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Practice of “Defensive Medicine”

Defensive Medicine “ A deviation from the sound medical practice that is indicated primarily by a threat of liability”

Wikipedia

The “Defensive Medicine” currently means a defensive decision making and refers to the practice of recommending diagnostic tests (more than required) or prescribing more medicine and sending patients to further consultations and avoiding (if possible) high risk patients.

The practice of defensive medicine has its domino effects: over diagnose, over consult, over treat and avoid high risk patients. Here, the patient is seen a potential plaintiff. It is a deviation from good medical practice as the medical ethics dictates the policy of a sound medical practice i.e. “Total principle of beneficence” for the patients. The focus of the medical practice has shifted from the well being of the patients to his own legal protection. An analysis is therefore needed to ascertain the compelling factors which brought such a great change in the psyche of the Medical Profession.

Among recent years, a large numbers of laws have been enacted for the Medical Profession probably, some of them as populist measure. Atleast, some of them have brought the health providers into the category of an ordinary criminal. It must be clearly understood that the medical decision making is not an easy task. Hippocrates knew it. **(Decisions instant and difficult signs are fallacious)**. Decisions are made in Medicine which follow the rules of probability and may produce adverse outcome including mortality. In such circumstances, the doctor may win a liable case but he has already suffered a mental, physical and financial damages.

In consumer cases, law sees whether a standard and reasonable care was provided to the patient or not. Both terms are indefinable, intangible and dependent on the interpreting authority.

No wonder all over the world the rate of cesarian delivery has increased. Doctors are afraid of giving a trial of normal delivery. If the trial of normal delivery goes wrong, explanation is slapped “Why caesarean was not performed?” Not easy to answer.

This practice of defensive medicine is causing enormous rise in medical bills and physical inconvenience to the patients as well. However, only sensible remedy is that the doctors be punished only when Mens Rea (evil intention) is proved and the medical community be protected by heavily subsidized insurance.

Prof. S.M. Mishra
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Serum Creatine Kinase Muscle-Brain Fraction (CK-MB) and Lactate Dehydrogenase (LDH) as Markers of Perinatal Asphyxia in Term Neonates

Kanodia P¹, Shrestha S², Gautam S³, Chawla S⁴

ABSTRACT

Background: The enzymes CK-MB & LDH are used as potential predictors of timing and grade of HIE in newborns with perinatal asphyxia. **Objectives:** To differentiate HIE neonates from non-HIE ones on the basis of significant rise of LDH & CK-MB. **Methodology:** Prospective cross-sectional analytical study. Among 164 newborns, 82 comprising the cases and 82 neonates comprising the controls met the inclusion and exclusion criteria. The umbilical cord blood samples for CK-MB and LDH was drawn and sent for analysis. A serum CK-MB value >92.6 U/L and LDH value >580 U/L was taken as the cut-off level. Descriptive statistical analyses were done to find the significance between two groups. ROC Curve analysis was performed to find the diagnostic performance of CK-MB and LDH. **Results:** Out of total 164 neonates studied, 18.3% had moderate HIE & 11% had severe HIE while 56.1% had No HIE. Seventy-two newborns were found to have LDH levels >580 U/L out of which 71 were in case group and 1 was in control group. Among the 164 neonates studied, 7.9% from case group were found to have CK-MB levels >92.6 U/L. Both the results of LDH & CK-MB levels were very significant with P value <0.001. Area under ROC (Receiving operating Characteristic) value of LDH when compared to CK-MB is (0.978 vs. 0.731). **Conclusion:** Estimation of CK-MB and LDH enzymes can help to distinguish asphyxiated from non-asphyxiated term neonates when correlating with their history and clinical features.

Key Words: Perinatal asphyxia, Creatine kinase muscle-brain fraction (CK-MB), Lactate dehydrogenase (LDH), Hypoxic ischemic encephalopathy (HIE)

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INTRODUCTION

Perinatal asphyxia is an insult to the foetus or the newborn due to lack of oxygen (hypoxia)/perfusion (ischemia) which leads to multi-organ system dysfunction including hypoxic ischemic encephalopathy and long term neuro-development disability^{1,18}. Perinatal asphyxia is a common problem with the incidence varying from 0.5–2% of live births²⁻⁴. Around Ninety-eight percent of these neonatal deaths take place in the developing countries. Perinatal asphyxia and birth injuries together contribute to almost 29% of these deaths⁵. Many assessments tools are available to predict fetal well-being during labor and following delivery. These include electronic fetal heart rate monitoring via a cardio-tocograph, APGAR score and the assessment of fetal acid-base balance. The signs of asphyxial injury are nonspecific and overlap with other illnesses and it is difficult to diagnose perinatal asphyxia retrospectively in the absence of perinatal records²⁰. Transient myocardial ischemia (TMI) with myocardial dysfunction occurs in neonate with a history of perinatal asphyxia. An elevated serum Creatine kinase muscle-brain fraction (CK-MB) fraction or cardiac Troponin T (cTnT) level may be helpful

in determining the presence of myocardial damage. An elevation of serum CK-MB fraction of >5% to 10% may indicate myocardial injury^{6,19}. Leakage of intracellular enzymes such as Alanine aminotransferase (ALT), Aspartate aminotransferase (AST) and Lactate dehydrogenase (LDH) signalling multi organ dysfunction is seen together with HIE after perinatal asphyxia⁷. We conducted this study to ascertain whether CK-MB and LDH enzyme assays can distinguish an asphyxiated from a non-asphyxiated neonate.

AIMS & OBJECTIVES: This study was conducted to compare the serum levels of creatine kinase muscle-brain fraction (CK-MB) and lactate dehydrogenase (LDH) among asphyxiated and non-asphyxiated term neonates.

To differentiate HIE neonates from non-HIE ones on the basis of significant rise of LDH & CK-MB.

MATERIALS AND METHODS: This is a Prospective cross-sectional analytical study conducted on asphyxiated and non-asphyxiated term neonates recruited from Neonatal Intensive Care Unit (NICU) and neonatal wards Nepalgunj Medical College, Nepalgunj, Nepal from January 2019 to November

2019. Cases and Controls comprised of asphyxiated and non-asphyxiated babies, respectively.

Sample size was calculated based on expected frequency of HIE in newborns with 5 min Apgar score < 6. Since Newborns with 5 minute Apgar score < 6 was found to be a risk factor for HIE, based on several studies in literatures, where it was found that 30% of newborns with 5 minute Apgar score < 6 had HIE. To detect an ODD's Ratio of 3.68 with 80% power & 95% confidence interval & 1:1 case to control ratio the final sample size using EPI-INFO STATCAL software (version 6) was estimated at 75 cases & 75 controls. Adding 10 % non-response rate, the final sample size was equal to 82 cases & 82 controls.

Case group: Included 82 neonates fulfilling the following criteria:

1) Gestational age $\geq$ 37 weeks 2) Appropriate for gestational age. 3) The neonates who were identified to have experienced perinatal asphyxia when at least 3 of the following were present:

A) Intrapartum signs of fetal distress, as indicated by non-reassuring Non-Stress Test (NST) on continuous electronic fetal monitoring and/ or by meconium staining of the amniotic fluid. B) Apgar score of <7 at 1 minute of life. C) Requirement of positive pressure ventilation for >1 minute. D) Profound metabolic or mixed acidemia (pH<7.00) in an umbilical artery blood sample, if obtained. E) Mild, moderate or severe hypoxic ischemic encephalopathy (HIE), as defined by Levene MI ²¹.

Exclusion criteria 1) Congenital malformations. 2) Maternal drug addiction. 3) Neonates born to mothers who would have received magnesium sulphate within 4 hours prior to delivery or opioids (pharmacological depression) & 4) Hemolytic disease of the newborn.

Control group: Included 82 term apparently healthy neonates appropriate for gestational age without signs of perinatal asphyxia as evidenced by normal fetal heart rate patterns, clear liquor and one minute Apgar score $\geq$ 7.

Detailed maternal history, assessment of intrauterine fetal well-being by continuous electronic fetal monitoring, meconium staining of amniotic fluid, birth events, Apgar score, sex of the baby and weight of the baby were recorded on the precoded proforma. Gestational age was assessed from last menstrual period and New Ballard score. Arterial blood gas analysis (ABG) was done if umbilical arterial blood was obtained. Thorough clinical and neurological examination was done for all the neonates included in the study. The asphyxiated neonates (case group) were monitored for seizures, hypotonia and HIE in the immediate neonatal period in the NICU. Levene MI staging was used to grade the severity of HIE. The cases were also observed for other systemic effects of asphyxia. Cord blood samples (2ml) from both cases and control groups was drawn for CK-MB & LDH estimation.

A serum CK-MB value >92.6 U/L and LDH value >580 U/L was taken as the cut-off level⁹. The case group also had other investigations and imaging studies done as required for post-

resuscitation management of asphyxiated neonates and as per our NICU protocol.

Statistical analysis Descriptive statistical analyses were carried out. Student t test (two tailed, independent) was used to find the significance of study parameters on continuous scale between two groups. Chi-square/ Fisher Exact test was used to find the significance of study parameters on categorical scale between two groups. Sensitivity, specificity and predictive values of the tests were calculated. ROC Curve analysis was performed to find the diagnostic performance of CK-MB and LDH.

RESULT

The cord blood samples from 82 neonates comprising the cases and 82 neonates comprising the controls constituted the materials for the study. There were there 56 (68.3%) males and 26 (31.7%) females in case group there and 50 (60.9%) males and 32 (39.1%) females in control group. Forty-nine(59.7%) neonates weighed between 2500-3000g, 26(31.7%) between 3001-3499 g and 7(8.6%) more than 3500 g in the case group and 45(54.8%) between 2500-3000 kg, 33(40.2%) between 3001-3499 g and 4(5%) more than 3500 g in control group. The mean birth weight of neonates in our present study was 2860 ± 329 grams & 2940 ± 294 grams for cases and control group respectively which was statistically similar in both groups.

Fifty-six (68.3%) neonates were delivered by spontaneous vaginal delivery and 26 (37.1%) delivered by caesarean section in the case group. Amongst the control group, 50 (60.9%) neonates were born through spontaneous vaginal delivery and 32(39.1%) through caesarean section. All these comparisons were statistically not significant. (p value <0.05).

The mean LDH was 992.32 ± 437.25 U/L in case group and 350.17 ± 104.89 U/L in control group neonates. The mean value was statistically significant in neonates from case group as compared to neonates of controls group with P value <0.001. The mean CK-MB level was 71.082 ± 50.16 U/L in the case group and 44.049 ± 13.79 U/L in the control group respectively. The mean value was statistically significant in neonates from case group as compared to neonates of control group with P value <0.001 as shown in Table I.

LDH	Cases	Controls	P value
Mean	992.32 ± 437.25	350.17 ± 104.89	P < 0.001
Median (25 th – 75 th centile)	626.50 - 1262	299.25 – 413.75	
CKMB			P < 0.001
Mean	71.082 ± 50.16	44.049 ± 13.79	
Median (25 th – 75 th centile)	63 (34.75-85)	41 (32-55)	

Table I: Comparison of mean values of LDH and CK-MB in cases and controls

The number of neonates having CK-MB levels of >92.6 U/L was statistically very significant in neonates from case group when compared to neonates of control group with P value <0.001 as shown in Table II.

CKMB cut-off	Cases	Controls	Total	P value
<92.6 U/L	69 (45.7%)	82 (54.3%)	151 (100%)	<0.001
>92.6 U/L	13 (100%)	0 (0%)	13(100%)	
Total	82 (50%)	82 (50%)	164 (100%)	

Table II: Comparison of cut-off levels of CK-MB cases and controls

Ninety-two (56.1%) neonates had LDH levels of <580 U/L out of which 11(12%) neonates were from case group and 81(88%) neonates were from control group. Remaining 72(43.9%) neonates were found to have LDH levels >580 U/L out of which 71(98.6%) neonates were in case group and 1(1.4%) neonates were in control group. The number of neonates having LDH levels of >580 U/L was statistically very significant in neonates from case group when compared to neonates of controls group with P value < 0.001 as shown in Table III.

LDH Cut-off	Cases	Controls	Total	P value
<580 U/L	11 (12%)	81 (88%)	92 (100 %)	<0.001
>580 U/L	71 (98.6%)	1 (1.4%)	72 (100%)	
Total	82 (50%)	82 (50%)	164	

Table III: Comparison of cut-off levels of LDH cases and controls

The cut-off CK-MB value of >92.6U/L had sensitivity of 18.06%, specificity of 100%, positive predictive value of 100% and negative predictive value of 60.93%. The cut-off LDH value of >580 U/L had sensitivity of 91.67%, specificity of 93.48%, positive predictive value of 91.67 % and negative predictive value of 93.48% in the newborns studied. The diagnostic performance of LDH seemed to be better than CK-MB in the newborns with perinatal asphyxia as shown in Table IV.

