten point forty one percent. More works on large samples are required to further study this, as it was more the importance of the recent work. [19, 20]

CONCLUSION

Seroprevalence of HCV in pregnant females of District Mansehra & District Sialkot different from the figures already reported from the other parts of Pakistan.

Author's Contribution:

Concept & Design of Study:	Qamoos Razaaq
Drafting:	Major Asiya Yaqoob, Asma Liaqat
Data Analysis:	Umra Imran
Revisiting Critically:	Qamoos Razaaq, Major Asiya Yaqoob
Final Approval of version:	Qamoos Razaaq

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

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Original Article

Prolactin with Psoriasis in Patients

Association of Prolactin with Psoriasis in Out-Patients at a Tertiary Care Hospital

Nadia Rajper[1], Muhammad Suleman Pirzado[2], Hafiz Bashir Ahmed Kalhoro[1],Tanweer Ahmed Shaikh[3], Muhammad Yaqoob Shahani[4] and Sanam Pirzado[1]

ABSTRACT

Objective: Psoriasis is a serious, persistent, disfiguring, inflammatory, and proliferative skin disorder. Prolactin (PRL), an anterior pituitary gland secreted neuropeptide, has a number of physiological and biochemical actions. It has been suggested that Prolactin may be involved in psoriasis development. Therefore, the study could help to look for hyperprolactinemia in psoriasis patients and thus take appropriate treatment measures to address the issue. The study's basic objective is to determine the mean amount of serum prolactin in psoriasis patients.

Study Design: Observational / cross sectional study

Place and Duration of Study: This study was conducted at the outpatient's department (OPD) of Department of Dermatology, LUMHS Jamshoro & LMU hospital Sindh Pakistan from October 2015 to March, 2016.

Materials and Methods: This research included 42 confirmed cases of psoriasis. All these patients were tested by the ELISA technique of taking 3cc venous blood sample in a disposable syringe for serum prolactin level and sent it for analysis to the laboratory. On pre-designed pro forma, the patient data are collected.

Results: The average age was 37.71± 10.68 years. There were 40.48% male and 59.52% female. Mean serum prolactin level in patients of psoriasis was 44.21± 14.73 ng/ml (95%CI: 39.61 to 48.80).

Conclusion: The above findings indicate that the amount of serum prolactin may play a significant role in pathophysiology of psoriasis. In patients with psoriasis, we experienced a significant rise in serum PRL. We therefore could say that PRL can be used as a useful psoriatic behavioral biological marker.

Key Words: Psoriasis, Serum prolactin level, Hyperprolactinemia

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INTRODUCTION

Psoriasis is a severe persistent, incapacitating, aggressive, and proliferative skin disorder. It is medically characterized by plaques that are dark, scaly, clearly defined, indurated, present especially on extender surfaces and scalp.[1]It is also characterized by keratinocyte hyperproliferation and T cell aggregation in the psoriatic lesions involving epidermis and dermis.[2]The mean worldwide prevalence of psoriasis is considered to be around 2%.[3]Psoriasis is a serious, long-lasting (chronic) condition, there is no cure, although therapies for psoriasis can provide some relief.[4]

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A neuropeptide secreted by the anterior pituitary gland, prolactin (PRL), has a number of physiological and biochemical activities. It was involved as an active immunomodulator and through various receptors this exerts a proliferative effect on cultivated human keratinocytes.[2]Hyperprolactinemia has been reported to occur frequently in psoriasis patients and it has been suggested that PRL may promote psoriasis development.[5] The presence of PRL receptors on epidermal keratinocytes supports the hypothesis that PRL may play a role in the etiopathogenesis of psoriasis.[6]Elevated serum prolactin levels can play a rolein in-vivo keratinocyte hyperproliferation, the hallmark of the cycle of psoriasis disease.[7]There are three recent studies on this basis reporting an independent correlation of increased serum PRL levels with psoriasis.[8]The interest in investigating the "psoriasis-PRL link" should be reinvigorated. El-Chateeb and so on.[9]noted that blister fluid PRL levels obtained from skin-active psoriasis patients are significantly higher than those obtained from uninvolved or healthy skin in blister fluid.

The study was carried out to determine the association between the levels of serum prolactin and psoriasis to investigate the relationship between Prolactin and psoriasis growth. The research will therefore help to check for hyperprolactinemia in patients with psoriasis

and thus take appropriate treatment steps and aid with proper diagnosis.

MATERIALS AND METHODS

This is an observational cross sectional study, conducted in outpatient's department (OPD) of Department of Dermatology, LUMHS Jamshoro & LMU hospital Sindh Pakistan. A non-probability consecutive sampling technique was used for this study. The confidence interval was 95%, the margin of error 3, n=42 patients, according to the observed mean serum prolactin rate= 49.590. This study was carried out on patients with psoriasis who attended the outpatient department (OPD) of the Dermatology Department, Jamshoro & LUMHS Hyderabad after approval by the Ethics Committee. The informed consent from all patients was read and explained to the patient before they were registered for the analysis. All these patients were evaluated by the ELISA technique of taking 3cc venous blood sample in a disposable syringe for their serum prolactin level and sent it for analysis to the laboratory. Patients' serum prolactin level was reported. All patient data was entered and analyzed using version 17.00 of SPSS. For age and serum prolactin, the mean and standard deviation (SD) were calculated. For patients with psoriasis, the incidence and percentage were assessed for gender distribution of elevated prolactin. It has been accredited with regard for age and gender, post-stratification variance analysis and an independent sample t-test has been applied to compare mean increased prolactin in psoriasis patients.

RESULTS

This study included 42 diagnosed cases of psoriasis. Patient age distribution isshown in Figure-1.The average age and duration of disease as shown in Table-2 was 37.71 ± 10.68 years and 5.21 ± 1.80 months. In this study, 40.48% (17/42) of the 42 cases were male and 59.52% (25/42) were female, as shown in Figure 2.

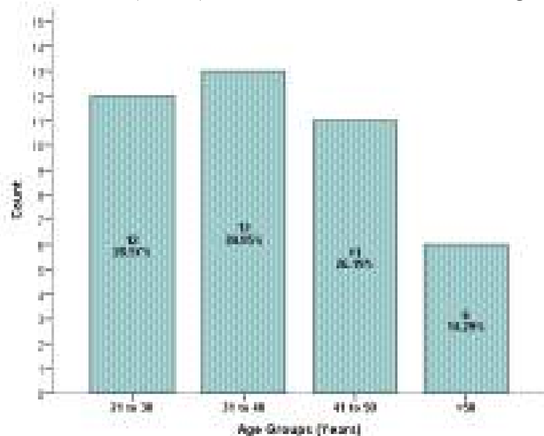

Figure No.1: Distribution of Patients age(n=42)

In patients with psoriasis, the mean serum prolactin rate was 44.21± 14.73 ng / ml (95% CI: 39.61 to 48.80) as shown in Table-1.As shown in Table-3, the mean serum prolactin level in psoriasis patients was high in all age groups and not significant among different age groups (P = 0.359). In patients with psoriasis, the mean serum prolactin rate was 43.38±15.26 ng / ml in male and 44.70 ± 14.66 ng/ml in female patients, which is not important as shown in Table-4. Furthermore, Table-5 gives a comparison of the mean serum prolactin level in psoriasis patients with the length of the disease.

Table No.1: Descriptive Statistics of age and Duration of Disease(n=42)

Statistics	Age (Years)	Duration of disease (months)
Mean ± SD	37.71± 10.68	5.21 ± 1.80
95% Confidence Interval	34.39 to 41.04	4.65 to 5.78
Mean (IQR)	36.5 (18)	5 (2)
Minimum-Maximum	21-58	2-10

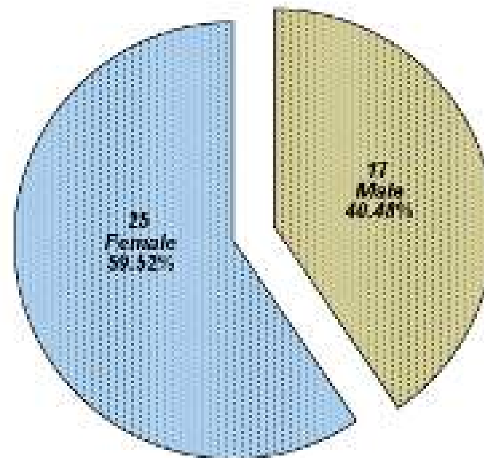

Figure No.2: Distribution of the PatientsGender (n=42)

Table No.2: Mean Serum Prolactin Level in Patients of Psoriasisn=2

Statistics	Raised serum Prolactin Level (ng/ml)
Mean ± SD	44.21± 14.73
95% Confidence Interval	39.61 to 48.80
Mean (IQR)	48.95 (28.8)
Minimum-Maximum	16.8-59

Table No.3: Comparison of mean serum Prolactin level in Patients of Psoriasis among different Age Groups n=42, ANOVA Applied

Age Groups	N	SERUM PROLACTIN LEVEL		P-Value
		Mean	SD	
21 to 30	12	44.19	16.43	0.359
31 to 40	13	43.95	14.13	
41 to 50	11	39.63	16.61	
>50	6	53.18	3.43	

Table No.4: Comparison of mean serum Prolactin level in Patients of Psoriasis between Genders, n=42, Independent Sample t-Test Applied