Cut-off	Sensitivity	Specificity	PPV	NPV	
CKMB	>92.6	18.06%	100%	100%	60.93%
LDH	>580	91.67%	93.48%	91.67%	93.48%

Table IV: Sensitivity, specificity and predictive values of CK-MB and LDH.

The ROC curve of LDH and CKMB shows that LDH is having more diagnostic value than CKMB in neonates with perinatal asphyxia with more Area under ROC (Receiving operating Characteristic) value when compared to CK-MB (0.978vs. 0.731).

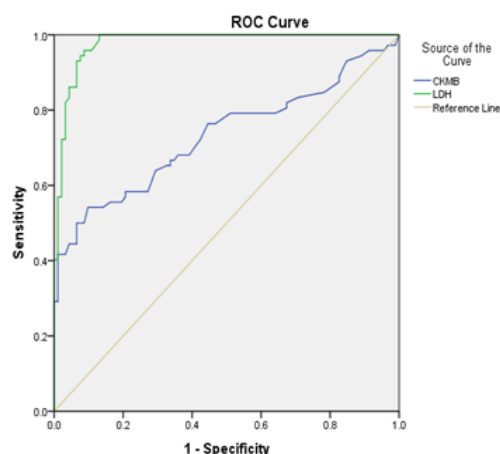


Figure 1: Shows comparison of receiver operator characteristics (ROC) curves of LDH & CK-MB

DISCUSSION

This case control study was conducted in Department of Pediatrics & Adolescent Medicine, NGMC, Nepalgunj, Nepal. Perinatal asphyxia is one of the major causes of neonatal death in developing countries and accounts for an estimated 23% of annual 4 million neonatal deaths⁵. Hypoxic ischaemic insult is seen in various organs of the body with release of several enzymes such as LDH, AST, ALT, CK-MB and Troponins. Lactate dehydrogenase is a non-specific enzyme released from various tissues – like heart, RBCs & WBCs, kidneys, lungs, liver, skeletal muscles, lymph nodes etc and CK-MB is mainly a cardiac enzyme but it is also released in small amounts from skeletal muscle injury. Significant elevation in the levels of CK-MB and LDH can serve as markers of asphyxia. In asphyxiated neonates, hypoxia is often responsible for myocardial ischemia and leads to myocardial damage.

Several studies have been conducted to evaluate better markers that help to differentiate asphyxial and non-asphyxial etiology in neonates. Primhak et al¹⁰ observed that the CK-MB in both normal (n=43) and asphyxiated (n=20) neonates, peaked at 8 hours and fell by 72 hours. Absolute and percentage CK-MB levels were higher in asphyxiated babies. Omokhodion SI et al¹¹ studied the creatine kinase (CK) and CK-MB activities in 23 perinatally asphyxiated newborns and 12 healthy controls during the first 100 h of life. The asphyxiated infants had significantly elevated mean CK and absolute CK-MB but no fractional CK-MB activities. The healthy controls, on the other hand, showed a steady decline in the activities of these enzymes from birth. Fonseca E et al¹² found that antepartum fetal distress is associated with release of CK-BB, and CK-MB; therefore, these biochemical markers indicate either brain or myocardial damage. Barberi et al¹³ reported that CK, CK-MB, CK-MB/CK ratio and LDH were all increased in an asphyxiated group, while in a group with respiratory distress; only CK-MB and the CK-MB/CK ratio were abnormal. The study by Karunatilaka DH et al¹⁴ also concluded that both the CK and LDH values are raised in birth asphyxia. LDH had 100% sensitivity, while CK-MB had 100% specificity for asphyxia in a study by

Reddy S et al¹⁵. Rajakumar PS et al¹⁶ observed that the cardiac enzymes, cTnT and CK-MB, were significantly elevated in cases when compared with controls. In 2010, Karlsson M et al¹⁷ in their clinical and experimental study done in 2008 on evaluation of organ damage in perinatal asphyxia concluded that in asphyxiated infants with differing degree of HIE and in infants where there had been signs of fetal distress during birth a cut off level of 1049 U/L for LDH was the most suitable predictor of mild, moderate, and severe HIE with a sensitivity of 100% and specificity of 97%.

Our study showed that amongst the 164 neonates studied, 92(56.1%) neonates had LDH levels of <580 U/L out of which 11(12%) neonates were from case group and 81(88%) neonates were from control group. Remaining 72(43.9%) neonates were found to have LDH levels >580 U/L out of which 71(98.6%) neonates were from case group and one (1.4%) neonate was from control group. The number of neonates having LDH levels of >580 U/L was statistically very significant in neonates from case group when compared to neonates of controls group with P value < 0.001. This is similar to the study by Reddy S et al¹⁵ in which 100% of cases had LDH levels >580U/L. In our study the mean LDH levels in neonates from cases group (992.32 ± 437.25 U/L) were significantly higher as compared to neonates from controls group (350.17 ± 104.89 U/L) with P<0.001 which is comparable to the results of study by Reddy S et al. In the present study, the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of LDH were 91.67%, 93.48%, 91.67%, and 93.48% respectively. This is comparable to Reddy S et al in which sensitivity, specificity, PPV and NPV were 100%, 89%, 92% and 100% respectively. In study by Rajakumar PS et al¹⁶ sensitivity and specificity of LDH were 56.5% and 75.7 % respectively which is similar to our study.

	Sensitivity	Specificity	PPV	NPV
Reddy S et al	100%	89%	92%	100%
Karlsson et al	100 %	97%	87%	100%
Present study	91.67%	93.48%	91.67%	93.48%

Comparative studies of diagnostic performance of LDH

The area under the ROC curve for LDH is 0.978 (excellent test) in our present study which is comparable to 0.998 (excellent test) in study of Reddy S et al¹⁵ In a study conducted by Barberi, et al¹³ reported that CK, CK-MB, CK-MB/CK ratio and LDH were all increased in the asphyxiated group, while in a group of neonates with respiratory distress; only CK-MB and the CK-MB/CK ratio were abnormal. Lackmann, et al⁷ found that newborn infants with asphyxia have significantly higher values of SGOT, LDH & hydroxyl butyrate compared to neonates with only respiratory distress syndrome (RDS), and presence of RDS among asphyxiated neonates did not alter the enzyme levels. Karlsson M et al¹⁷ in their clinical and experimental study done in 2008 on evaluation of organ damage in perinatal asphyxia concluded that in asphyxiated infants with different degree of HIE and in infants where there had been signs of fetal distress

during birth, a cut off level of 1049 U/L for LDH was the most suitable predictor of mild, moderate, and severe HIE with a sensitivity of 100% and specificity of 97%. Present study shows that estimation of CK-MB at 8 hours of life and LDH at 72 hours of life could help to distinguish an asphyxiated from a non-asphyxiated term neonate with reasonable degree of accuracy. LDH was having more diagnostic value than CK-MB with more Area under ROC curve value when compared to CKMB (0.978 vs. 0.731) in our study.

CONCLUSION & RECOMMENDATIONS

LDH levels of >580 U/L and CK-MB levels of >92.6 U/L were statistically significant in neonates from case group when compared to neonates of controls group. LDH is having more diagnostic value than CK-MB in neonates with perinatal asphyxia with more Area under the ROC (Receiving operating Characteristic) value when compared to CK-MB (0.978vs. 0.731) which helps to differentiate asphyxiated from non-asphyxiated neonates. In resource poor settings these bedside diagnostic tests are having high specificity and sensitivity with low cost and good feasibility. Hence, these markers (LDH and CK-MB) can be very useful to differentiate HIE newborns from non-HIE newborns which will help in appropriate management and better outcome of these newborns.

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Study of Correlation of Left Atrial Size and Atrial Fibrillation in Rheumatic Mitral Valve Disease

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ABSTRACT

Aim: To study the correlation between Atrial Fibrillation (AF) and left atrial size in Rheumatic Mitral valve disease (RMVD). **Background:** AF is the most common sustained cardiac arrhythmia which is associated with increased cardiovascular morbidity, mortality and preventable stroke. AF is common in rheumatic heart disease (RHD) particularly mitral stenosis (MS). LA dilatation is the predisposing factor for the development of AF in RMVD. **Methodology:** This is a hospital based cross sectional descriptive study conducted in 52 patients who were diagnosed as RMVD clinically and echocardiographically in NGMCTH, Kohalpur between December 2018 to November 2019. Detailed history and complete clinical examination were performed. Standard 12 lead ECG and 2-D echocardiography were done. Left atrial size was measured and compared with patients in AF and with sinus rhythm. **Result:** The age of patients ranged from 20-76 years with the mean age of 40.33 years. Out of 52 patients 30 were in AF and 23 in sinus rhythm. Among 30 patients in AF, 27 (90%) had LA size ≥ 4 cm with mean LA size of 4.6 cm whereas among 22 patients in sinus rhythm, 14 (63.64%) had LA Size <4 cm with a mean of 3.83 cm. **Conclusion:** Left atrial size ≥ 4 cm is the predisposing factor for the development of AF in rheumatic mitral valve disease. Therefore, if patients in sinus rhythm who are at high risk of developing AF are identified, prophylactic anticoagulation and antiarrhythmic drug might prevent AF induced embolism and exacerbation of symptoms in rheumatic mitral valve disease.

Keywords: Atrial fibrillation, ECG, Echocardiography, Left atrial size, Rheumatic mitral valve disease.

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INTRODUCTION

Atrial Fibrillation (AF) is the most common sustained tachyarrhythmia. It is associated with increased cardiovascular morbidity, mortality and preventable stroke, accounting for approximately one-third of cardiac hospitalization for cardiac rhythm disturbance. The prevalence of AF is 0.4% to 1% in the general population and as high as 5% and 8% in patients older than 70 years and 80 years respectively suggesting its increment with age. AF is associated with increased risk of stroke, heart failure exacerbation and all cause mortality especially in women. The mortality rate in patients with AF is twice that of patients with normal sinus rhythm (NSR)¹.

AF commonly occurs as a consequence of left atrial dilatation and left atrial enlargement is one of the elements that evolve in the natural history of rheumatic mitral valve disease particularly mitral stenosis. AF also occurs with many other cardiac disorders including coronary artery disease, cardiomyopathy, mitral valve prolapse and mitral valve annular calcification². In a large surgical series, AF has been found in 40% cases with mitral stenosis and 25% of cases with mitral regurgitation³.

The obstruction to flow across the mitral valve leads to increased left atrial pressure with a rise in left atrial tension

and enlargement of the left atrium. The increase in wall tension causes changes in the electrophysiological and conduction properties and hence the perpetuation of AF⁴⁻⁷. In patients with normal sinus rhythm, who are at risk of developing AF if identified, prophylactic anticoagulant and anti arrhythmic drug may prevent AF induced embolic events.

Echocardiography is a noninvasive tool which has been proven to be valuable for measurement of left atrial size^{8,9}.

Studies regarding the correlation between left atrial size and AF in rheumatic mitral valve disease have been done at Western countries as well as in India. RMVD is not an uncommon disease in this part of Nepal but studies regarding LA size and AF are lacking. Hence this study was conducted.

MATERIAL AND METHODS

This is a hospital based cross sectional descriptive study conducted in 52 patients who were diagnosed as rheumatic mitral valve disease clinically and echocardiographically¹⁰ in NGMCTH, Kohalpur between December 2018 to November 2019. Informed consent from the patient and permission of the institutional review committee (IRC) of the hospital was also obtained. A detailed history and complete clinical examination were carried out. Each patient underwent standard 12 lead

ECG and 2D echocardiography (VIVID P3, GE Healthcare). AF was diagnosed if ECG showed absent P wave or fibrillatory f waves and irregular R-R interval¹¹.

LA size was measured in parasternal long axis view during echocardiography between the anterior margin of posterior aortic root and the anterior margin of posterior wall of LA. Left atrial dimension more than or equal to 4cm is considered to be dilated LA. Mitral valve area was obtained by planimetry and pressure half time (PHT). All patients with non-rheumatic mitral valve disease, hypertension, post PTMC or mitral valve replacement (MVR), coronary artery disease, congenital heart disease were excluded from the study.

Left atrial dimension in patients of rheumatic mitral valve disease with AF was compared with left atrial dimension of patients in sinus rhythm. Data were analyzed using standard statistical method including SPSS 20.0.

RESULT

A total of 52 patients with the diagnosis of rheumatic mitral valve disease were enrolled in the study. Age ranged from 20-76 years and the mean age was 40.33 years. There were 23 males and 29 females with M: F ratio of 0.8:1 showing a female preponderance.

The nature of the lesion in 52 patients studied was isolated MS in 21 patients (40.4%), isolated MR in 9 patients (17.3%) and both MS+MR in 22 patients (42.3%) as shown in table I.

RHEUMATIC Mitral valve disease (MVD)	No. of cases	Percentage
MS	21	40.4
MR	9	17.3
MS+MR	22	42.3
TOTAL	52	100

Table I: Nature of rheumatic mitral valve disease

For correlating age with rhythm, patients were divided into two groups, i.e. ≤ 30 years and > 30 years. In age group ≤ 30 years out of 14 patients, 12 (85.72%) were in sinus rhythm and only 2 (14.28%) had AF. Whereas out of 38 patients in age group > 30 years, 28 patients (73.68%) had AF and 10 patients (26.32%) were in sinus rhythm, as shown in table II. P value was < 0.001 which is statistically significant.

Age	Sinus rhythm	Af	Total	Percentage	P VALUE <0.001
≤ 30 YRS	12 (85.72%)	2 (14.28%)	14	26.9%	
> 30 YRS	10 (26.32%)	28 (73.68%)	38	73.1%	

Table II: Correlation between age and rhythm

Out of 52 patients, 30 patients (57.70%) had AF whereas 22 (42.30%) patients were in sinus rhythm. Out of 30 AF patients, 27 (90%) had LA size ≥ 4 cm and only 3 patients (10%) had LA

size < 4 cm, with a mean LA size of 4.6 cm. whereas out of 22 patients, who were in sinus rhythm, 8 (36.36%) had LA size ≥ 4 cm and 14 (63.64%) had LA size < 4 cm with a mean LA size of 3.83 cm. The mean LA size in total 52 patients was 4.28 cm. The difference in LA size observed in patient with AF and sinus rhythm was statistically significant (P value < 0.001).

Size	No. Of cases with sinus rhythm	No. Of cases with af	Total	Percentage	P VALUE <0.001
< 4.0 cm	14 (63.64%)	3 (10%)	17	32.7	
≥ 4.0 cm	8 (36.36%)	27 (90%)	35	67.3	
Total	22 (42.3%)	30 (57.7%)	52	100.0	

Table III: Correlation between rhythm and LA size

La size (cm)	Total cases	No. Of cases with sinus rhythm	No. Of cases with af
3.1-4	17	14	3
4.1-5	30	8	22
5.1-6	4	0	4
6.1-7	1	0	1
TOTAL	52	22	30

Table IV: LA dimension on M- mode ECHO IN 52 cases

DISCUSSION

Rheumatic disease is the leading cause of mitral stenosis (MS). Isolated MS occurs in approximately 40% of all patients with RHD. In rest MS may accompany MR. The development of AF indicates a turning point in patients course and is associated with acceleration of the rate at which symptoms progress. LA dilatation is the predisposing factor for the development of AF.

Present study included 52 patients of rheumatic mitral valve disease and mean age was 40.33 years. In the age group > 30 years, incidence of AF was 70.68%. similar report was shown by Mariyamballi R et al¹² in which incidence of AF was 71.4 %. Similarly Henry WL et al⁹ found incidence of AF to be 89.0% in the age group > 40 years.

This study showed that as age advances, RMVD is complicated by development of AF.

In the present study, 90% of patients with AF had LA size ≥ 4.0 cm whereas only 10 % had LA size < 4.0 cm with the mean LA size of 4.6 cm. In the study done by Kulkarni et al¹³, 97.14% of patients with AF had LA size > 4 cm with average of 5.56 cm. Singh G et al¹⁴ found mean LA size of 5.02 cm in patients with rheumatic heart disease with AF.

Mariyamballi R et al¹² found 93.5% patients with AF had LA size > 4 cm with average 5.3 cm. In the study done by Gupta V et al¹⁵, 90.7% patients having AF had LA size > 5 cm.

Similarly, in the study done by Henry WL et al⁹ 54% patients had AF when LA size was >4cm. Gad Keren et al¹⁶ concluded that LA size was larger (3.76 ± 1.08 cm) in patients with MS. Mrozowska et al¹⁷ reported that AF was rare when LA size was ≥ 4 cm.

These results are comparable with present study which showed that AF commonly occurs when LA size is >4cm.

CONCLUSION

LA dilatation is the predisposing factor for the development of AF in patients with RMVD. Therefore if patients who have LA size > 4cm are identified, prophylactic anticoagulant and anti-arrhythmic drug might be used for preventing AF induced embolism and exacerbation of symptoms in RMVD.

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A Comparative Study of Interscalene Block Vs. Interscalene Block with Superficial Cervical Plexus Block for Clavicular Plating

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ABSTRACT

Background: Regional anaesthesia for fixation of clavicle fracture is a new concept. Various techniques of regional anaesthesia are being tried to find the optimal type. Combined interscalene and superficial cervical plexus block is widely accepted. **Aim of Study:** This study aims to compare the efficacy of interscalene block (ISB) with combined interscalene block and superficial cervical plexus block (ISB+ SCPB) for clavicular plating. **Material and Methods:** This prospective, hospital based comparative study was conducted from March 2019 to October 2019, in the department of anaesthesiology, Nepalgunj Medical College. 60 ASA category I and II patients undergoing clavicular plating and belonging to age group 16-65 years were enrolled. Patients were divided into two groups: Group I: ISB (n=30), Group II: ISB+ SCPB (n=30). Blocks were given using landmark technique. Primary outcome measures were conversion to general anesthesia (GA), requirement of supplemental analgesia and patient satisfaction. Secondary outcome measures were sensory and motor block, duration of analgesia and complications. These outcome measures were compared between the groups. **Results:** No patient required conversion to GA. The number of patient requiring supplemental analgesia was significantly higher in ISB group in comparison to ISB+ SCPB. Patient satisfaction was excellent in both groups. No statistically significant complications were seen in either group. **Conclusion:** Interscalene block combined with Superficial Cervical Plexus Block (ISB + SCPB) has better efficacy than Interscalene block (ISB) alone for clavicular plating. Nevertheless, both techniques avoid GA and provide excellent patient satisfaction level.

Key Words: Interscalene Block (ISB), Superficial Cervical Plexus Block (SCPB), Clavicular Plating, Land Mark Technique, General Anesthesia (GA).

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INTRODUCTION

Clavicle fracture constitutes 5-10% of all fractures. Operative repair is considered in patients with risk factors for non union¹. Surgical fixation of clavicle fractures are often performed under general anesthesia (GA), as it is difficult to block all the nerves supplying the concerned surgical areas². The suprascapular, supraclavicular, subclavian and the long thoracic nerves are hypothesized for the pain transmission after clavicle fractures³.

Recently anesthesiologists have started regional anesthesia for clavicular plating. Use of Interscalene block (ISB), superficial cervical plexus block (SCPB) and selective upper trunk block as single block techniques and SCPB combined with either ISB or supraclavicular blocks (SCB) as combined block techniques are reported in literatures^{4,5,6}.

ISB + SCPB technique is widely accepted as regional anesthesia technique for the clavicle surgery⁵. ISB has an advantage that it often blocks cervical plexus and some studies have shown that clavicular plating can be done in ISB alone^{7,8}. Hence, we conducted this study to find out whether ISB alone or ISB + SCPB is better.

MATERIAL AND METHODS

This is a prospective, hospital based comparative study. This study was conducted from March 2019 to October 2019, for a period of 8 months, in the department of anaesthesiology, Nepalgunj Medical College, after taking approval from Institutional Review Committee. 60 patients who were undergoing plating for clavicle fractures were enrolled in the study. These patients were divided into two groups:

Group I (n=30): ISB {Lignocaine with adrenaline (1:200000) 5.5ml+ Bupivacaine 5.5 ml + Normal Saline 5 ml, total 16 ml}

Group II (n=30): ISB + SCPB (ISB dose + same concentration 10 ml solution for SCPB)

Patients with age below 16 years and above 65 years, ASA grade III and IV, bleeding disorders, respiratory compromise, local site infection, neurological deficit on the side of the surgery and reluctant for regional anesthesia were excluded from the study.

On arrival of the patients to the operation room, placement and patency of IV canula were checked. Patients were reassessed

and noninvasively monitored. They were alternately allotted to group I and Group II to avoid bias.

Using landmark technique, at the level of cricoid cartilage and lateral to the lateral border of sternocleidomastoid muscle, the interscalene groove was identified with finger roll technique. Under aseptic technique the needle was inserted at a 45° angle, caudal and slightly posteriorly and advanced until paresthesia was elicited to perform ISB. To perform ISB + SCPB, ISB was done first and then the same needle was withdrawn up, to the subcutaneous plane and field block was given. The block was performed by the same anesthesiologist to all the patients.

Conversion to general anesthesia (GA), requirement of supplemental analgesia and patient satisfaction were chosen as primary outcomes. The onset of sensory blockade, motor blockade and duration of analgesia were considered as secondary outcomes. Local and hemodynamic complications if any were noted and compared.

After 5 minutes (min) of block given, sensory and motor functions were assessed. Thereafter, they were assessed every 1 min till the sensory and motor blockade occurred or for the next 10 mins. Sensory function was assessed by exerting deep pressure on the fractured part and the motor function by asking the patient to lift the shoulder and flex the arm and tallying it with Medical Research Council Muscle Testing scale. Point of no pain and muscle testing scale $<2/5$ were considered onset of sensory and motor blockade respectively⁹.

Sensory block was considered inadequate if the patient complained of pain during the surgery. Either local infiltration of LA (3-5 ml Lignocaine with Adrenaline) or IV Fentanyl 80 mcg were given as rescue analgesia. After completion of surgery, patients were asked to grade their level of satisfaction from 1 to 5 in regard to the regional anesthesia.

1	Extremely Not Satisfied	4	Very Satisfied
2	Not Satisfied	5	Extremely satisfied
3	Moderately Satisfied		

Table I: Five point Likert Scale for Satisfaction

Statistical Analysis:

Data was analyzed using SPSS 20. Independent T test, chi square test and Fishers exact test were used.

RESULTS

The mean age in Group I was 34 ± 10.722 and Group II was 28.93 ± 9.534 years. Although the gender distribution and right side clavicle fracture vs. left side clavicle fracture were statistically insignificant between the groups (Fig 1&2), male gender and right side fracture were greater in both groups.

Exact Sig. (2 sided) = 1.000

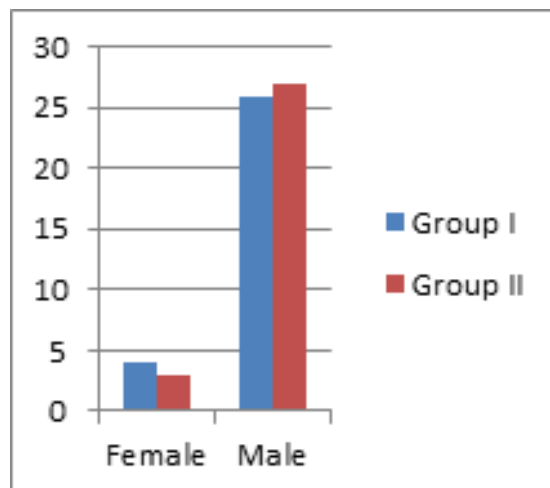


Fig 1: Comparison of female vs. male

Pearson χ^2 Asymp. Sig.=0.781

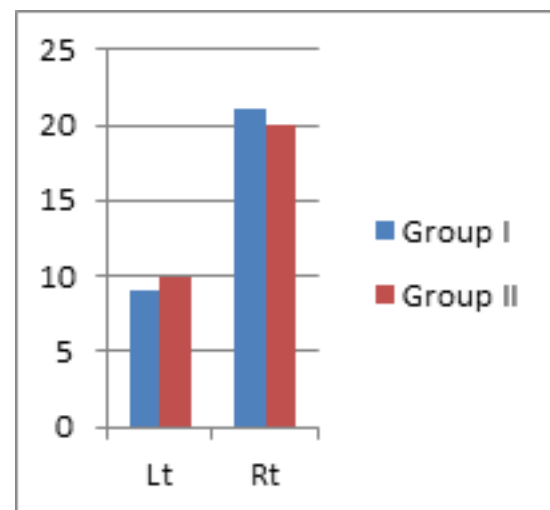


Fig 2: Comparison of Right vs. Left fractures

		Groups		Total	Pearson χ^2 Asymp. Sig. (2-sided)
		Group I	Group II		
Patient satisfaction	Level 4	9	4	13	0.117
	Level 5	21	26	47	
Local Anesthesia top up/IV Fentanyl	No	22	28	50	0.038
	Yes	8	2	10	
Total		30	30	60	

Table II: Primary Outcomes of Anesthesia

The proportion of patient receiving the top up local analgesia or IV fentanyl was significantly greater in ISB only group. Still none of the patient in both the groups had satisfaction level less than 4. Satisfaction level difference was statistically insignificant. There was no conversion to GA in both groups.