Gender	n	Serum Prolactin Level		P-Value
		Mean	SD	
Male	17	43.48	15.26	0.79
Female	25	44.70	14.66	

Table No.5: Comparison of mean serum Prolactin level in Patients of Psoriasis with respect to Duration of Disease, n=42, Independent Sample t-test Applied

Duration of disease (months)	n	Serum Prolactin Level		P-Value
		Mean	SD	
2 to 5 months	27	42.63	15.26	0.36
6 to 10 months	15	47.04	13.78	

DISCUSSION

Psoriasis is an autoimmune disease described by keratinocyte hyperproliferation and T-cell aggregation in psoriatic lesions of the epidermis and dermis.[10]There is some evidence that when hormonal changes such as puberty and menopause occur, psoriasis may intensify in ages and may also worsen or strengthen throughout childbirth.[11]There are several physiological activities of Prolactin (PRL), a neuropeptide secreted by the anterior pituitary gland. As an active immunomodulator, it has been involved and this has a proliferative effect on cultivated human keratinocytes through different receptors. Several research showed an increase in psoriasis serum PRL levels and an increase in psoriasis when a prolactinoma develops.[12]Prolactin functions in both the epithelial development of the skin and the immune system of the skin as a neuroendocrine modulator. It is thought to be integrated into a multilevel endocrine-immune interaction along the" brain skin axis'.' Stress has been reported to cause and exacerbate psoriasis, so it could be a connection between prolactin and pathogenesis of the disease.[13]Prolactin is produced from extrapituitary sources, including the hair, and has been partly traced to the skin for the involvement of keratinocytes, fibroblasts and migratory lymphocytes. Most skin cell populations have shown prolactin and prolactin receptor expression, including keratinocytes, fibroblasts, sweat and sebaceous glands.[14,15]

This research included 42 confirmed cases of psoriasis. The average age and duration of the disease was 37.71± 10.68 years. 40.48% (17/42) of the 42 cases were male and 59.52% (25/42) were female. Maryam Azizzadeh et al,[16] who reported 40% of males and 60% of females in their study, reported similar predominance of female gender. In our sample, mean serum prolactin was 44.21± 14.73 ng / ml (95 percent CI: 39.61 to 48.80) in patients with psoriasis. It is also observed that the mean serum prolactin level was high in all age groups in patients with psoriasis. Regana and Millet, 2000 reported three cases of females with plaque type psoriasis that correlated severity and extent of skin lesions with the development of prolactinoma.[17] Bromocriptin was used in all three patients. We also had normalization of the PRL level and regeneration of the psoriatic lesion.In 1981, Weber et al.[18–20]observed high serum levels of HGH in psoriasis patients[20]and subsequently confirmed HGH-producing pituitary gland hyperplasia in all 10 post-mortem psoriatic patients.[19,20]Buskila et al.[21]described a woman with psoriatic arthritis who had markedly improved skin and joint disease after bromocriptine (a dopamine agonist who blocked bromocriptine). It is notworthy that PRL serum levels in psoriasis are rarely reported.On the other side, Azizzadeh et al.[16]found that although the serum PRL levels measured by ELISA in 30 psoriatic patients were not significantly higher than the control group having 30 controls using PishtazTeb package. Gorpelioglu et al.[22]analyzed PRL levels in 39 patients with psoriasis and compared them to 36 controls. Nine patients and five controls raised the PRL levels significantly, but below 100 ng / ml. There was no significant difference in the serum PRL levels between patients and controls.

CONCLUSION

The above findings indicate that the amount of serum prolactin may play a role in psoriasis pathogenesis and its progression. This feature may be a cause and/or result of psoriasis pathology for patients with psoriasis. In this study, where Psoriasis has been found linked to increase in serum PRL levels, we assume that for psoriatic behavior, PRL can be a useful biological marker. To validate our observations and explain the pathogenic role of PRL in psoriasis, further research should be carried out with larger cohort in population with different ethnic groups.

Author's Contribution:

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Original Article

Uric Acid Levels in Lichen Planus

Evaluation of Serum Uric Acid Levels in Idiopathic Lichen Planus Patients

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ABSTRACT

Objective: To determine mean uric acid (UA) level in patients with lichen planus (LP) presenting at the department of Dermatology, Liaquat University Hospital Hyderabad.

Study Design: Descriptive Cross-sectional study

Place and Duration of Study: This study was conducted at the department of Dermatology, Liaquat University Hospital Hyderabad from October 17, 2017 to April 16, 2018.

Materials and Methods: This study was conducted on patients who met the inclusion criteria. A total of 95 patients diagnosed with LP admitted to the medical ward were enrolled and entered the study. After taking detailed history and full clinical examination (general and local), patients were subject to relevant investigations i.e. serum uric acid level was done. Patient's height, weight, BMI, economic status and duration of disease in months was stated. From each patient 5 ml of venous blood sample was taken postprandially and sent to the institutional pathological laboratory for measuring of serum uric acid level. Each report was prepared by a consultant pathologist having at least more than 3 year of experience post fellowship.

Results: Age range in this study was from 20 to 50 years with mean age of 32.5 ± 4.47 years, mean BMI was 22.5 ± 3.47 in kg/m^2 and mean duration of disease was 37 ± 18.92 in weeks. The mean serum UA level in Patients with Idiopathic Lichen Planus was 4.32 ± 0.79mg/dL.

Conclusion: Our study results indicate that LP may be associated with the depletion of serum UA levels.UA can be considered a valuable antioxidant biomarker in LP for the development and monitoring of the treatment strategy.

Key Words: Serum Uric Acid, Lichen Planus,Intercellular Adhesion Molecule-1, Dermatology

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INTRODUCTION

Lichen planus (LP) is a chronic dermatosis that may be idiopathic or associated with systemic underlying diseases, for example, hepatitis C virus. While many cases of LP are spontaneously resolved, intensive treatment is required in other cases. It is an inflammatory idiopathy of the skin and mucous membranes, characterized by autoimmune skin proliferation of T cells on the epidermis. It is still unclear, nevertheless, these auto-aggressive T cells may be triggered in-vivo to inflict epidermal damage.[1]Such cellular inflammatory infiltration, comprising primarily CD4 + lymphocytes, is a well-known reactive oxygen species (ROS) source.[2]

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Endothelial cells damage in high concentrations of ROS, and more up regulated and expressed intercellular adhesion molecule ICAM 1. At the site of inflammation, T lymphocytes are recruited by this expression of ICAM-1. This process may cause perivascular infiltration of T-cell and exocytosis of lymphocytes is observed in LP.[3]It is characterized by flat papules polygonal in shape and plaques with severe pruritis. Lesions in the skin may disfigure and implication of oral mucosa or genital mucosa may be harmful in severe cases. Although most lichen planus cases are idiopathic, but it has been found that some cases may result from the ingestion of certain medicines for example, pencillamine, antimalarial agents, gold, penicillamine, beta- blockers, thiazide diuretics, NSAIDs, enzyme-inhibiting quinidine and angiotensin.

Localized lichen planus patients are usually treated with highly potent topical steroids, while systemic steroids are used in general lichen planus patients.[4]The exact occurrence of the LP is unknown. Nevertheless, the approximate prevalence of LP is between 0.22% and 5% worldwide.[5] Uric acid is the result of primary degradation of human purine catabolism. Most uric acid is produced by the liver and intestinal mucosa.[6]Uric acid, vitamin C and some enzymes are included as primary defense mechanism against oxidative stress.[7] Uric acid is considered to be an important antioxidant

in plasma and can scavenge ROS and can chelate metal ions.[8,9]

In year 2014, Chakraborti B, et al showed in his case control study that in the sample test of uric acid level of patients and controls, mean serum uric acid level 0.345mg/dL and it was found that the difference was significant (p < 0.001)and correlation between disease duration and serum uric acid level shown significant decrease (difference) in uric acid level with increasing duration of the disease (p <0.003).[10] In this study, mean uric acid level in patients with lichen planus was 4.48 ± 0.99mg/dL.[11]

The rationale of this study was to evaluate the uric acid levels in lichen planus patients as uric acid has a protective role in lichen planus, variations in its level can affect the outcome of the disease. Therefore, it was important to recognize these patients, due to the significant prognostic implications. The research will raise understanding and, with regard to its management strategy, the coexistence of uric acid with lichen planus affects health practitioners. It could also help to check the progress the disease by detecting it early in its course of development. The objective of the present study therefore was to determine the level of UA in LP patients presented at Department of Dermatology, Liaquat University Hospital Hyderabad.