	Groups	N	Mean	Std. Deviation	P Value
Onset of Sensory Block (Min)	Group I	30	7.8667	1.33218	.539
	Group II	30	8.0667	1.17248	
Onset of Motor Block (Min)	Group I	30	8.7333	1.52978	.651
	Group II	30	8.9000	1.29588	
Duration of Analgesia (Hr)	Group I	30	8.8667	.73030	.377
	Group II	30	9.0333	.71840	

Table III: Secondary Outcomes of Anesthesia

The differences of onset of sensory block, onset of motor block and duration of analgesia between the groups were significantly insignificant.

There was no significant difference in the occurrence of horner's syndrome and hoarseness of voice between the groups. Respiratory difficulty, hypertension, hypotension, tachycardia and bradycardia were present in none of the patients of both groups.

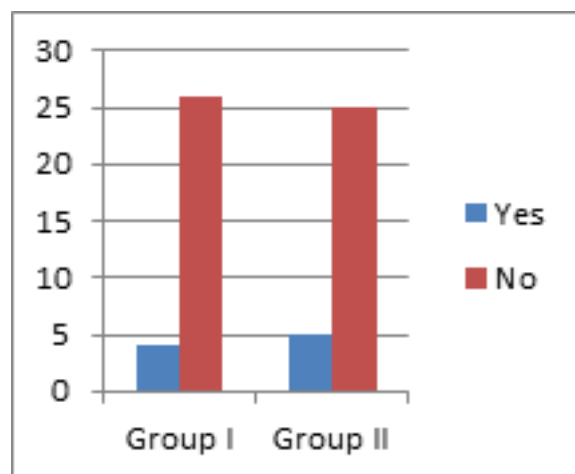


Fig 3: Horner's Syndrome

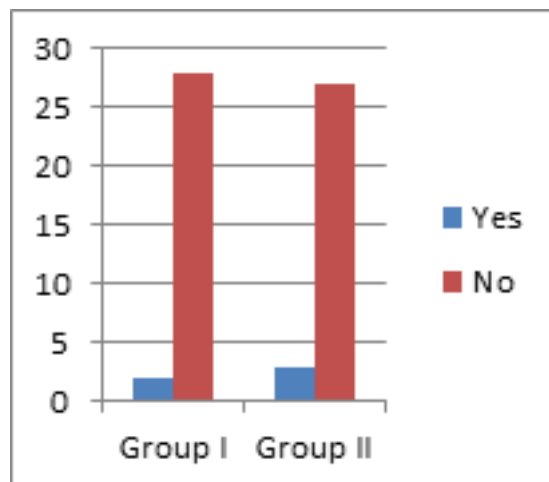


Fig 4: Hoarseness of Voice

DISCUSSION

Due to complex and varied innervations of clavicle, its surgeries are mostly performed under general anesthesia (GA)^{10,11}. Till now very few studies regarding regional anesthesia in clavicle surgeries are done. Most of those studies show that regional anesthesia techniques are effective^{2,5,12}. Fear of block failure has been overcome with regular use of regional anesthesia. Anesthesiologists now are trying to find out the optimal and safe method of regional anesthesia for clavicle surgeries.

In our study we compared efficacy of ISB alone with ISB + SCBP. The study showed that the need of supplemental analgesia in form of either LA top up or IV fentanyl was significantly greater in ISB only group. This result is similar to the study conducted by Gupta N. But in contrast to their study where GA was required in both the groups, none of the patients in our study required GA⁸. This might be because, in our study, all patients in both groups perceived paresthesia during ISB, even without the use of nerve stimulator, which indicates direct contact of the needle with the nerve in the plexus.

Although the use of supplemental analgesia was significantly greater in ISB group, the patient satisfaction level in both groups was high and almost equal. This might be because all patients were preoperatively counseled and assured that pain if present during the surgery will be immediately treated. Similarly, in the intraoperative period, reassurance was done and supplemental analgesia was given immediately to the one who perceived pain due to partial block. No conversion to GA might have also increased their satisfaction level.

Ultrasound-guided (USG) blocks are becoming popular day by day¹³. The use of USG improves the onset and completeness of sensory and motor blocks¹⁴. In a randomized study, Kapr al et al showed that ultrasound guidance was 99% successful in achieving surgical anesthesia with ISB compared with 91% for landmark¹⁵. Still a large number of anaesthesiologists do not have access to USG¹³. This study clearly depicts that ISB or ISB + SCBP given blindly can be useful to avoid GA for clavicular plating in such setups.

CONCLUSION

Interscalene block combined with Superficial Cervical Plexus Block (ISB + SCBP) has better efficacy than Interscalene block (ISB) alone for clavicular plating. Nevertheless, both techniques avoid GA and provide excellent patient satisfaction level.

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Risk Factors in Patients with Intrauterine Fetal Death at Tertiary Referral Centre

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Background: Among various community health indicators available for measurement of quality and impact of health services in developing countries, perinatal mortality accounts one of the top most single indicators even today. Documentation and evaluation of the etiology and the associated risk factors for stillbirth is required in order to decrease the fetal mortality rate and to devise plan in maternal health sector. **Objective:** To find out common risk factors in patient and its association with intrauterine fetal death. **Methods:** A hospital based cross-sectional study carried out in the Department of OBGYN, Nepalgunj Medical College, Kohalpur from Jan 2018 to September 2019. Cases of multiple pregnancies, intrapartum death and fetal death diagnosed before 28th weeks of gestation were excluded. After exclusion, 65 cases of intrauterine fetal death were studied. **Results:** Majority (78.4%) of the patients with IUFD belonged to the reproductive age group (20-35yrs) and (15.4%) belong to <19yrs ($p=0.008$) associated with illiteracy (84.6%). More than half (58.5%) had at least one ANC visit and were primigravida (17%) with preterm (63.07%). Hypertensive disorder was the commonest obstetric complication in these mothers (36.92%) followed by unexplained (26.15%), anaemia (18.46%), PROM (15.4%), APH (13.8%). Most of the babies were low birth weight (63.69%) and majority were males (63.1%). **Conclusion:** Majority of the risk factors found in the present study were preventable. Stillbirth rate can be reduced by proper management of these risk factors during antenatal care and intrapartum care.

Keywords: Antenatal care, Intrauterine fetal death, PIH, Risk factors, Stillbirth

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INTRODUCTION

Fetal death is traumatic experience for the mother in particular and for the family as a whole and remains a challenge for obstetrician. According to World Health Organization (WHO), Intrauterine Fetal Death (IUFD) is defined as "Death prior to complete expulsion or extraction from the mother of a product of human conception irrespective of the duration of pregnancy and which is not an induced termination of pregnancy"¹. However, conventionally and also in our country, fetal demise prior to 28 weeks of gestation is managed as abortion in a manner different from fetal demise post 28 weeks of gestation².

Worldwide 3.3 million stillbirths are reported annually, 97% occurring in developing countries. Only 4% of cases are registered in developing countries where under reporting is common. It is believed that an additional 1-2 million of unrecorded stillbirths occur in these developing countries³. It is a heartbreaking and tragic event which occurs in 1% of all pregnancies globally⁴. Whereas in Nepal, according to NDHS (2016) it accounts for 1.5% of all pregnancies³. Perinatal mortality rate in Nepal is 31 deaths per 1000 births, where stillbirth rate of 15.3 per 1000 births and early neonatal death rate of 15.7 per 1000 births⁵.

Risk factors for intrauterine fetal death (IUFD) include general and specific categories. General includes socio-demographic factors such as place of living, occupation and level of education

etc. Specific factors include fetal, maternal, umbilical cord and placental factors. IUFD risk increases by 4 times with pregnancy at an early age i.e. age of 16 years and less⁶. There are intensified demands on medical, political and epidemiological ground for proper determination and classification of causes of fetal death in order to formulate the preventive policies and protocols for the reduction of IUFD rate⁷.

Fetal death case be diagnosed by ultrasound, whereas other modalities like cardio topography and fetal scalp electrodes can be misleading as can record maternal pulse rate even when the fetus is dead. So, IUFD is always confirmed by ultrasonography⁸. In Nepal, the government provides free antenatal check-ups through its public health facilities and has a standard protocol for antenatal check-ups⁹. Nevertheless, only two-thirds of women in the country visit for antenatal check-ups from a skilled healthcare provider, and only 61% of women receive adequate antenatal check-ups¹⁰. In our study we attempted to identify risk factors associated with IUFD.

MATERIAL AND METHODS

Hospital based cross-sectional study was conducted in the Department of obstetrics and gynaecology, Nepalgunj Medical College Teaching Hospital, Kohalpur from January 2018 to September 2019. Cases of multiple pregnancies, intrapartum death and fetal death diagnosed before 28th weeks of gestation were excluded.

SAMPLE SIZE CALCULATIONS

The prevalence of IUFD, $p = 2.13\%$ according to Tamrakar SR2
Tabulated value of z at $95\% \text{ CI} = 1.96$

Allowable error, $e = 5\% (0.05)$

$$\begin{aligned}\text{Sample size (n)} &= z^2 p (1-p) / e^2 \\ &= (1.96)^2 \times 0.049 \times (1-0.049) / (0.05)^2 \\ &= 31.57 \\ &= 32\end{aligned}$$

So, the required sample size of the study was 32, to decrease biasness sample size increased by twice.

Participants who meet inclusion criteria obtained from Gynae opd or labour room and willing to give consent for participation in study, enrolled. Pregnant women diagnosed with intrauterine fetal death after 28 weeks of gestation, confirmed by ultrasonography prior to the onset of labour (Ante partum) were included in the study. Data collected in structured proforma were entered in Microsoft Excel, compared by using chi-square test and statistical analysis were done with SPSS version 20.

Total number of admission in labour room during the study period was 3975 of which 3644 were delivered and 65 were stillbirth. The rate of stillbirth was 23.87 per 1000 birth. Relation between <19yrs age and reproductive age group (20-35yrs) P value found 0.008, statistically significant associated with lower education level (84.6%). More than half (58.5%) had at least one ANC visit and were preterm (63.07%) with primigravida, (17%). Hypertensive disorder was the commonest obstetric complication in these mothers (36.92%) followed by unexplained (26.15%), anaemia (18.46%), PROM (15.4%), APH (13.8%). Most of the babies were low birth weight (63.69%) and majority were males (63.1%).

Factors	Complications	Number	Percentage
Maternal	Anaemia	12	18.46
	HTN Disorder	24	36.92
	PROM	10	15.4
	Maternal infections	06	9.23
	Abdominal trauma	02	3.08
	Gestational Diabetes	1	1.54
	RH Isoimmunization	5	7.69
Fetal	Congenital malformation	2	3.08
	Placenta Praevia	6	9.23
Placental	Abruptio	3	4.07
	IUGR	2	3.08
	Post term pregnancy	4	6.15
Cord factor		08	12.4
	Nuchal cord	02	3.1
	Cord prolapse	02	3.1
	True knot	04	6.2
Unexplained		17	26.15

Table I: Distribution of Medical and obstetrics risk factors for IUFD: Multiple factors were seen in single participant, so number increased to 110.

Risk factors	Number	Percentage (%)	p-value
Age			
<19yrs	10	15.4%	0.008
>20-35yrs	51	78.4%	
>20-35yrs	51	78.4%	0.000
>35yrs	4	6.2%	
Education			
Literate	55	84.6	0.001
Illiterate	10	15.3	
Gestation age			
28-37 weeks	41	63.07	0.035
37 weeks	24	36.92	
Gravidity			
Primi	37	56.92	0.264
Multi	28	43.07	
Anc visit			
Yes	38	58.46	0.172
No	27	41.54	
HTN(BP>140/90, at least measured on 2 occasion)			
Yes	24	36.9	0.035
No	41	63.07	

Table II : Association between the risk factors and IUFD (Maternal factor)

Risk factor	Number(n)	Percentage(%)	p-value
Weight			
LBW	44	67.69	0.004
Normal	21	32.30	
Sex			
Male	41	63.07	0.035
Female	24	36.93	

Table III: Association between the risk factors and IUFD (fetal factor)

DISCUSSION

Death of a fetus is a distress to the family as well as to the obstetrician. Despite the advances in diagnostic and therapeutic modalities, stillbirth rates in developing countries are still high. Hence, proper documentation and evaluation of the risk factors will be very helpful in management aspect as well as advocating plan in maternal health sector. In our study, relation between <19yrs age and reproductive age group (20-35yrs) statistically significant which is comparable to the studies conducted by Mathuriya et al¹¹, Patel et al¹². Among different risk factors for IUFD, PIH, anaemia and PROM, APH, LBW were found in majority. Similar observation were reported by other studies too^{12,13,14}. PIH cases were more likely to have placental insufficiency with high risk for fetal death. Timely interventions can reduce complications like abruptio, IUGR and Stillbirth. Iron preparation are free of cost from

government supply to pregnant ladies, Iron deficiency anaemia still accounts comparable to study conducted by Choudhary A and Gupta V¹³. Deworming and consumption of nutritious diet during pregnancy is most. Majority (63.69%) of stillbirth babies belonged to LBW as compared to Mathuriya et al¹¹.