MATERIALS AND METHODS

Descriptive Cross-sectional study was carried out at the department of dermatology, Liaquat University of Medical &Health Sciences, Civil Hospital Hyderabad from October 17, 2017 to April 16, 2018. Sample size was computed with the calculator for the WHO sample size. Mean and standard deviation of UA level in LP patients taking 4.48 ± 0.99mg/dL(12), margin of error = 0.20 at 95% confidence interval. The calculated sample size was 95 patients of lichen planus. Non- probability, consecutive sampling technique was applied. ethical review committee. The inclusion criteria was known n=95 (confirmed) cases of Lichen Planus, both genders, patients 20 to 50 years of age and duration of disease from one week after eruption of lesion to 18 months. The exclusion criteria was smoker for >1 year and smoking more than 1 pack per day (detected by history), those patients on steroid or immune-suppression drugs or NSAIDs for last one month, gout (clinical and medical assessment), obesity (BMI> 27), chronic kidney disease (history, clinical and medical record), Pregnancy (history, clinical and medical assessment) and UA lowering drugs and who refused to give consent. After taking detailed history and full clinical examination (general and local), patients were subject to relevant investigations i.e. the patient's height, weight, BMI, economic status and duration of disease in months was stated. From each patient 5 ml of venous blood sample was taken post prandially and sent to the institutional pathological laboratory for measuring of serum uric acid level. Each report was prepared by a consultant pathologist having at least more than 3 year of experience post fellowship. A written consent was taken from all patients for participation in the study and the data was collected on pre-designed proforma. The data was entered in Statistical Package for Social Sciences (SSPS) IBM Version.22 for data analysis. Frequencies and percentage of qualitative data such as gender, educational and socioeconomic status was presented as n (%). Numerical data like age (in years), BMI, serum uric acid level and duration of disease was presented as Mean± Standard Deviation. Effect modifiers were controlled by stratification of age, BMI, gender, economic status, educational status and duration of lichen planus to see the effect of these on MEAN of serum uric acid level by using T- test/ANOVA. All the data were calculated at a confidence interval of 95%. A p- value ≤ 0.05 was considered as statistically significant.

RESULTS

The age range in this analysis was between 20 and 50 years and the mean age was 32.5 ± 4.47 years, mean BMI was 22.5 ± 3.47 in kg/m^2 and mean duration of disease was 37 ± 18.92 in weeks. Sixty two(66.6%) of the 95 patients were male and 32 (30.3%) were female.

A total of 95 patients were enrolled, 19 (20%) of whom were uneducated, 28 (29.2%) had primary education, 17 (17.7%) had secondary education, 16 (17%) had higher secondary education, 11 (12%) graduated and 04(4.1%) were post graduate.

Twenty three (24.12%) had income <Rs. 10,000/=, 40 (42.11%) had income Rs. 10,000 to 25, 000/= and 32 (33.72%) had income >Rs. 25000/=.

The mean serum level of uric acid in Idiopathic Lichen Planus patients was 4.32 ± 0.79mg/dL.

Table No.1. Mean serum uric acid level stratification in age-related patients with idiopathic lichen planus.

Serum Uric Acid Level	Age		P-Value
	20-35 (n=57)	35-50 (n=38)	
Mean ± SD	4.49 ±0.1	3.39 ±0.07	< 0.001

Table No.2: Mean serum uric acid level stratification in gender-specific patients with idiopathic lichen planus.

Serum Uric Acid Level	Gender		P-Value
	Male (n=63)	Female (n=62)	
Mean ± SD	4.09 ±0.31	4.2±0.7	0.2569

When the outcome variable was stratified with respect to age, duration of disease and income status, significant difference was observed, shown in table 1.

Similarly, when outcome variable was stratified with respect to BMI, educational status and gender, no significant difference was observed, Shown in table 2, 3, 4 and 5.

Table No.3: Stratification of the level of Mean Serum Uric Acid in weeks of disease duration in patients with Idiopathic Lichen Planus.

Serum Uric Acid Level	Duration of Disease		P-Value
	1-40 (n=59)	➢ 40- 72 (n=36)	
Mean ± SD	4.20± 0.1	4.01 ± 0.2	< 0.001

Table No.4. Stratification of the mean serum uric acid level in patients with idiopathic lichen planus in terms of educational status.

Serum Uric Acid Level	Educational Status						P-Value
	Uneducated (n=19)	Primary (n=28)	Secondary (n=17)	Higher secondary (n=16)	graduated (n=11)	Post graduate (n=04)	
Mean ± SD	4.09 ± 0.9	4.2± 0.1	4.1± 0.11	4.39 ± 0.7	4.01 ± 0.02	4.01 ± 0.1	0.367

Table No.5. Stratification of the level of Mean Serum Uric Acid in Idiopathic Lichen Planus Patients with respect to BMI.

Serum Uric Acid Level	BMI		P-Value
	18-25 (n=69)	>25 to <27 (n=32)	
Mean ± SD	4.30±0.8	4.19 ±0.1	0.441

DISCUSSION

Lichen planus is a chronic inflammatory disorder involving the skin. The pathophysiology is complex and is microscopically examined and the features of LP are similar to the pathognomonic features of interphase dermatitis. Cell degeneration due to the epithelial permeation of the T-lymphocyte helps to produce local cytokines.[5] In addition, anomalies that have been reported in free radical rates and ROS with antioxidant may play a major role at the beginning of several inflammatory diseases.[12]Reactive oxygen species in the tissues could result in oxidative damage that may culminate in lack of antioxidant levels. The skin has a number of defense mechanisms to prevent their deleterious effect.[13]UA is a natural end product of purine metabolic pathway in mammalian systems. Xanthine oxidase catalyzes the last two steps in the production of uric acid and this enzyme belongs to the very first class of enzyme classification by International Union of Biochemistry and Molecular Biology (IUBM). Oxidation reactions are always coupled with reduction within living systems[14]. Molecular oxygen is used during these reactions with production of reactive oxygen products are generated as electron acceptors. There are evidence that higher serum uric acid levels are a risk factor for development of cardiovascular diseases where oxidative stress plays a major role in pathophysiology.[15]A protective effect on oxidative stress conditions is allopurinol, a xanthine oxidoreductase inhibitor that decreases uric acid levels in serums.[16]This pollutes free radicals by inhibiting endothelial function under oxidative stress conditions inside a cell that discharges glutathione. There is emerging evidence that the UA has an in vitro impact as antioxidant and antioxidant plasma potential increases with UA administration.[17]

Our analysis showed a significant reduction in serum UA levels in patients, i.e. 4.32±0.79 mg/dL. This study was related to Chakraborti et al, medium serum UA, 3.6 mg/dL in patients and 3.94 mg/dL controls .[10]The mean difference is 0.34 mg/dL. There was also a significant decrease in UA levels in the sample of Italian LP patients.[18] On the contrary, Israel's report found that hyperuricemia was more common than the general population, although LP was not found to be a source of overproduction of uric acid.[19]Saawarnet al[20] stated that oral LP can play a role in oxidative stress, meanwhile, the strong antioxidant lycopene was found to be effective in another study in the oral LP's management. This therapeutic effect shows indirectly oxidative stress's function in LP pathogenesis.[21]

This study demonstrate a significant correlation with serum UA levels between age of the patient and duration of the disease. However no significant gender and BMI relationship with serum UA was identified. Compared to other studies, there is no significant correlation between age and gender with serum UA in one study[10]. Although a significant association between UA disease period was found similar to this research.[10]

Indirect evidence of increased oxidative stress in LP is confirmed by the fact that saliva UA is decreased in oral LP patients.[22]In addition, vitamin E and C levels in LP are decreased and supplementation of these may play a role in the management of LP.[23]

So far from the studies it has been concluded that damage induced by the free radical is one of the contributing factors in pathogenesis of LP, it has therefore been proposed that the targeted treatment protocols must contain adequate antioxidant protection. Exploiting the antioxidant properties of UA, a study using two methodologically distint assays demonstrated an enough evidence that administrating UA systematically could improve ex-vivo serum free radical scavenging to a much extent than ascorbic acid

which is also considered to be an effective antioxidant within the living systems[24].

CONCLUSION

Our study results show that LP can be correlated with UA serum depletion. UA can be taken into consideration as a useful antioxidant biomarker in patients with LP for the production and monitoring of treatment strategies. Our study limitation is that there's no control group. To conclude more accurately, further research should be performed with the control group and larger sample size.

Author's Contribution:

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Original Article

Stricture Urethra - Management and Outcome

Stricture Urethral Management

Zein el Amir, Zeeshan Qadeer, Umer Javed Chughtai, Mirza Hammad Rauf, Ayesha Mushtaq and Rameez Ahmed Mughal

ABSTRACT

Objective: The objective of our study was to determine different modalities of treatment opted, in respect varying presentation of urethral stricture.
Study Design: Descriptive study.
Place and Duration of Study: This study was conducted at the Department of Urology, Benazir Bhutto Hospital, Rawalpindi from November 2017 to November 2019.
Materials and Methods: A total of 115 patients diagnosed to have stricture urethra and admitted through outdoor department were included in the study. Retrograde urethrography either alone or with antegradecystogram was done. Management was done according to cause, urethral dilatation, optical urethrotomy and urethroplasty was performed. Success was determined by no need for further intervention or establishment of maximum flow rate >20ml/sec with 200 ml voided urine. All the patients were selected using retrograde urethrography either alone or with antegradecystogram. Written informed consent was taken from every patient before taking history and examination. The permission of Ethical Committee was taken before collecting the data and get publishing in Medical Journal. The data was analyzed for results by SPSS version 20.
Results: A total of 115 patients admitted between 8-90 years (Mean age 45 years). 65 (56.52%) patients presented with complaint of lower urinary tract symptoms (LUTS), while 50 (43.47%) had acute urinary retention for which suprapubic urinary diversion was done. Common causes included iatrogenic injury in69 (60%)& 30 (26.28%) with external trauma. 80 (69.56%) patients were treated by optical urethrotomy, 23 (20%) underwent urethroplasty, 17 (14.78%) were treated by anastomotic urethroplasty and 6 (5.21%) by substitution urethroplasty. 10 (8.69%) patients with submeatal stricture, boogie's dilatation was done. Patients unfit for surgery were managed with suprapubic urinary diversion under local anesthesia 2 (1.73%). According to investigations that were done before management, 62 (53.91%) had a stricture at bulbomembranous junction, 32 (27.82%) had stricture in bulbar urethra, 10 (8.69%) patients had submeatal stricture, 7 (6.28%) of them had a stricture in penile urethra and 4 (3.47%) patients had stricture in membranous urethra.
Conclusion: This study revealed most of the soft and short strictures can be treated by optical urethrotomy, however lengthy and complex strictures require either anastomotic, augmentation or substitution urethroplasty as a definitive treatment.