CONCLUSION

Illiteracy and no antenatal care are the predisposing factors for IUFD. Majority of risk factor for intrauterine fetal death like hypertension, placental abruption and anaemia will be preventable with timely ANC. Early detection of high risk pregnancy and timely referral to equipped centre will definitely rescue IUFD ratio. Health education and emphasis on institutional delivery under supervision of skilled personnel needs to be propagated in the community aggressively. This will help in reducing a number of preventable fetal deaths and huge loss of our national assets.

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LIMITATIONS OF THE STUDY

1. This is a single hospital based study, data retained may not be applicable to general population, need multicentre studies to draw valid interferences.
2. Due to technical and financial limitations, examinations such as autopsy, cytological studies of fetal tissues and placental histopathology were not done.

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Outcome of Lateral Condyle Fracture of Humerus in Children Treated with Open Reduction and Internal Fixation

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ABSTRACT

Introduction: Lateral condyle fracture is one of the commonest injuries encountered in pediatric age group. There is no unanimity regarding the method of treatment, however closed reduction is not applicable to all cases and have failure rates making open reduction and internal fixation (ORIF) as the treatment of choice at least in displaced fractures. There are a number of options during surgical management of these fractures; Kirschner-wire (K-wire) is the most commonly used implant for fixation. The purpose of our study was to evaluate the results of lateral condyle fractures of humerus in children treated by ORIF by K-wires based on Hardacre criteria. **Materials:** This prospective study was conducted in the department of orthopedics in Nepalgunj Medical College Teaching Hospital, Kohalpur from May 2016 to October 2018. All of the fractures in this study were treated by ORIF with unburied K-wires. It included 37 children of age group upto 14 years. Children were evaluated for age, sex, side of arm involved, mechanism of injury, type of fracture, presence of additional injuries, implant removal time, outcome and accompanying complications. K-wires were removed after clinico-radiological union of the fractures. Patients were evaluated using the Hardacre criteria in follow up till 6 months. **Result:** In this study of 37 children, 28 (75.7%) were males and 9 (24.3%) were females. All of them were 14 years of age or less with mean age of 6.7 ± 0.316 . Majority of fractures (67.6%) were observed between six to ten years of age. Left side was predominantly involved (62.2%). Milch type I fracture was found in 5 (13.5%) children while Milch type II fracture were observed in 32 (86.5%) children. The final outcome and functions were evaluated using Hardacre criteria in which 27 (73%) cases had excellent result and all cases had good result as per Hardacre criteria. The complications were 10 (27%) cases of lateral spur; eight (21.6%) cases of hypertrophied scar and four (10.8%) cases of pin track infection and 2 (5.4%) of cubitus varus. **Conclusion:** The treatment of displaced lateral condyle fracture of humerus by open reduction and unburied K-wire fixation is safe, easy and cost effective procedure with good results. This modality of treatment provides good results among pediatric population without the need for second admission for implant removal.

Key words: Hardacre criteria, K-wire, Lateral condyle fractures, Milch classification, ORIF

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INTRODUCTION

In children upper extremity fractures constitute 65 to 75% of total pediatric fractures. Lateral condyle fractures of the distal humerus are the second most common fractures at the elbow in the pediatric population usually between the ages of six to 10 years old making up five to 20% of all distal humerus fractures in children¹⁻⁵. The ossification center of the lateral condyle of the distal humerus on an average appears just before one year of age but may be delayed as late as 18 to 24 months⁶. The lateral condyle fuses with distal end of humerus usually in between 12 to 16 years with fusion occurring earlier in girls than in boys⁷. Before the fusion completes the lateral condyle may be sheared off or avulsed leading to fracture of lateral condyle which usually occurs in between six to 10

years of age³. On the basis of the fracture anatomy Milch in 1955 classified it into type I and type II. Type I fracture being the one exiting through the capitellotrochlear groove and Type II fracture being the one through the trochlea. Various modalities of implants are being used for open treatment of this fracture. Smooth pins are most commonly used implants for fracture fixation⁸. It has been observed that large number of pediatric patients come to the department of Orthopaedic at Nepalgunj Medical College Teaching Hospital, Kohalpur with displaced fracture of lateral condyle of humerus so it was thought worthwhile to study the clinical and radiological the pattern of fractures of lateral condyle of humerus and their outcome after open reduction with k-wires fixation.

MATERIALS AND METHODS

The present prospective study was conducted in the Department of orthopedics at Nepalgunj Medical College Teaching Hospital Kohalpur, over the period of 30 months from May 2016 to October 2018. Only displaced lateral condyle fracture of humerus up to 14 years of age or below and less than 1 week old have been included in the study. Anteroposterior, oblique and lateral X-rays of the elbow were done to confirm the diagnosis and to study the morphology of the fracture. The fracture was classified according to the Milch classification. The fracture was approached via Kocher's incision and the fracture fragments were reduced and stabilized with K-wires and were left unbanded outside the skin removal for easy removal. Wound was closed in layers followed by above elbow slab in 90 degrees of flexion with forearm in supination after dressing was done. All the patients were administered intravenous antibiotics for at least of three days and then converted to oral antibiotics. The dressing was changed after 48 hours of surgery and the children were generally discharged from hospital after 72 hours and second look dressing was advised to the patient party on 5th to 7th day. On 14th post-operative day sutures were removed and above elbow slab was continued.

FOLLOW UP

Subsequently all the patients operated for lateral condyle fracture of humerus were followed up two weeks after the date of surgery and they were evaluated clinically and radiologically. Wound was inspected and sutures were removed. X-rays were done and the position of the fracture and position of the implants were checked. Limb was protected in above elbow slab.

There after the children were followed at five to seven weeks; 10 to 12 weeks; 16 to 18 weeks and 22 to 24 weeks time. At follow up between five to seven weeks time clinical and radiological evaluation was done to assess the progress of the union and complications. With the evidence of the union K-wires were removed and slab was discontinued and patients were advised for elbow ROM. From the third follow up onwards, patient were evaluated for pain, ROM, radiological evidence of union, carrying angle and complications.

The outcome based on the above observations were graded according to the system described by Hardacre et al⁹.

Excellent Result	No symptoms+ Full ROM +No alteration in the carrying angle.
Good Result	ROM deficit<150 of complete extension + inconspicuous alteration in the carrying angle + no arthritic or neurological symptoms.
Poor Result	Disabling loss of motion(>150 loss of extension + conspicuous alteration in the carrying angle + Arthritic symptoms or ulnar neuritis or X-ray findings of non-union or AVN.

Table I: Hardacre criteria⁹

OBSERVATION AND RESULTS

There were 28 males (75.7%) and 9 females (24.3 %) with male to female ratio being 3.1:1. Left limb was commonly affected, in 23 patients (62.2%) and right being in 14 patients (37.8%). The most common mode of injury was fall while playing at ground at 31 (83.8%) followed by fall from height at 6 (16.2%).

Age in years	Frequency(n)	Percentage (%)	Mean $\pm$ SD
1-5	10	27.0	6.73 $\pm$ 1.92 years
6-10	25	67.6	
>10	2	5.4	
Total	37	100.0	

Table II: Distribution of age in total participants (n=37)

The mean age of the patient was 6.73 $\pm$ 1.92 years.

Milch classification	Number of patients (n)	Percentage (%)
Type I	5	13.5
Type II	32	86.5
Total	37	100

Table III: Distribution type of lateral condyle fracture of humerus according to Milch classification in total participants (n=37).

The fractures were mostly in Milch II at 32 (86.5%)

Implant removal period (in weeks)	No. of patients	Percentage (%)	Mean $\pm$ SD
5	11	29.7	5.78 $\pm$ 0.58 weeks
6	23	62.2	
7	3	8.1	
Total	37	100	

Table IV: Distribution of duration of implant removal in total participants (n=37)

The mean duration of K-wire removal was 5.78 $\pm$ 0.58 weeks.

Hardacre criteria at Final follow up	Number of patients(n)	Percentage (%)
Excellent	27	73
Good	10	27
Poor	0	0
Total	37	100

Table V: Distribution of final outcome based on Hardacre et al⁹ criteria among total participants (n=37)

According to the criteria of Hardacre et al⁹, 27 cases (73%) fell into excellent grade and 10 cases (27%) fell into Hardacre good grade and in all patients there was no disabling loss of motion, conspicuous alteration of carrying angle, arthritic symptoms, ulnar neuritis, nonunion and avascular necrosis.

Complications	No. of patients(n)	Percentage (%)
Lateral spur	10	27.02
Hypertrophic Scar	8	21.62
Pin track infection	4	10.81
Cubitus Varus	2	5.40
None	13	35.13
Total	37	100

Table VI: Distribution of Complications encountered at final follow up among total participants (n=37)

The most common complication is Lateral spur formation (27.02%) followed by hypertrophic scar (21.62%). Out of 37 patients who had undergone ORIF for lateral condylar fractures, 2 patients (5.4%) developed varus deformity which was mild and not noticeable and eight patients (21.62) had mild restriction (<15 degrees) without producing any noticeable inconvenience to patients at the final follow-up, the patients were sent to further physiotherapy.

DISCUSSION

Lateral condyle fracture of humerus is the common pediatric elbow fracture after the supracondylar fracture of humerus^{1,2,4,5}. The fractures of the lateral condyle of humerus are so called "fracture of necessity" always warrants the open reduction and internal fixation¹⁰. Though undisplaced fractures can also be treated conservatively through slab and immobilization but higher incidence of malunion, non-union and avascular necrosis of lateral condyle warrants proper anatomical reduction through internal fixation⁹.

Higher incidence of male as compared to the female in this study can be due to the more involvement of the males in outdoor activities. The lateral condyle fracture of humerus more often involve left elbow in approximately 50% to 70% children^{9,11,12} which is comparable to this study.

In various studies the outcome had varied widely. Hardacre et al. in his study observed 65.2% excellent; 13.1% good result and 21.7% poor result⁹. Cardona et al in his study observed 93.7% excellent and 6.3% good result¹³. Boz et al in his study observed 78.3% excellent result and 21.7% good result¹⁴. Leonidou et al in his study observed 96% of excellent result and four percent of good result¹⁵. Li et al in his study observed 73.3% of excellent result and 26.7% good result in children treated with open reduction and k-wire fixation¹⁰. Bashir et al observed that 56% cases were excellent result and 44 % of good result¹².

In the present study of 37 children with lateral condyle fracture of humerus, final outcome evaluated at final follow up in between 22 to 24 weeks was 27 cases (73%) had excellent result and ten cases (27%) had good result.

Complications

The complications encountered among various studies were nonunion; pin track infection; migration of K-wires; lateral

overgrowth and hypertrophic scar. Hardacre et al in his study observed 1.9% of non-union; 1.9% of pin track infection; 7.6% of migration of K-wires and 23.1% of lateral overgrowth⁹. Boz et al in his study encountered 47.8% of lateral bony overgrowth¹⁴. Li et al in his study observed 36.7% of lateral prominence¹⁰. Bashir et al in his study encountered two percent of pin track infection; 10% of cubitus varus deformity; 68% of lateral bony overgrowth and eight percent of hypertrophic scar¹².

In present study of 37 people, lateral spur and hypertrophic scar was noticed at 10 (27.02%) and eight cases (21.6%) respectively. Four cases (10.8%) had pin track infection which resolved after removal of K-wires and use of oral antibiotics and two cases (5.4%) had cubitus varus which was not obvious cosmetically.

CONCLUSION

The treatment of displaced lateral condyle fracture of humerus by open reduction and K-wire fixation is safe and cost effective with excellent results. The removals of unburied K-wires are easy and can be done in outpatient basis which removes the need for second surgery. This modality of treatment decreases the duration of total hospital stay in pediatric school going children by removing the need of second surgery during implant removal, however a randomized controlled trial with larger sample size would increase the significance of this study.