Key Words: Outcomes, Complications Urethral stricture, Optical Urethrotomy, Urethroplasty, Urethra, Urethral Dilatation

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INTRODUCTION

Urethral stricture is a relatively common disease in men with an associated prevalence of 229-627 per 100,000 males or 0.6 % of the at risk population, who are typically older men.[1]

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It has complex management protocols due to wide range of causative factors resulting in urethral stricture[2]. Commonly available modalities are dilatation, direct visual internal urethrotomy (DVIU), laser incision, stents and urethroplasty[3]. Strictures are grouped according to etiology as well as the anatomical location of strictures; penile, bulbar, pan-urethral and posterior. The severity of urethral stricture is related to amount of damage to the corpus spongiosum, the investing vascular layer of urethra, resulting in a progressive process termed spongiofibrosis.[4] As urethral stricture causes progressive narrowing of the urethral lumen, symptoms and signs of urinary obstruction arise. Patients experience weak stream, straining to urinate, incomplete emptying, post-void dribbling, urinary retention and recurrent urinary tract infections. The symptoms resemble those of other causes of bladder outlet obstruction such as benign prostatic hyperplasia.[5]

There are many causes of stricture urethra, the largest group are iatrogenic and result from urethral manipulations (traumatic indwelling catheter, transurethral interventions, correction of hypospadias, prostatectomy, brachytherapy).[6,7] In older days gonococcal urethritis used to be the commonest cause of stricture urethra, however, with the advent of antibiotics this has become less common.[7,8] Which modality of treatment is needed depends on the length and site of stricture. The objective of this study is to present different causes of urethral stricture in our institution, most frequent sites involved, treatment offered to the individual patients and the outcome of procedures in relation to the etiology, site, length and the specific surgical method opted.

MATERIALS AND METHODS

This is a descriptive study designed, ethical review committee approval obtained and conducted in Urology department of Benazir Bhutto Hospital, Rawalpindi, from November 2017 to November 2019. In this duration 115 male patients having urethral stricture were admitted through outpatient department and were included in the study after giving explicit consent. All the details of the patients were recorded on a pre designed performa. Detailed history and clinical examination were done. Retrograde urethrography either alone or with antegrade cystography was done to diagnose the patients and accordingly management was planned.

Urethral dilatation was done with urethral sounds on outdoor basis in patients having submeatal stricture. Optical urethrotomy was done, stricture site was appreciated, incision was given at 12 o clock position with urethrotome knife and foley catheter placed after the procedure. Foley catheter was removed after the 10th postoperative day. Urethroplasty was done in patients with failure to optical urethrotomy or long and hard strictures. Incision was given at perineal area, stricture area appreciated and removed. Then either end-to-end anastomosis was done or buccal mucosal flap was placed and tube made. Foleys catheter placed for 21 days.

Follow-up in the urology OPD ranged from 3 to 36 months.

Data collection was performed along parameters of demographics, etiology, renal profile, imaging and cystoscopic assessment and technique of repair and complications. Data analysis was performed on SPSS version 20. Descriptive statistics were used to summarize the continuous and categorical variables. Continuous variables like age and follow-up period were presented as mean ±standard deviation (SD). Categorical variables such as location of stricture were expressed as frequencies with percentages. Chi-square test was applied to assess the differences in etiology and outcomes according to different locations and techniques of urethroplasty. A p-value of <0.05 was considered as significant. The approval of Ethical Committee was taken before collecting the data.

RESULTS

Table No.1: Age Distribution

Age group (Yr)	Number of patients(n)	Percentage%
1-10	6	5.21%
11-20	9	7.82%
21-30	17	14.78%
31-40	13	11.30%
41-50	35	30.43%
51-60	15	13.04%
61-70	11	9.56%
81-90	9	7.82%
Total	115	100%

Incidence of Urethral stricture was maximum 35(30.43%) at age 41-50 and minimum 6(5.21%) at age 1-10 as shown in table no 1.

Table No. 2: Clinical presentation

Presentation	Number of Patients (n)
LUTS	69 (60%)
Acute urinary retention	50 (43.47%)

69(60%) patients presented with complaint of lower urinary tract symptoms (LUTS), while 50 (43.47%) had acute urinary retention for which suprapubic urinary diversion was done as shown in table no 2.

Table No. 3: Etiological distribution

Causative factor		Number of Patients (n)	p-value
Iatrogenic		69 (60%)	
	Urethral Catheterization	49 (71.01%)	<0.001
	Transurethral intervention	20 (28.98%)	<0.001
external trauma		30 (26.28%)	
	straddle injury	14 (46.67%)	<0.001
	pelvic fracture	16 (53.33%)	<0.001
other causes		14 (12.17)	
	Infections	12 (10.43%)	<0.001
	firearm injury	2 (1.74%)	<0.001
	impacted stone	2 (1.74%)	<0.001
	Total	115	

69 (60%) had iatrogenic cause for developing stricture urethra, out of which 49 (71.01%) patients developed stricture due to catheterization and 20 (28.98%) after transurethral intervention. 30 (26.28%) patients presented after external trauma, in which 14 (46.67%) had straddle injury while 16 (53.33%) due to pelvic fracture. In other causes 12 (10.43%) patients developed stricture urethra after infections, 2 (1.74%)

due to firearm injury to penis and 2 (1.74%) due to impacted stone as shown in table 3.

Table No. 4: anatomical Segregation of Injuries

Site	Number of patients(n)	p-value
Bulbomembranousurethral junction	62 (53.91%)	0.98
Bulbar urethra	32 (27.82%)	0.36
Submeatalurethra	10 (8.69%)	0.02
Penile urethra	7 (6.28%)	0.01
Membranous urethra	4 (3.47%)	0.08
Total	115	

According to investigations that were done before management, 62 (53.91%) had a stricture at bulbomembranous junction, 32 (27.82%) had stricture in bulbar urethra, 10 (8.69%) patients had submeatal stricture, 7 (6.28%) of them had a stricture in penile urethra and 4 (3.47%) patients had stricture in membranous urethra as shown in table 4.

Table No. 5: Frequencies of Procedures for Urethral stricture

Procedure	Number of Patients(n)	p-value
Optical urethrotomy	80 (69.56%)	0.06
Anastomotic urethroplasty	17 (14.78%)	0.20
Substitution urethroplasty	6 (5.21%)	0.02
Boogie's dilators	10 (8.69%)	0.01
Suprapubic urinary diversion	2 (1.73%)	0.5

80 (69.56%) patients were treated by optical urethrotomy having short and soft stricture. 23 (20%) patients having stricture more than 1.5 cm underwent urethroplasty, 17 (14.78%) were treated by anastomotic urethroplasty and 6 (5.21%) by substitution urethroplasty. 10 (8.69%) patients had submeatal stricture for which dilatation was done with boogie's dilators.2 (1.73%) patients were not fit for surgery and suprapubic urinary diversion was done under local anesthesia as shown in table 5.

DISCUSSION

Management of urethral stricture has been continuously in evolution and therefore specialized centers are dedicated for its management in developed world. In 3rd world countries like ours, referral pathways are not stringently followed and death of sub-specialization in this area of interest leads to multiple interventions from basic to advanced complex procedure are attempted before arrival in a high-volume center. In western world most common cause of stricture urethra is iatrogenic, similar trend is seen in our cohort (9-11), while in developing countries venereal infection and non-specific urethritis are the main causes. (12) Over the past few decades, the advances in the techniques used to treat the patients with stricture urethra have led the urologists to effectively manage the disease. Urethral dilatation being the oldest method is still effective for soft and short strictures, however it can lead to many complications like urethral rupture leading to extravasation of urine, urinary tract infections, high recurrence rate. Optical urethrotomy being the effective procedure to treat stricture urethra also has a very high recurrence rate unless serial dilatations post procedure are done, to avoid fibrosis of the mucosa(12). In our cohort optical urethrotomy was preferred modality for short & soft strictures (11,12). Sinanoglu et al conducted a study that concludes the effectiveness of long-term use of colchicine by the patients with stricture urethra, to prevent recurrence. According to the study colchicine receivers had 14.6 % recurrence rate as compared to non-receivers who had a recurrence rate of 32.6%. (13)Urethroplasty, an open reconstructive surgery has better and long-term success rates as compared to dilatation or endoscopic surgery. (14) However, urethroplasty should be done after the full maturation of the stricture, otherwise there may remain the fibrotic tissue behind that alters the success rates and can lead to recurrence. This is the reason behind' author's belief that almost 3 months should be given post transurethral manipulation so that the stricture should be fully matured.Most common cause of developing stricture urethra in our study was iatrogenic (60%). Almost 70% were treated by optical urethrotomy. Most common site of stricture was bulbomembranous junction.Urethral stricture or stenosis is frequently managed with either serial urethral dilation, such as filiform and followers or urethral sounds or radial dilation such as balloon dilation. (15)One randomized study has evaluated urethral dilation versus direct vision internal urethrotomy (DVIU) and showed no statistical significant difference in outcomes between the two procedures. (16) Patients who do not respond to repeat DVIU are those with long strictures (>2cm), penile strictures or membranous stenosis or those patients with multiple strictures. (17).

CONCLUSION

This study revealed most of the soft and short strictures can be treated by optical urethrotomy, however lengthy and complex strictures require either anastomotic, augmentation or substitution urethroplasty as a definitive treatment.

Author's Contribution:

Concept & Design of Study:	Zein el Amir
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Data Analysis:	Mirza Hammad Rauf, Ayesha Mushtaq, Rameez Ahmed Mughal
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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

Echocardiographic Alterations in Liver Cirrhosis

Keenjhar Rani[1], Zaman Baloch[2], Ramesh Kumar[2] and Kavita Bai[2]

ABSTRACT

Objective: To determine echocardiographic alterations in patients of liver cirrhosis.
Study Design: Cross-sectional descriptive study
Place and Duration of Study: This study was conducted at the Indus medical college and hospital, Tando Muhammad Khan from 11 October, 2019 to 11 March, 2020.
Materials and Methods: Study participants were the already diagnosed cases of liver cirrhosis. Liver cirrhosis been identified on the grounds of clinical history, systemic examination, laboratory investigations as well as ultrasonographic changes. On the basis of ultrasound findings, ascites graded clinically, conferring to 'The International Ascites Club grading system'; Ascites considered as Grade I, when there was mild ascites noticeable by ultrasound only; Grade II, when there was moderate ascites and modest symmetrical distention of abdomen; Grade III, when there was gross ascites and also noticeable distention of abdomen. Severity of illness graded by Child Pugh Scoring system. All study participants screened for both hepatitis C & B with thorough history and then undertook two dimensional transthoracic echocardiography with color Doppler. The cardiac variables measured by echo cardiography were left atrial diameter, left ventricular systolic and diastolic diameters, left ventricular posterior wall, right ventricular diameter, intervenetricular septum and ejection fraction. Sampling technique was non probability purposive. Diagnosed patients of liver cirrhosisaged > 18 years and <75 years of any gender, included in this study. Confounding factors like previous heart disease (valvular heart disease, coronary heart disease, hypertension, congestive heart failure); chronic respiratory disease; chronic kidney disease; anemia; thyroid disease; hyperlipidemia or diabetes mellitus; previous GI bleeding wiin last 4 weeks excluded from this study.
Results: The liver cirrhosis patients with mean age of 48.52 years±8.1participated in the study. Out of total 79, 58 and 21 were males and females respectively, while 63 found having hepatitis B and 16 with hepatitis C. According to Child Pugh scoring based disease severity, patients separated in three sets, i.e., A, B and C. Regarding echocardiographic alterations, means±sd of LVIDD.Ed, LVIDD.Es, left atrium, interventricular septum, aortic root and posterior wall among study population were 50.72cm ±8.42, 41.03±11.63, 35.45±4.8, 9.08±2.13, 25.41±3.92 and 9.17±1.66 respectively. While, ejection fraction (Ef) revealed as 30.46%±8.61& the E/A ratio of 1.07. Out of total 79, 37 (46%) identified as the cirrhotic cardiomyopathy. Echocardiographic alterations were statistically significant($p < 0.05$) in cirrhotic patients related with Child-Pugh scoring based disease severity.
Conclusion: This study revealed significant echocardiographic alterations in patients of liver cirrhosis. That's why, liver disease patients should be investigated by mean of echocardiography to avert under diagnosis of liver disease related cardiomyopathy for better prognosis.
Key Words: Liver cirrhosis, Child Pugh Scoring, cardiomyopathy, Echocardiographic

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INTRODUCTION

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Hepatic cirrhosis is one of the main reasons of death globally and is defined as diffuse and general fibrosis of hepatic parenchyma and regenerative nodules.[1,2] Alterations in cardiac physiology has been reported due to underlying mechanisms of liver disease.[3,4] Liver cirrhosisis diagnosed with distinctive clinical and histopathologic findings. Altered cardiac physiology can distress the liver and can expand to cardiac cirrhosis. Meanwhile, liver cirrhosis might disruptcardiac functions and so may culminate to cirrhotic cardiomyopathy.[5] Cirrhotic cardiomyopathy is defined as manifestation of altered systolic and diastolic functions with electrophysiologic deviations. These findings built on current doppler/ echocardiography or quantitative MRI.[6] Patients of liver cirrhosis mainly had altered diastolic functions with no changes in systolic variables during rest. Theses altered

diastolic functions occur due to thickening of myocardial walls, which began because of left ventricular hypertrophy, changes in collagen, subendothelial edema and fibrosis, culminating in increased left ventricle filling pressures.[7]

Suspected cases of cirrhotic cardiomyopathy should undertake echocardiography as crucial step for early diagnosis of diastolic disfunctions; as this might affect prognosis in patients of liver cirrhosis, however, either liver was transplanted or not. Patients of liver cirrhosis, should be assessed for cardiovascular function, specifically, if cirrhotic patient is acandidate for somewhat intervention that might cause alterations in hemodynamic parameters.[9] It is of great value to identify and manage cirrhotic cardiomyopathy timely as this might contribute to augmented heart related morbidity as well as also mortality. This study designated to evaluate the association of liver cirrhosis with cardiac structure and function among the patients of liver cirrhosis with help of echocardiography.

MATERIALS AND METHODS

Study participants were the already diagnosed cases of liver cirrhosis. This cross sectional descriptive study was done at Indus medical college and hospital, Tando Muhammad Khan from 11 October 2019 to 11 March 2020.The sampling technique adopted was non probability purposive. Liver cirrhosis been identified on the grounds of clinical history, systemic examination, laboratory investigations as well as ultrasonographic changes. On the basis of ultrasound findings, ascites graded clinically, conferring to 'The International Ascites Club grading system'; Ascites considered as Grade I, when there was mild ascites noticeable by ultrasound only; Grade II, when there was moderate ascites and modest symmetrical distention of abdomen; Grade III, when there was gross ascites and also noticeable distention of abdomen. Severity of illness graded by Child Pugh Scoring system. All study participants screened for both hepatitis C & B with thorough history and then undertook two-dimensional transthoracic echocardiography with color Doppler. The cardiac variables measured by echo cardiography were diameters of left atrium, left ventricular in both systolic and diastolic phases, left ventricle posterior wall, right ventricle, inter-ventricular septum and ejection fraction. Sampling technique was non probability purposive. Diagnosed patients of liver cirrhosisaged > 18 years and <75 years of any gender, included in this study. Confounding factors like previous heart disease (valvular heart disease, coronary heart disease, hypertension, congestive heart failure); chronic pulmonary condition; chronic kidney condition; anemia (Hb less than 9 gm/dL); thyroid disease; hyperlipidemia or diabetes mellitus; previous GI bleeding within last 4 weeks and alcohol abusers excluded from this study. Cirrhotic cardiomyopathy was demarcated as cardiac dysfunction in patients with severe liver disease in the absence of prior cardiac disease.[10]In echo, E/A ratio is the indicator of left ventricular function and it embodies ratio of early diastolic peak velocity flow (the E wave) to late diastolic peak velocity flow produced by contraction of atria (the A wave). Data filled in predesigned proforma and analyzed on software IBM SPSS version 22.0.Mean and standard deviation measured for quantitative variables while frequency (%) for qualitative variables like gender, disease severity by child Pugh scoring, grades of ascites and cirrhotic cardiomyopathy. Echocardiographic findings compared according to Child-Pugh class severity by applying one way ANOVA. P- value less than 0.05 considered as significant statistically.

RESULTS

This study conducted on 79 patients of liver cirrhosis (n=79). Their mean age was 48.52 years±8.1 and out of them, 58 and 21 were males and females respectively, while 63 found having hepatitis B and 16 with hepatitis C. According to Child Pugh scoring based disease severity, patients separated in A, B and C groups. (As shown in Table I)

Table No. 1: Descriptive statistics of liver cirrhosis patients (n=79)

	Frequency (%)
Age (Mean± Sd)	48.52 years±8.11
Gender	
Male	58(73.4%)
Female	21(26.6%)
Hepatitis B positive	63(80%)
Hepatitis C positive	16(20%)
Child-Pugh Score based severity of liver disease	
A	32(40.5%)
B	27(34.2%)
C	20(25.3%)
Ascites	
Grade II	25(32%)
Grade III	19(24%)
Grade I	35(44%)

Table No. 2:Echocardiographic findings in patients of liver cirrhosis (n=79)

	Mean	**Std. Deviation**
LVIDD. ed (cm)	50.72	8.42
LVIDS. es(cm)	41.03	11.63
Left Atrium	35.45	4.84
Ejection fraction (%)	30.46	8.61
Aortic root	25.41	3.92
Posterior wall	9.17	1.66
EA ratio	1.07	.56
Pulmonary artery pressure	15.86	1.17
Interventricular septum	9.08	2.13
Valid N (list wise)		