Figure 1 : X-ray AP and lateral view of elbow after injury

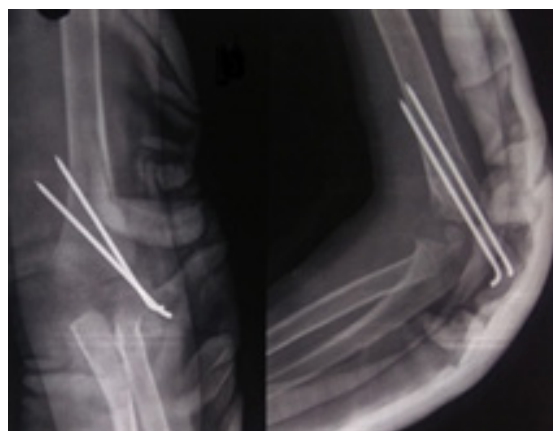


Figure 2 : X-ray Ap and lateral view on 1st post operative day



Figure 3 : X-ray AP and lateral view elbow on follow up

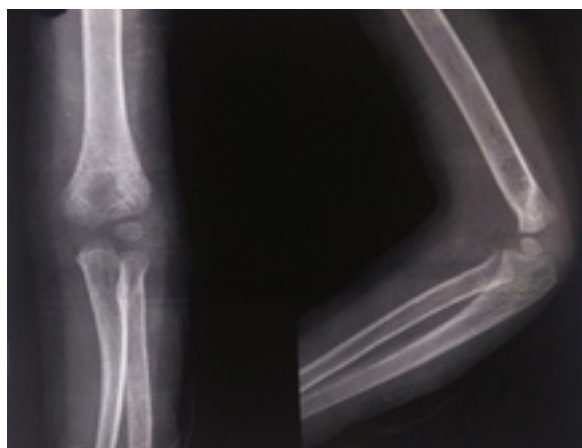


Figure 4 : X-ray AP and lateral view elbow after implant removal during follow up.

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Assessment of Liver Function Tests in Children with Typhoid Fever: A Hospital Based Study

Ahmad S

ABSTRACT

Background: Typhoid fever is among the most endemic diseases in the tropics and which causes significant morbidity and mortality. It can lead to liver damage if not properly treated. Therefore, the liver function test assessment was conducted in children with typhoid fever. Our study aimed to evaluate the liver function test abnormalities in typhoid fever. **Material and methods:** This was a prospective observational study conducted at the department of paediatrics, Nepalgunj Medical College and Teaching hospital, Nepalgunj for a period of one year August 2018-July 2019. In the present study total 60 children of Typhoid fever were included on the basis of inclusion and exclusion criteria. On admission a detailed history and complete physical examination was carried out. Routine investigations were also carried out. The diagnosis was confirmed by serum Widal test. Liver function tests were performed i.e. Serum glutamic oxaloacetic transaminase [SGOT] and serum glutamic pyruvic transaminase [SGPT] estimation. **Result:** In the present study total children were 60 in which 43.33% were boys and 56.66% were girls. Fever was present in all the cases loss of appetite, cough, vomiting was present in majority of cases. On admission, SGOT and SGPT levels were found > 35 IU/L in 26 cases (43.33%) and 34 cases (56.66%) respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L. **Conclusion:** Our study concluded that on admission of children SGOT and SGPT levels were found > 35 IU/L in 43.33% and 56.66% respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L.

Keywords: Liver function test, SGOT, SGPT, Typhoid

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INTRODUCTION

Typhoid fever is a very common infectious disease of tropics, related to high morbidity and mortality¹. It usually starts as an acute systemic disease without localization, and is clinically identical to other infections, including malaria, bacterial, and viral infections. Multiple organs can be affected by the disease. Hepatic involvement could be considered important, as it may be related to higher relapse rate^{2,3}. The incidence of hepatitis in enteric fever was reported more during second to fourth week of illness⁴. Abnormal liver function tests suggesting hepatic involvement has been reported as 23-60% by various authors^{5,6,7}. Few studies report incidence of elevated transaminases and alkaline phosphatase significantly in all the cases in 2nd and 3rd week of illness and mild elevations in enzyme levels in first week⁸. The present study was conducted to assess the liver function test in children with typhoid fever.

MATERIAL AND METHODS

In the present study total 60 children of typhoid fever were assessed. Before the commencement of the study ethical approval was taken from the Ethical committee an informed consent was obtained from the parents/guardians. On admission a detailed history and complete physical examination was carried out in all cases and the findings recorded. Routine investigations carried out included total and differential leukocyte count, haemoglobin estimation, urine analysis and stool examination. A clinical diagnosis of typhoid

was made on the basis of history of continuous fever, ill and toxic appearance, coated tongue and in a few cases a palpable spleen. The diagnosis was confirmed by serum widal reaction. Children of age group of 5 years to 11 years, children who were having fever of more than 7 days, children in which enteric fever confirmed by tube agglutination test were included in the study. Children with other co morbidities like malaria, children with pre-existing liver disease, children with jaundice in last 6 months were excluded from the study. Liver function tests were performed i.e. Serum glutamic oxaloacetic transaminase [SGOT] and serum glutamic pyruvic transaminase [SGPT] estimation.

RESULT

In the present study total children were 60 in which 26(43.33%) were boys and 34(56.66%) were girls. Fever was present in all the cases loss of appetite, cough, vomiting was present in majority of cases. On admission, SGOT and SGPT levels were found > 35 IU/L in 26 cases (43.33%) and 34 cases (56.66%) respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L.

Variables	
Gender	N (%)
Boys	26(43.33%)
Girls	34(56.66%)
Total	60(100%)

Age group(yrs)	
5-7	21(35%)
7-9	18(30%)
9-11	21(35%)
Total	60(100%)

Table I: Demographic factors

Symptoms	No. of cases (%)
Fever	60(100%)
Cough	28(46.66%)
Vomiting	31(51.66%)
Loose motion	11(18.33%)
Abdominal pain	39(65%)
Loss of appetite	38(63.33%)
Abdominal distension	19(31.66%)
Swelling all over body	1(1.66%)
Jaundice	2(3.33%)

Table II: Symptoms shown in typhoid cases

	Value	SGOT(Units)	SGPT(Units)
		N (%)	N (%)
On admission	> 35	31(51.66%)	34(56.66%)
On discharge after 7 days of antibiotic	< 35	24(77.41%)	27(79.41%)
	> 35	7(22.58%)	7(20.58%)

Table III: Showing SGOT and SGPT value in typhoid cases on admission and on discharge

DISCUSSION

The etiological agent of typhoid was *S. Typhi* in 72% of cases. *S. Paratyphi A* was the second causative agent as also found in studies^{9,10}. The reports shows that it is related to rainfall and water contamination¹¹.

In the present study total children were 60 in which 43.33% were boys and 56.66% were girls. Fever was present in all the cases loss of appetite, cough, vomiting was present in majority of cases. On admission, SGOT and SGPT levels were found > 35 IU/L in 26 cases (43.33%) and 34 cases (56.66%) respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L.

A study by Tohme A et al revealed the result that fever was present in 97% of cases; diarrhoea was found in 36% of cases. Gastroenteritis was a frequent manifestation in 52% children¹².

The rise in transaminase along with alkaline phosphates indicates involvement of hepatobiliary system, which may be secondary to endotoxic effect on hepatic parenchyma causing oedema and biliary stasis¹³.

A study by Srikanth N shows that SGOT was raised in 44% cases and SGPT was raised in 42% cases. Hyperbilirubinemia was seen in 10% patients¹⁴.

Farzana Shafqat et al found SGOT was raised in 92.1% and SGPT in 68.3% of the subjects while hyperbilirubinemia was seen in 12.4% of the subjects¹⁵.

CONCLUSION

Our study concluded that on admission of children SGOT and SGPT levels were found > 35 IU/L in 43.33% and 56.66% respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L.

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Epidemiology of Maxillofacial Fracture – A Hospital Based Study

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ABSTRACT

Introduction: Maxillofacial trauma is the most common problem seen by maxillofacial surgeons in Nepal. The causes of facial fractures are road traffic accidents (RTA), assaults, falls, gunshot wounds, domestic violence, sports and work injuries. Maxillofacial injury varies from soft tissue injury to facial bone fractures. This study was conducted to assess the burden of maxillofacial trauma in mid-western and far-western regions of Nepal. **Material and Method:** Patients with maxillofacial fractures admitted in dental ward of NGMCTH, Kohalpur, from April 2017 to April 2019 were included in the study. Patients having soft tissue injury without facial bone fractures and OPD cases were excluded from the study. Patient demographics, mechanism of injury, associated soft tissue injury, accompanying injuries to other parts of body and facial bone fractures were recorded. Patient were treated by open reduction internal fixation or lateral compression splint with circum-mandibular wiring or managed conservatively as necessary. **Result:** A total of 87 patients were included in the study. The age of patient ranged from 2 years to 67 years with a mean of 26.87 years. Most of the injuries occurred between the age group of 20-29 years with male: female ratio 5.2:1. The most frequent cause of facial bone fracture was RTA (51.7%) and the most frequently fractured facial bone was mandible. Contusion 54(49.5%) was the most common associated soft tissue injury. Head injury 20(52.6%) was the most common accompanying injury to other parts of body. The mean duration of hospital stay was 6.29. **Conclusion:** Male patient in their third decade mostly had mandible fracture due to road traffic accident. Head injury was the most common accompanying injury. Contusion was the most common type of associated soft tissue injury.

Key words: *Associated injuries, Epidemiology, Maxillofacial fracture*

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INTRODUCTION

Maxillofacial trauma is the most common problem seen by maxillofacial surgeons in Nepal. The epidemiology of maxillofacial injury varies on several factors such as patients' demography, geographical area, culture, lifestyle differences, socioeconomic trends, road safety regulations and alcohol abuse^{1,2,3,4,5}. The causes of facial fractures are road traffic accidents (RTA), assaults, falls, gunshot wounds, domestic violence, sports and work injuries^{2,3,4}. Maxillofacial injury varies from soft tissue injury (e.g. abrasion, contusion, laceration) to facial bone fractures. Patients presenting with maxillofacial fractures may also have accompanying injuries such as head injury, spinal injury, intra-thoracic injury, intra-abdominal injuries, limb fractures etc^{6,7}. The treatment option varies from conservative management, closed method to surgical measures and is associated with various complications such as: infected metal ware, malocclusion, malunion, plate exposure, palpable plate, wound infection, abnormal facial contour requiring recontouring and nonunion. There may be enophthalmos, blindness, facial dysaesthesia,

temporomandibular joint (TMJ) dysfunction, dento-alveolar, lachrymal, sinonasal or airway pathologies and central nervous system (CNS) complications (e.g., cerebrospinal fluid (CSF) leak, meningitis, cerebral bleed or abscess)⁵. Similar studies in our countries had shown male predominance and RTA to be the most common cause of injuries^{8,9,10,11}. Mandibular parasymphysis was the most common site of mandibular fracture^{10,11}. Study by Yadav S. showed extradural hematoma (EDH) to be the most common type of head injury associated with the maxillofacial injury⁹. There are no study evaluating the trauma burden till date done in mid-western and far-western region of Nepal. Thus it is necessary to understand the trauma burden and to help develop more efficient ways to plan resource allocation and to deliver care and preventive measures. So, we designed a descriptive observational study to obtain a reliable data on demographics, causes, associated injuries and length of hospital stay in patient with maxillofacial injury so that an injury prevention strategy can be developed and patients at risk of developing postoperative complications can be identified.

MATERIAL AND METHOD

Nepalgunj Medical College Teaching Hospital (NGMCTH) is the tertiary care hospital and the only referral center for maxillofacial injuries in mid-western and far-western region of Nepal. Patients with maxillofacial fractures admitted in dental ward of NGMCTH, Kohalpur, from April 2017 to April 2019 were included in the study. Patients having soft tissue injury without facial bone fractures and OPD cases were excluded from the study. Patient demographics, mechanism of injury, associated soft tissue injuries, accompanying injuries to other parts of body and facial bone fractures were recorded. Patient were treated by open reduction internal fixation or lateral compression splint with circum-mandibular wiring or managed conservatively as necessary. The data were entered in Microsoft Excel 2007 and analyzed using Statistical Package for Social Sciences (SPSS) version 11.5.