LVIDD.ed stands for Left Ventricular Internal Dimension-diastole. end-diastolic

LVIDS.es stands for Left Ventricular Internal Dimension-systole. end systolic

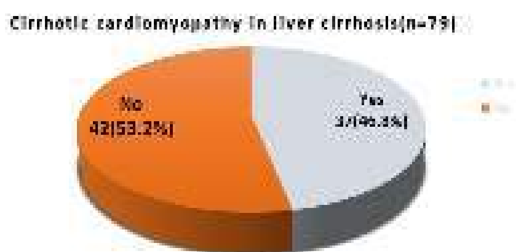

Figure No. 1 Cirrhotic Cardiomyopathy among liver cirrhosis patients

Table No 3: Association of Echocardiographic findings with severity of liver disease by child Pugh scoring

Echocardiographic findings	Child Pugh scoring		
LVIDD.ed	A(n=32)	43.47±6.8	
	B(n=27)	54.48±6.5	<0.01
	C(n=20)	57.25±1.6	
LVIDS.es	A(n=32)	31.84±8.5	<0.01
	B(n=27)	46.07±10.3	
	C(n=20)	48.95±6.8	
LA	A(n=32)	32.8±3.4	
	B(n=27)	36.77±4.7	<0.01
	C(n=20)	37.90±5.0	
Inter-ventricularseptum	A(n=32)	9.34±2.3	0.65
	B(n=27)	9.00±2.1	
	C(n=20)	8.80±1.8	
Ejection Fraction	A(n=32)	34.31±10.8	
	B(n=27)	28.00±6.1	<0.01
	C(n=20)	27.65±4.2	
Heart rate(beats/ minute)	A(n=32)	66.68±7.2	<0.01
	B(n=27)	75.37±7.0	
	C(n=20)	75.30±8.2	
Posterior wall	A(n=32)	9.06±1.4	.040
	B(n=27)	8.74±1.7	
	C(n=20)	9.95±1.6	
E/A ratio	A(n=32)	0.65±0.4	<0.01
	B(n=27)	1.20±0.4	
	C(n=20)	1.55±0.3	
Aortic Root	A(n=32)	23.54±2.3	
	B(n=27)	27.33±4.4	<0.01
	C(n=20)	25.7±4.0	
Pulmonary artery pressure	A(n=32)	15.34±1.1	<0.01
	B(n=27)	16.07±1.1	
	C(n=20)	16.40±0.9	

**statistically highly significant

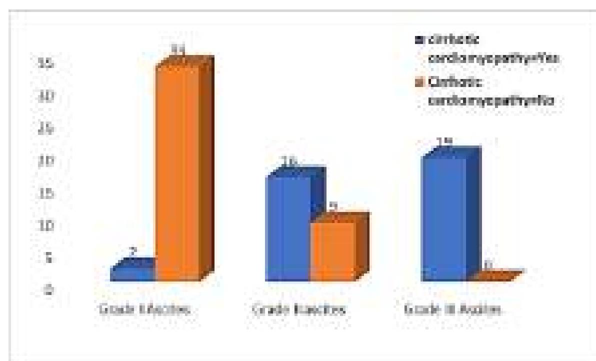

Figure No.2: Association of Cirrhotic cardiomyopathy with grade of ascites (n=37)

Regarding echocardiographic alterations, means±sd of LVIDD.Ed, LVIDD.Es, left atrium, interventricular septum, aortic root and posterior wall among study population were 50.72cm ±8.42, 41.03±11.63, 35.45±4.8, 9.08±2.13, 25.41±3.92 and 9.17±1.66 respectively. While, ejection fraction revealed as 30.46%±8.61. (As shown in Table 2)

Out of total 79, 37 (46.8%) identified as the cirrhotic cardiomyopathy. As shown in figure No. 1 and out of 37 patients of cirrhotic cardiomyopathy, 19 patients had been suffering from grade III ascites while 16 had grade II ascites. As shown in figure 2

Echocardiographic alterations were statistically significant(p <0.05) in cirrhotic patients related with Child-Pugh scoring based disease severity. As shown in table 3.

DISCUSSION

Liver cirrhosis has displayed principal part to global morbidity as well as mortality. Cirrhotic cardiomyopathy was first defined 13 years backin world congress of gastroenterology, Criterion for cirrhotic cardiomyopathy was described as early identifying altered echocardiographic parameters to diagnose subclinical cardiac dysfunctions in liver cirrhosis patients in absence of other prior diseases.[10]In this study (n=79) , liver cirrhosis is more predominant in male patients and 37(46%) revealed with cirrhotic cardiomyopathy. Joshi N et al. also concluded with similar findings, they conducted study on 133 patients of chronic liver illness, having mean age 45.7 +14.0 years. [11] Bokarvadia R, et al revealed proportion of cirrhotic cardiomyopathy as 33.8%with male predominance and this proportion of cirrhotic cardiomyopathy was revealed independent of the etiology of cirrhosis, comorbidity as well as severity of liver ailment. Diastolic dysfunctions were frequent finding in such patients. [12] W.Ouechtati ben Attia also detected 46% occurrence of cardiomyopathy among cirrhotic patients.[13]

In patients of liver cirrhosis, systemic circulation becomes hyperdynamic with increase in heart rate, cardiac output and decrease in vascular resistance. The

associated cardiac disfunction has been considered as cirrhotic cardiomyopathy, that is distinct from alcoholic myocardial disease. [14,15] Additionally, circulating vaso-dilators as well as cardio-depressive constituents cause hyperdynamic circulation with altered structure as well as functions of myocardium among the cirrhotic patients. [6] Underlying pathogenic mechanisms involve gut bacterial translocation and endotoxemia that stimulates cardio-depressant agents (like nitric oxide, endocannabenoids). Biochemical as well as biophysical alterations in myocardial cell plasma membrane might had role in underlying pathogenesis. They also cause reduced beta-adrenergic function. Projected recent echocardiography bases criteria for diagnosis of cirrhotic cardiomyopathy comprise indices of diastolic disfunction and this further may lead to hepatorenal syndrome and culminating to increased ratio of morbidity and mortality, infection, hemorrhage and surgery, countinghepatic transplantation. There is no exact treatment, although β-adrenergic blockade and supportive management are proposed for better outcomes, but yet this needs further study.[14]On the grounds of pathophysiological mechanisms, augmented levels of vasodilators in such cases, leads to portosystemic shunting, bacterial translocation enhance central hypovolemia and also to hyperdynamic alterations in circulation. These hyperdynamic alterations lead to hyperdynamic multi-organ syndrome that alters functions of multiple systems of body and disturbs cardiacfunctions by developing cirrhotic cardiomyopathy, renal disturbance and autonomic dysfunctions as portion of cardiorenal syndrome. Such hemodynamic alterations might affect the survival of patients but still this revealed as reversible and changeable after hepatic transplantation. Numerous drugs used in the treatment of portal hypertension including non-selective beta-blockers and terlipressin enhance hyperdynamic circulation.[15]

In presents study, cirrhotic cardiomyopathy is more prominent among those who had grade III as cites and severity of disease in Child Pugh score C. Jyotirmayi B, et al.[16]revealed that patients having ascites are more expected to develop diastolic dysfunctions. Yuan W, et al.[17] and also Moller, Bedtesen F[15] revealed positive association of cirrhotic cardiomyopathy with severity of liver disease as well as ascites and meanwhile no association with underlying etiology of hepatic cirrhosis either hepatitis B or C. Results of this as well as other research report sendorse that function of hyperdynamic left ventricle in cirrhotic patients is connected to severity of liver disease as well as stimulation of sympathetic nervous system and beta blockers that play meaningfully affect cardiac systolic function. Taking vasoconstrictors like terlipressin decrease heart rate and also cardiac output, an effect which might be thought an enhancement in hyper dynamic circulation. Furthermore, terlipressin might employ negative inotropic effect on left ventricle and consequently the over-all effects on the cardiovascular structure are multifaceted.[15] Features of cirrhotic cardiomyopathy include hyperdynamic circulatory status, diminished contractility with transformed diastolic relaxationand electrophysiologic changes, specifically QT interval prolongation. Underlying pathogenicmechanisms comprise diminished function of betareceptors, transformed transmembrane currents and increased production of cardio-depressants like nitric oxide, endogenous cannabinoids and cytokines. [7]

In present study echocardiographic variables are increased among cirrhotic patients as the liver disease becomes more severe on the basis of Child Pugh Scoring i.e., LVIDD. Ed, LVIDD.Es, left atrium, E/A ratio and decrease in ejection fraction but no noteworthy change in interventricular septum. Marconi C, et al [18] also found noteworthy dilatation of left atrium with increases in left atrium, aortic root, interventricular septum, E/A ratio and posterior wall in patients of liver cirrhosis. in connotation with increase in left ventricular diameters. Left atrial enlargement might be considered diagnostic feature for diastolic dysfunction in progression to cirrhotic cardiomyopathy. Merli et al.[19] also displayed enlargement of left atrium enlargement among the patients of hepatic cirrhosis. Barbosa et al. [8] mentioned that echocardiography should be acquired necessarily among the patients with doubt of worsening to cirrhotic cardiomyopathy. Diastolic impairment is an obvious and initial feature of cirrhotic cardiomyopathy and this might worsen the prognosis in patients of cirrhosis, regardless of transplanted liver or not. Kazan K and his coworkers [20] also revealed decreased ejection fraction during diastole at rest. Among the patients of hepatic cirrhosis, stress echocardiography is suggested as ideal investigation as this may detect sub clinical systolic and diastolic dysfunctions before decline in ejection fraction.