RESULT

A total of 87 patients were treated for maxillofacial fracture in Nepalgunj Medical College Teaching Hospital, Kohalpur, Banke, Nepal during the study period. The age group of patient ranged from 2 years to 67 years with a mean age of 26.87 years. Most of the injuries 30(34.5%) occurred between the age group of 20-29 years. There were 73 males and 14 females with a male: female ratio 5.2:1. The most frequent cause of facial bone fracture was RTA 51.7% (45/87) followed by fall injury 20.7% (18/87), physical assault 14.9% (13/87), occupational injuries 4.6% (4/87), stumbling 3.5% (3/87), animal attack 1.1% (1/87), sports injuries 2.3% (2/87) and domestic violence 1(1.1%). Among RTA motorbike accident (28/45) was the most common cause. (Table I)

	Age (Years)	RTA				Fall			Stumbling	Physical assault	Domestic violence	Sports	Work	Animal attack	Total
		MVA	MBA	Bicycle	Pedestrian	Tree	Roof	Height							
	0-9	0	0	0	2	0	2	2	0	1	0	0	0	0	7
	10-19	1	5	2	2	2	1	3	0	0	2	1	0	0	20
	20-29	2	14	2	0	1	0	2	0	0	6	1	0	0	30
	30-39	3	5	0	1	1	0	1	0	0	3	0	1	0	15
	40-49	1	3	1	0	1	1	1	0	0	0	0	1	0	10
	50-59	0	1	0	0	0	0	0	0	0	0	0	0	1	4
	>60	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Total		7	28	5	5	5	4	9	3	13	1	2	4	1	87
		(8.1%)	(32.2%)	(5.7%)	(5.7%)	(5.7%)	(4.6%)	(10.4%)	(3.5%)	(14.9%)	(1.1%)	(2.3%)	(4.6%)	(1.1%)	(100%)
Gender															
	Male	5	25	4	3	3	3	8	2	13	0	2	4	1	73
		(71.4%)	(89.3%)	(80%)	(60%)	(60%)	(75%)	(88.9%)	(66.7%)	(100%)	0	(100%)	(100%)	(100%)	(83.9%)
	Female	2	3	1	2	2	1	1	1	0	1	0	0	0	14
		(28.6%)	(10.7%)	(20%)	(40%)	(40%)	(25%)	(11.1%)	(33.3%)	0	1	0	0	0	(16.1%)
Total		7	28	5	5	5	4	9	3	13	1	2	4	1	87
		(8.1%)	(32.2%)	(5.7%)	(5.7%)	(5.7%)	(4.6%)	(10.4%)	(3.5%)	(14.9%)	(1.1%)	(2.3%)	(4.6%)	(1.1%)	(100%)

Table I: Age and Gender distribution of patients according to mechanism of injury

Legends: RTA (Road traffic accident), MVA (Motor vehicle accident), MBA (Motorbike accident)

Mandible fracture occurred in 68 cases. Among them, 32 cases had mandible fracture in single site, 20 cases had mandible fracture at multiple sites and 16 cases had mandible fracture in combination with other facial bone fracture. Mandible was fractured at 97 anatomic locations. Mandibular parasymphysis (39/97) was the most common site of fracture with right: left ratio of 11:28 followed by angle of mandible 22/97 (R:L= 13:9), symphysis 13/97, body 11/97 (R:L=7:4), condyle 10/97 (R:L=6:4), ramus 2/97. RTA mostly resulted in mandibular parasymphysis fracture whereas; physical assault mostly resulted in mandibular angle fracture (Table II).

Mandible fracture	RTA				Fall			Stumbling	Physical assault	Domestic violence	Sports	Work	Animal attack	Total
	MVA	MBA	Bicycle	Pedestrian	Tree	Roof	Height							
Number of Patients	4	20	5	4	5	3	9	3	12	1	1	1	0	68
Symphysis	1	5	0	0	1	1	2	0	2	0	0	1	0	13
Parasymp- physis	L3	L6R5	L1R1	L2	L3R1	L2	L5R1	L3	L2R2	R1	L1	0	0	39
Body	R1	R2	L1R1	0	R2	0	L1R1	0	L2	0	0	0	0	11
Angle	L1	L3R3	R2	R1L1	R1	0	R1L1	0	L2R4	L1	R1	0	0	22
Ramus	0	0	0	0	0	0	R1	0	R1	0	0	0	0	2
Condyle	0	L1	0	R1L1	R1L1	R1	0	R3	L1	0	0	0	0	10
Coronoid	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	25	6	6	10	4	13	6	16	2	2	1	0	97

Table II: Pattern of mandibular fracture according to the etiology of injury

Legends: RTA= Road traffic accident, Motor vehicle accident (MVA), MBA (Motorbike accident), ZMC=Zygomatico maxillary complex, NOE= Naso-orbitoethmoid. R=Right, L= Left

Maxilla is the most frequently fracture bone in mid-facial region. Zygomatico-maxillary complex (ZMC) fracture occurred in 15 cases, unilateral maxilla in 14 cases, palatal split occurring in 12 cases, nasal bone in 6 cases. We reported one case with frontal sinus fracture and naso-orbito-ethmoid fracture. We reported slightly higher frequency of Lefort III fracture (4 cases) compared to Lefort I and Lefort II fracture (Table III).

Maxilla	Frontal sinus	Palatal split	Nasal	NOE	ZMC	Lefort III	Lefort II	Lefort I	Facial bone fractures		
									MVA	MBA	Bicycle
L2	0	0	1	1	R1L2	0	0	0	RTA		
R1L4	0	4	1	1	R2L3	3	0	3			
L1	0	1	0	0	0	0	0	0	Bicycle		
0	0	0	0	0	R1	0	1	0	Pedestrian		
0	0	0	1	0	0	0	0	0	Tree		
0	0	1	2	0	L1	1	1	0	Roof		
0	0	1	0	0	L4R1	0	1	0	Height		
0	0	0	0	0	0	0	0	0	Stumbling		
R1L1	0	1	0	0	0	0	0	0	Physical assault		
0	0	0	0	0	0	0	0	0	Domestic violence		
0	0	0	0	0	R1	0	0	0	Sports		
R1L2	R1	3	1	0	R1L1	0	0	0	Work		
L1	0	1	0	0	0	0	0	0	Animal attack		
14	1	12	6	2	15	4	3	3	Total		

Table III: Pattern of mid-face fracture according to the etiology of injuries

Out of 87 cases, 33 patients sustained accompanying injuries. Head injuries occurred in 20 patients. Extremities were injured in 9 patients. C-spine injury was noted in 5 patients with fall from tree being the most common cause (2 patients). Chest trauma and abdominal injuries occurred in 2 patients each (Table IV)

[illegible]

Table IV: Pattern of accompanying injuries to other parts of body according to the mechanism of injuries

Contusion was the most common associated soft tissue injury with facial bone fracture (Table V).

Total	Laceration	Contusion	Abrasion	Associated soft tissue injury				
					RTA			
					MVA	MBA	Bicycle	Pedestrian
11(10.1%)	5(11.6%)	5(9.3%)	1(8.3%)					
37(34%)	19(44.2%)	11(20.4%)	7(58.3%)					
7(6.4%)	4(9.3%)	2(3.7%)	1(8.3%)					
5(4.6%)	1(2.3%)	4(7.4%)	0					
6(5.5%)	2(4.6%)	3(5.6%)	1(8.3%)					
5(4.6%)	4(9.3%)	1(1.9%)	0					
10(9.2%)	2(4.6%)	8(14.8%)	0					
4(3.7%)	0	3(5.6%)	1(8.3%)					
15(13.8%)	1(2.3%)	13(24.1%)	1(8.3%)					
10(9%)	1(2.3%)	0	0					
2(1.8%)	0	2(3.7%)	0					
5(4.6%)	3(7%)	2(3.7%)	0					
10(9%)	1(2.3%)	0	0					
109(100%)	43(39.5%)	54(49.5%)	12(11%)					

Table V: Pattern of associated soft tissue injury according to mechanism of injury

Facial bone fracture	RTA				Fall			Stumbling	Physical assault	Domestic violence	Sports	Work	Animal attack	Total
	MVA	MBA	Bicycle	Pedestrian	Tree	Roof	Height							
Karnali														
Dolpa	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humla	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jumla	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Kalikot	0	1	0	0	0	0	0	1	1	0		0	0	3
Mugu	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bheri														
Banke	1	5	1	0	0	1	0	0	2	1	0	0	0	11
Bardiya	0	1	2	0	0	0	0	0	2	0	1	1	0	7
Surkhet	1	0	0	2	1	0	0	1	0	0	0	0	0	5
Dailekh	0	0	0	0	2	1	1	0	1	0	0	0	0	5
Jajarkot	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Rapti														
Dang	1	5	0	1	0	0	1	0	1	0	0	0	0	9
Salyan	1	0	0	0	0	0	1	0	0	0	0	0	0	2
Rolpa	1	0	0	0	0	0	0	0	0	0	0	1	0	2
Pyuthan	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Rukum	0	1	0	1	0	0	0	0	1	0	0	0	0	3
Seti														
Bajhang	0	0	0	0	1	0	1	0	1	0	0	0	0	3
Bajura	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Doti	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Achham	0	1	0	0	0	1	1	0	1	0	0	0	0	4
Kailai	2	10	2	1	0	1	1	0	2	0	0	1	0	20
Mahakali														
Darchula	0	0	0	0	1	0	0	0	0	0	0	1	0	2
Baitadi	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Dadeldhura														
Kanchanpur	0	2	0	0	0	0	0	0	1	0	1	0	0	4

Table VI: Geographical distribution of Maxillofacial fractures according to the etiology of injuries

The mean duration of hospital stay is 6.29 days (1-27 days) and median and mode 4 days.

RTA is more common in terai region such as: Kailali and Dang. Fall injuries are more common in mountain and hilly districts such as: Achham, Dailekh, Jumla, Jajarkot, Bajhang, Salyan, Darchula. (Table VI)

DISCUSSION

The most common reported etiology of maxillofacial fracture in our study is road traffic accident. Motorbike accident accounted for majority of fracture in our study similar to study conducted in western part of Nepal by Rajib Khadka et al¹¹ which is in contrast with the studies by B. van den Bergh et al¹² bicycle; Miguel S. Cabalag et al⁵ and P. Boffano et al⁴ assault, which may be due to the sociocultural and legislative differences between these countries. The maxillofacial injuries occurred most commonly in male with a ratio of 5.2:1 and in third decade of life which is in agreement with several other studies^{3,6,7,12}. We reported a higher male predilection than studies conducted in other part of Nepal^{8,10,12}. In European Maxillofacial Trauma (EURMAT) population maxillofacial Injury was more in 4th decade of life¹³ which can be due to increasingly active elder population. We also reported a case of domestic violence which could be the representative case in our society.

We reported 33 cases with associated injuries with maxillofacial trauma where head injury (23%) was most common followed by injury to the extremities (10.3%). The frequency of associated injuries varies from 14-56% among different studies with many author reporting head injury being the most commonly reported injury⁷. Motorbike accident (12 cases) was the most common cause followed by pedestrian for associated injuries in our study. This finding is in contrast to study by Mohammad Zandi³ and Krishna KC⁸ who reported extremities injury and MVA to be the most common. C-spine fracture was reported in five cases (5.7%) with bicycle, pedestrian, fall and occupational injuries as etiology showing the necessity to rule out C- spine injury in all cases of maxillofacial injury. The average incidence of soft tissue injury was 1.25/patient. Contusion was the most common type of soft tissue injury followed by laceration and abrasion. This finding is in contrast with study by Mohammad Zandi³ who reported laceration to be the most common type of soft tissue injury followed by abrasion, contusion and avulsion. This could be due to the fact that we only reported the soft tissue injury in patient reporting with maxillofacial fractures.

We reported a total of 157 fractures in 87 patient accounting for 1.8 fractures/patient. Mandible fracture is the most common fracture followed by ZMC, Maxilla, Palatal split, nasal, Le-Fort III, Le-Fort I and II. Based on the anatomic location we reported Parasymphysis (40.2%), Angle (22.7%), Symphysis (13.4%), body (11.3%), condyle (10.3%) and ramus (2.1%) fracture. Left parasymphysis was more commonly fractured than right side whereas, body, angle, ramus, and condyle were fractured more commonly on right side. Our finding agrees with the finding of study by Ram Bhakta Adhikari that parasymphysis

is more commonly involved site in mandibular fracture but we reported more frequency of angle and symphysis fracture in contrast to his study¹⁰.

ZMC fracture is the second most common site of maxillofacial fracture similar to study by Krishna KC⁸. But our study differ from that of the study by Mohammad Zandi³ where nasal bone was the most commonly fractured bone and Le-Fort I fracture was more common than Le-Fort II and III and Miguel S. Cabalog⁵ reported orbital fracture to be the most common fracture. This variation could be because of the differences in sample of the study and method of collection of data. In our setup isolated nasal bone fracture are mostly managed by ENT department excluding it from the study. We also reported prevalence of fall from tree and stumbling as a separate etiology for maxillofacial injury similar to study by Ramané Béogo⁶, and Mohammad Zandi³. The etiology fall from tree and height is related to search for wood and grass. We also reported fall from height mainly in first to third decade of life which is mainly because of slippery road in villages and decrease safety regulation on school for students who have access to the roof. Physical assault is seen more common in second to third decade of life as reported in other studies^{6,12,13}.