CONCLUSION

This study revealed significant echocardiographic alterations in patients of liver cirrhosis. That's why, liver disease patients should be examined by mean of echocardiography to avert under diagnosis of liver disease related cardiomyopathy for better prognosis.

Author's Contribution:

Concept & Design of Study:	Keenjhar Rani
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Revisiting Critically:	Keenjhar Rani, Zaman Baloch
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Original Article

Compare the Quality of Root Canal Obturation by Intraoral Periapical Radiographs in Single Rooted Teeth Prepared by Manual Technique Versus Rotary Method

Ayesha Khan[1], Fayyaz Alam[2] and Osama Khattak[2]

ABSTRACT

Objective: To compare the quality of root canal obturation by intraoral periapical radiographs in single rooted teeth prepared by manual technique versus rotary method.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the Study was conducted at Punjab Dental Hospital, Lahore for six months duration from July to December, 2020.

Materials and Methods: Hundred teeth of male and female patients with ages 20 to 65 years were enrolled and divided equally into two groups. Group I consist of 50 teeth and rotary method was applied. Group II with 50 teeth and manual instrumentation was done. Post obturation radiographs were done to examine the difference in length, density and taper of root canal filling by using T-score.

Results: There were 64 (64%)females and 36 (36%) male patient's teeth with mean age 33.52±10.86 years. We found a significant difference in term of obturation quality between both groups with p-value 0.008. In group I 19 (38%) patients had T-score 2 and 24 (48%) had T-score 3 while in group II 17 (34%) patients had T-score 2 and 11 (22%) patients had T-score 3, a significant difference was observed between both techniques with p-value <0.05.

Conclusion: Compared to manual approach, the root system in terms of root canal shutting consistency was higher.

Key Words: Obturation quality, Root canal, Manualmethod, Rotary technique

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INTRODUCTION

A fundamental phase of root canal care is the sealing of the root canal to avoid potential bacterial contamination/repollution of the canal space.[1] Over the years, several sealing techniques have been developed to provide a stronger seal for the root canal.[2] Both have in common the belief that before the sealing process, the root canal is correctly cleaned and formed. Everyone assumes that when the root channel is not properly prepared and tissue residuals and waste are found along the walls, proper screening even with the best root channel filling system can be compromised.[3,4]

If you take into account plain, narrow, straight root channels with round cross sections, most current rotary nickel-titanium file systems can clean and form the channel properly. The case in circular, smooth or curved root canals is different. Rotary file systems also struggle to clean and shape the canal properly in flat root canals, leaving "fins',' which may not be prepared. [2-4] [2-4] Even warm guttapercha shutting methods will not properly screen the root canal in this situation. [4] Such discrepancies are not detected by clinical mesiodistal radiographs.

The quality of the shutter is one of the characteristics of root canal care prognosis. A periapical radiographic assessment, the most popular form of assessment to date, is one way to measure the standard of endodontic care. Three parameters including volume, homogeneity and the taper of the root canal filling visible on radiographs are used to determine the radiographic efficiency of endodontic processing. [5,6]

Although several studies were conducted among undergraduates, graduates and postgraduates with different methods of channel preparation for the quality assessment (manual/rotative), their results are very variable. [7-10]

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The present study was conducted aimed to examine the quality of root canal obturation by using rotary method and manual procedure.

MATERIALS AND METHODS

This study was conducted at Punjab Dental Hospital, Lahore for six months duration from July to December, 2020. A total of 100 patients of both genders with ages 20 to 65 years required root canal treatment for single rooted were included in this study. Patients detailed demographic were recorded after taking informed written consent. Patients with multi-rooted teeth, patients with apical pathology and those with sterile canals were excluded.

All the patients selected from OPD were randomly divided into two groups using computer generated randomization scheme. Group I consist of 50 teeth and rotary method (ProtaperNiti) followed by Gutta Percha (Dentsply Maillefer) was applied. Group II with 50 teeth and manual instrumentation with K and H files followed by cold lateral condensation technique was done. Post procedure intraoral periapical radiograph was done to examine the length, density and taper of root canal filling. T-score scoring system was applied, 0 score for inadequate and 1 for adequate. Patients with all three parameters were adequate marked as score 3, patients with two parameters were adequate marked as score 2, patients with any one parameter were adequate marked as score 1 and those with none of parameter was adequate marked as score 0. Data was analyzed by SPSS 24. Chi square test was done to compare the T-score between both groups with p-value <0.05 was taken as significant.

RESULTS

In Group I 37 (74%) patients were females and 13 (26%) were males with mean age 32.59±11.46 years and in group II 27 (54%) patients were females and 23 (46%) patients were males with mean age 31.83±10.54 years. No significant difference was observed between both groups regarding age and gender (Table 1)

Table No. 1: Age and gender wise distribution between both groups

Characteristics	Group I	Group II	P-value
Age (years)	32.59±11.46	31.83±10.54	0.07
Gender			
Male	13 (26%)	23 (46%)	N/S
Females	37 (74%)	27 (54%)	N/S

According to the post obturation quality of root canal we found that 39 (78%) in group I and 37 (74%) patients in group II showed adequate length of root canal filling while 11 (22%) and 13 (26%) patients had inadequate in group I and II. No significant difference was observed regarding length of Root canal filling between both groups with p-value 0.2. No significant difference was observed regarding density of RCF between both groups (p-value >0.05), in group I 42 (84%) patients and in group II 36 (72%) patients were adequate while 8 (16%) and 14 (28%) patients showed inadequacy in group I and II. We found a significant difference regarding taper of root canal filling between both groups with p-value 0.0001 (42 (84%) in group I and 15 (30%) in group II had adequate findings while 8 (16%) and 35 (70%) had inadequacy in group I and II). (Table 2)

In group I 19 (38%) patients had T-score 2 and 24 (48%) had T-score 3, 7 (14%) had T-score 1 and none of patient had T-score 0. In group II 17 (34%) patients had T-score 2 and 11 (22%) patients had T-score 3, 19 (38%) had score 1 and 3 (6%) had score 0. A significant difference was observed between both groups regarding T-score with p-value 0.01 (Table 3)

Table No. 2: Comparison of length, density and taper of root canal filling between both groups

Variable	Group I	Group II	P-value
Length			
Adequate	39 (78%)	37 (74%)	N/S
Inadequate	11 (22%)	13 (26%)	
Density			
Adequate	42 (84%)	36 (72%)	N/S
Inadequate	8 (16%)	14 (28%)	
Taper			
Adequate	42 (84%)	15 (30%)	0.0001
Inadequate	8 (16%)	35 (70%)	

Table No. 3: Quality of obturation regarding T-score between both groups

T-score	Group I	Group II	P-value
3	24 (48%)	11 (22%)	0.0001
2	19 (38%)	17 (34%)	
1	7 (14%)	19 (38%)	
0	0	3 (6%)	

DISCUSSION

80 patients of both sexes were enrolled in this study to compare rotating process results in terms of seal consistency with manual K and H file instrumentation.. There were 64 (64%) female teeth and 36 (36%) male teeth with a mean age of 33.52±10.86 years. It was higher than the published frequencies of Er et al. (70%), Lupi-Pegurier et al. (39%), Chueh et al. (62%) and Eleftheriadis and Lambrianidis (63%). [11-14]

In our sample 39 (78%) in Groups I and 37 (74%) in Group II patients showed sufficient root canal filling, while 11 (22%) and 13 patients (26%) in Group I and II showed insufficient root canal filling time. In relation to the root channel filling length of both groups with p-value 0.2 there was no important difference. No substantial difference in RCF density was found between all the p-value (>0,05) patient groups, in Group I 42 (84%) and in Group II 36 (72%) patients,

while in Group I and II 8 (16%) and 14 (28%) patients were inadequate. Kirkevang et al. reported that insufficient density could result in the failure of RCT due to root filling micro leakage. [15] Similarly, Eriksen & Bjertness suggested that apical periodontitis was more prevalent in low density root-filled teeth. The results of this study showed that in the case of rotary and manual canal preparation technique, sufficient density without voids was obtained in 25 teeth (83.3%) with a similar density of 14 teeth (46.7%), Yoldas et al. reported a sufficient density with no voids of 64% and Sagsen et al. reported 53% [16-17].

We found that there was a substantial difference in root canal taper between the two p-value groups 0.0001 (42 (84%) in Group I and 15(30%) in Group II, while 8 (16%) and 35 (70%) had insufficient results in groups I and II). These findings were similar to Jalees et al's study[18], which showed a major difference in RCF taper between the two p-value methods <0.05. Many other studies have demonstrated substantial changes in the root canal filling taper following the implementation of rotation methods and manual technology. These studies showed that rotational methods were much better and more successful than manual methods[19,20].

We have used a rating system (T-score) in this analysis to assess the consistency of root canal shutting between the two procedure and find a substantial difference between the p-value 0.0001 procedures. 86 percent of patients receiving rotary care received T-score 2 and 3 and none received 0 while manual technique was used for patients receiving In 17 patients (34%) T scores were 2 and in 11 patients (22%) T scores were 3; in 19 patients (38%) scored 1 and in 3 (6%), scored 0. These findings were close to the results of several previous studies in which the rotary method showed better root canal filling efficiency than manual method[21]. The rotary method mentioned by Samady S et al[22] was better shut down than manual K-files.

Pettiette et al. and Gluskin et al. stated that channels were created with fewer procedural mistakes and more effective treatment when dental students used both hand or rotary nickel – titanium instruments, compared with standard stainless steel instruments[23,24].

CONCLUSION

Compared to the manual approach, the root system in terms of root canal shutting consistency was higher. We did not find substantial variations in root canal filling length and density between the two procedures, however in comparison with hand-held technology there was a significant improval in RCF taper.

Author's Contribution:

Concept & Design of Study:	Ayesha Khan
Drafting:	Fayyaz Alam
Data Analysis:	Osama Khattak
Revisiting Critically:	Ayesha Khan, Fayyaz Alam
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Original Article

Effectiveness of Magnesium Sulfate for the Treatment of Severe Traumatic Brain Injury

Naeem ul Haq, Muhammad Ishaq, Musawer Khan and Adnan Ahmed

ABSTRACT

Objective: The aim of this study is to determine the effectiveness of magnesium sulfate for the treatment of severe traumatic brain injury.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Neurosurgery Unit Mardan Medical Complex, Mardan for duration of one year from 1st November 2019 to 31st October, 2020.

Materials and Methods: Total 70 patients of both genders were included in this study. Enrolled patients were aged between 20-65 years. Patients detailed demographics age, sex and body mass index were recorded after taking written consent. Glasgow coma score (GCS) were recorded in this research at first day of admission in hospital and at the 5th day. Complete data was analyzed by SPSS 24.0 version.

Results: Out of 70 patients 50 (71.43%) patients were males and 20 (28.67%) patients were females. Mean age of the patients were 41.38 ± 7.87 years with mean BMI 27.12 ± 8.25 kg/m^2. Mean duration of the post traumatic brain injury was 7.68 ± 4.32 hours. Mean GCS without magnesium sulfate at first day was 7.46 ± 2.32 but at the 5th day GCS was 11.41 ± 1.56. Significantly difference was observed with p value < 0.0126. But significantly difference was not observed in GCS with respect to gender and duration of disease.

Conclusion: We concluded in this study that use of magnesium sulfate was effective for the treatment of traumatic brain injury among patients. GCS among patients were improved by using magnesium sulfate at the 5th day.

Key Words: Magnesium Sulfate, traumatic brain injury, Glasgow Coma Score (GCS)

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INTRODUCTION

A sudden effect is causing damage to the brain, and traumatic brain injury (TBI) occurs. TBI affects people of all ages and is extremely morbid and lethal. The following TBI events in morbid patients lead to lifelong financial, medical, emotional, family and social disabilities. In animal brains and in human blood, after brain injury, magnesium deficiency has been reported. Magnesium administration attenuated neurobehavioral and pathological changes in brain damage animal models. However, in TBI patients two forward-looking clinical studies have shown conflicting results with magnesium as a neuroprotective agent.[1,2] The findings of the clinical research on the therapeutic effectiveness of magnesium in TBI patients have been adversely affected by secondary brain insults and other parameters and may be adversely affected by these results. Tests in normal rats have shown that magnesium has been able to reach the brain after systemic administration, however[3,4] pharmacokinetic studies have shown that the parenteral administration of magnesium in humans does not lead to a simultaneous rise in CSF magnesium. [5–7] Blood – brain barrier (BBB) permit for magnesium peripherally administered could be restricted by control of the brain and the CSF by a central nervous system that may be an effective factor in TBI patients.

In the brain degeneration stage following TBI, several biochemical pathways are involved. Treatment with one single agent can result in an insufficient effective dosage or a reliable adverse effect on a therapeutic dose or on repeated administration. The treatment of these pathways with multiple agents must be guided towards clinically effective neuroprotective therapy for a synergistic effect. Apart from magnesium, a variety of pharmaceutical agents [8,9] and physiological therapies are being studied for the treatment of TBi such as hyperoxia and hypothermia (seen elsewhere in this issue). Dexanabinol and progesterone were studied in clinical trials among the pharmaceutical macological agents. Dexanabinol was healthy but ineffective in a Phase III study. [10]

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We conclude that increased brain biologic availability of mannitol magnesium together with cotherapy with pharmacologic agents and safe and lowest-cost physiological treatments may contribute to a clinically effective neuroprotective treatment regime for TBI.

MATERIALS AND METHODS

This prospective study was conducted at Neurosurgery Unit Mardan Medical Complex, Mardan for duration of one year from 1st November 2019 to 31st October, 2020 and comprised of 70 patients. Patients detailed demographics age, sex, body mass index, was recorded after taking written consent. Patients with ay metabolic diseases, pregnant women and patients less than 20 years of age were excluded from this study.

Enrolled patients were aged between 20-65 years. The CT scantest were performed on each patients. The periodic mode of therapy for TBI was the implementation of a typical predictor treatment (reinforced brain trauma directives, the transition of nighttime percussion, intravenous fluids, Individual, treatment, food, depression, operation when presented, required surgery) and the ingestion of patients addition to the therapy treatments contain magnesium sulfate. The starting loading doses after the trauma resulted in 50 mg/kg magnesium sulfate, then 15 mg/kg TDSS after a threatened duration for care directives. Glasgow coma score (GCS) were recorded in this research at first day of admission in hospital and at the 5th day. T-test was used to compare the results significantly. Complete data was analyzed by SPSS 24.0 version.

RESULTS

Table No. 1: Baseline detailed demographics of traumatic patients

Variables	Frequency	% age
Gender		
Male	50	71.43
Female	20	28.67
Mean age	41.38 ± 7.87	
Mean BMI	27.12 ± 8.25	
Mean post traumatic injury (hours)	7.68 ± 4.32	

Table No. 2: Distribution of GCS pre and post using of magnesium sulfate

Variables	Frequency	P value
GCS		
At first day	7.46 ± 2.32	0.0126
At 5th day (Magnesium sulfate)	11.41 ± 1.56	
GCS with respect to Age		
<40 years	9.69±2. 56	0.56
> 40years	11.98±3.57	
GCS with respect to Sex		
Male	9.98±3. 65	0.92
Female	8.69±5.48	
GCS with respectro duration of disease		
At 5hours	8.88±5.89	0.92
>5hours	6.97±5.67	

Out of 70 patients 50 (71.43%) patients were males and 20 (28.67%) patients were females. Mean age of the patients were 41.38 ± 7.87 years with mean BMI 27.12 ± 8.25 kg/m^2 . Mean duration of the post traumatic brain injury was 7.68 ± 4.32 hours. (Table 1).

Mean GCS without magnesium sulfate at first day was 7.46 ± 2.32 but at the 5th day GCS was 10.14 ± 1.65. Significantly difference was observed with p value < 0.0126. Glasgow coma score was 9.69±2. 56 at age <40 years and it was 11.98±3.57 in age > then 40 years. But significantly difference was not observed in GCS with respect to gender and duration of disease. (Table 2)

DISCUSSION

This research presents data on the effectiveness of magnesium sulphate therapy in disorderly headache patients. This research has contrasted GCS with related GCS sulphate feedback on 5th before and after magnesium sulphate at the start of day management. Tests will substantially monitor an increase in GCS magnesium sulphate treatment. The effectiveness and safety models in the CSF for magnesium concentrations have to be monitored by human studies.[11] One randomised, controlled trial provided magnesium therapy efficacy evidence for patient GCS and GOS evaluations. They analysed the test results with a team not caused by magnesium. The result was not enough from usual brain injury care. [12]

In this study, a total of 70 patients enrolled and males were 71.43% of the patients. Patients' average age was 41.38 ± 7.87 years, mean BMI 27.12 ± 8.25kg/m2 The mean post-traumatic brain injury length was 7.68 ± 4.32hours. Our findings were close to those of Wen Li et al.[13] The enrolled patients were aged in our sample between 20-65 years. The mean GCS for the first day was 7.46 ± 2.32but the mean GCS for the fifth day was 11.41 ± 1.56. There was a substantial difference of p < 0.0126. More evidence about the outcome of combination therapy in patients with magnesium and hypothermia were discovered. This demonstrated that magnesium sulphate was beneficial for traumatic injury. Further analysis of the success of combination therapies using magnesium and hypothermia . [14]

An I/V infusion study of magnesium sulphate resulted in a merely insignificant rise in magnesium sulphate CSF levels.[15,16] Significant improvement in this evaluation has been indicated by the threshold results for therapies for patients with standardised TBI. [17] No combination effects in people with TBI with magnesium and hyperoxia have been reported. Through his study, Kazim Ali et al. also provided the very results of the more effective use of magnesium sulphate for

traumatic patients.[12] GCS has improved significantly in patients whose disease has a positive effect, following treatment with magnesium sulphate. Patients with TBI should have a better outcome. Further study must therefore be carried out to generalise the findings**.**

CONCLUSION

We concluded in this study that use of magnesium sulfate was effective for the treatment of traumatic brain injury among patients. GCS among patients were improved by using magnesium sulfate at the 5th day**.**

Author's Contribution:

Concept & Design of Study:	Naeem ul Haq
Drafting:	Muhammad Ishaq
Data Analysis:	Musawer Khan, Adnan Ahmed
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