We have reported the maxillofacial injuries based on geographical location with hilly district reporting higher incidence of injuries due to fall. This is because of the topographical location of this district and dependency of the people of that region in forest for fuel and feeding cattles. We have not found any study till date showing incidence of maxillofacial injuries based on geographical location in our country.

CONCLUSION

Male patient in their third decade mostly had mandible fracture due to road traffic accident. Head injury was the most common associated injury. Contusion was the most common type of associated soft tissue injury. The result of this study suggests that it is high time to implement injury prevention strategy in our country beginning from strong implementation of traffic rules, increasing the quality of roads, injury prevention strategy in school, sports safety regulations, occupational safety regulations, safety of villages near national parks, to education of youth and general public in social norms and values.

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Practice of “Defensive Medicine” Among Doctors at a Tertiary Care Hospital

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ABSTRACT

Introduction: Defensive medicine is the short term coined for a defensive medical decision making. It means advising diagnostic tests, prescribing more drugs than required or avoids treating and operating high risk patients. These may not be the best options for the patient but the practice among doctors is currently adopted to avoid litigation. A situation aggravated by the promulgation of tough consumer laws and other criminal laws applicable to health care providers. This study was conducted to assess the frequency of defensive medicine practice among doctors at the teaching medical college hospital of NGMC. **Methods:** A cross sectional study was conducted at Nepalgunj Medical College, Teaching Hospital, Kohalpur, a tertiary care center in between January to December 2018. A questionnaire was developed to assess the various aspects of defensive medicine practice. In this study, a total of 75 doctors participated. **Results:** Practice of defensive medicine was common in age between 30-40 years. Fear of caring high risk patients (76%), ordering un-necessary tests (56%) followed by avoiding high risk procedures (46%) were common forms of defensive medicine practices observed in sampled doctors. Senior faculties were found practicing more defensive medicine than juniors (69.4% versus 30.6%) and more in surgical field as compared to non-surgical 61% vs. 39%. **Conclusion:** Defensive medical practice in various ways is common among the doctors. This has produced a positive impact in the form of greater communications with the patients and awareness to have a good medical record keeping. However, the negative impacts on the doctors have been more in the form of prescribing more investigations, drugs, more referral and reluctance to accept high risk patients if there is choice.

Keywords: *Defensive medicine practice, Indemnity, Law suits, Legal demands, Litigation*

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INTRODUCTION

The term defensive medicine actually means, a defensive decision making while prescribing drugs, asking more investigations, the hesitancy to accept high risk patients and making un-necessary referrals, which could have been avoided. Defensive medicine is a deviation from sound medical practice that is induced primarily by a threat of liability¹. The practice of defensive medicine was reported globally to avoid lawsuits against medical practitioners^{2,3}. Defensive medicine reduces the tendency of doctors to accept high-risk patients. Defensive medical practices can be either positive or negative. Positive defensive medicine includes unnecessary prescriptions, unnecessary referral of patients to specialists, asking patients for more details. Negative defensive medicine includes avoiding prescribing risky procedures for curing patients and avoiding accepting high-risk patients^{4,5,6}. Lawsuits against negligence and violent reactions by patients and their relatives are increasing day by day. Defensive medicine is also expensive, has no basis in evidence-based studies, and sometimes exposes patients to complications due to unnecessary tests, medications and procedures. Studies regarding practice of

defensive medicine are lacking. The main aim of this study was to assess the frequency of different modalities practice of defensive medicine among medical doctors in this hospital.

METHODS

A descriptive cross sectional study was conducted at Nepalgunj Medical College, teaching hospital, a tertiary care center in year 2018 January to December. Ethical approval was taken from Institutional Review Board (IRB). A structured questionnaire was developed, consisting of various aspects of defensive medicine like awareness towards defensive medicine, positive and negative impact of the defensive medicine on doctors, the practice of defensive medicine in relation to age, gender, grade, years of experience and specialty was noted. Medical practitioners from clinical disciplines were chosen for study and full confidentiality was maintained of each respondents. Resident doctors were graded as juniors and lecturers and above ranks (Assistant and Associate Professor) were graded as seniors. Data collected in structured proforma were entered in Microsoft Excel 2007 and statistical analysis was done with SPSS 20 software.

RESULTS

The study comprised of a total of 75 participants. Characteristics of the participants were shown in Table I. Majority of the respondents were in age group of 30-40 years (61%) with male predominance 54(72%). Among different specialty, majority of participants were from department of medicine 15(20%) and surgery 15(20%). According to grade of participants lecturer accounts the most 35(47%). Majority of participants were having less than 5 year experience 38(50%).

1. Characteristics of participants (n=75)

Characteristics	Number	Percentage (%)
AGE (YEARS)		
20-30	10	13.00%
30-40	46	61.00%
40-50	19	26.00%
GENDER		
Female	21	28.00%
Male	54	72.00%
SPECIALTY		
Dermatology	3	4.00%
ENT	11	15.00%
Medicine	15	20.00%
Neurosurgery	2	3.00%
Obs and Gyane	10	13.00%
Orthopedic	7	9.00%
Pediatric	7	9.00%
Plastic surgery	1	1.00%
Psychiatric	2	3.00%
Surgery	15	20.00%
Uro-surgery	2	3.00%
GRADES		
Assistant Professor	8	11.00%
Associate Professor	10	13.00%
Lecturer	35	47.00%
Resident	22	29.00%
WORKING EXPERIENCE		
11-15 years	8	11.00%
15-20 years	5	7.00%
5-10 years	24	32.00%
Less than 5 years	38	50.00%

Table I

Awareness of defensive medicine was reported by 42(56%) but majority believe the need of practicing defensive medicine 62(83.70%). None of the participants had indemnity cover and 13(18%) had experienced litigation. Majority 69(92%) believed in working in blame free culture and felt that working environment was influence by legal demands 72(96%) [Table II]

2. Awareness of defensive medicine and related experience (n=75)

Awareness and experience	Number	Percentage (%)
Are you have aware that you are practicing defensive medicine?	42	56.00%
Is it your compulsion practicing defensive medicine?	62	83.70%
Do you think legal claims against doctors are increasing	74	98.00%
Do you have an indemnity covers?	0	0.00%
Do you have experience of litigation (i.e. been sued in past)?	13	18.00%
Do you believe in working in blame free culture?	69	92.00%
Do your works have been influenced by legal demands?	72	96.00%

Table II

3. Different shades of defensive medicine practiced by the respondents.

Positive impact of defensive medicine was majority believed in maintaining patient's records 74(98%), others form of positive defensive medicine among sampled doctors was found to be better counseling to patients and relatives 70(93%) and majority 72(96%) feel need of insurance cover.

Positive Impacts of Defensive Medicine	Number	Percentage (%)
Have you started keeping a better patient's records	74	98
Are you doing better counseling to the patient and relatives?	70	93
Would you like to be covered by insurance?	72	96

Table III

Among different forms of negative defensive medicine, refusing high risk patients was most common 57(76%) then followed by prescribing additional diagnostic tests 42(56%), avoiding risky procedures 35(46%).

Negative Impacts of Defensive Medicine	Number	Percentage (%)
Refuse accepting high risk patients if you have a choice	57	76.00%
Avoiding high risk procedures/Interventions	35	46.00%
Avoid operating high risk patients if you have a choice to cover yourself	20	26.00%
Prescribing additional diagnostic tests which could have been avoided	42	56.00%
Are you referring more to other speciality consultation	29	38.00%
Prescribe more medicines out of fear	8	10.00%
Are you prepare to observe the patient for a trial of labour or you quickly resort to caesarian (Applicable for obstetrician and gynecologist only)	Reluctant response	

Practice of defensive medicine was found more common in the age groups of 30-40 years 39(63%). As compared to residents, Lecturers and above were found practicing more defensive medicine (69.4% versus 30.6%). Practice of defensive medicine was found more in different surgical specialty as compared to non-surgical one 61% vs. 39%. No significant relations observed with years of work experience and practicing defensive medicine. [Table IV].

4. The practice of defensive medicine among the sampled doctors

Variables	Defensive medicine N=62 (%)	Non-defensive medicine N=13 (%)	P-Value
Age group (Years)			
20-30	9(14.5)	1(7.8)	
30-40	39(63)	7(53.8)	0.498*
≥40	14(22.5)	5(38.4)	
Gender			
Male	48(78.0)	6(22.2)	
Female	14(22.0)	7(77.8)	1.000*
Grades			
Residents	19(30.6)	3(23.1)	
Lecturer & above	43(69.4)	10(76.9)	1.000*
Specialty			
Surgical [#]	38(61.0)	10(77.8)	
Non-surgical ^{##}	24(39.0)	3(22.2)	0.459*
Working Experience			
< 5 Years	32(51.7)	6(46.1)	
≥ 5 Years	30(48.3)	5(53.9)	0.253*
[#] Surgical: General Surgery, Uro-surgery, Plastic surgery, Neuro-surgery, Orthopedics and ENT			
^{##} Non-Surgical: Medicine, Psychiatric, Pediatrics, and Dermatology			

Table IV

DISCUSSION

It is reported that practice of defensive medicine is increasing day by day. In our study, awareness of defensive medicine was found only in 42 respondents (56%), none had indemnity cover but majority 74 (98%) believed that legal claims against doctors are increasing. As compare to our study, majority of doctors in western world were aware of defensive medicine and also had indemnity covers, lawsuits against doctors was also reported higher in their studies^{7,8}. In our study among sampled doctors 57(76%) practice defensive medicine in the form of avoiding care of risk patients and 35(46%) avoiding performing high risk procedure. Similar observation was also reported by Hiyama et al and Summerton et al^{9,10}. Ordering additional diagnostic tests to avoid complaints and litigation was noted nearly half of the respondents 42(56%), similar figure was found in other studies too^{11,12}. This kind of medical practice harm the patients in the form of financial burden. Our study revealed defensive medicine practice was more common in surgical specialty as compare to non-surgical (61%vs39%). Studdert et al also reported similar result¹³. The reason may be that surgical outcome not solely depend upon surgery but other factors like pre medical condition, co-morbidity, anesthesia, post-operative complications also contribute to final outcome. Rate of cesarean section was increasing among different hospitals, however no body responded to questionnaire from Obstetrics and Gynecology department in our study. Asher et al, in his study also reported cesarean section was high even in the absence of clear medical indication¹⁴. In our study no significant relation was found regarding age of respondents and defensive medicine practice. Respondents in age groups of 30-40 years were found to be practicing more defensive medicine. Regarding work experience, practice of defensive medicine was found more common on those having work experience less than 5 years (51.7% vs 48.3%). This suggest that only age is not a best indicator of competency⁷. Regarding grading of sampled doctors, Junior grade (Residents) were found practicing less defensive medicine than seniors (Lecturers and above). Marin et al also reported similar result¹⁵. The reason may be that residents doctors are working under supervision to their senior faculties in different respective field, even if incase of any adverse outcome, major responsibilities comes under seniors to tackle all the medico legal issues.

LIMITATION: The main limitation of our study is small sample size. This is a single center study needs multicenter studies for better generalization of results. Another limitation may be self reported questionnaires and exaggeration of participants in responding to questions related to positive defensive medicine.

CONCLUSION: Practice of defensive medicine was found in sampled doctors. Fear of caring high risk patients, avoiding high risk procedure and prescribing additional diagnostic tests are common form of defensive medicine practiced by doctors. Consumer protection and other very stringent laws imposed on doctors might have great influence on practice of defensive medicine. Defensive medicine is costly, it should be

minimized, more emphasis should be on proper counseling regarding disease stage, it's prognosis and patient education, which will definitely reduce the burden of defensive medicine and also help in building trust in between patients and doctor relationship.

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Correlation of Serum Prolactin and Thyroid Hormone in Female Infertility

Banu F

ABSTRACT

Background: Infertility is a growing problem with adverse medical, social and psychological consequences globally. Apart from several causes of infertility, hormonal imbalance especially thyroid dysfunction and hyperprolactinemia can lead to female infertility. Both these conditions are treatable so Proper management of hormonal imbalance can result in restoration of normal fertility. **Aims and objectives:** Correlation of serum Prolactin and Thyroid hormone in female infertility. **Materials and methods:** Descriptive hospital based study was conducted at Nepalgunj medical college and teaching hospital, Nepalgunj, Banke, Nepal. The data was collected from September 2018 to August 2019. Total 30 cases of females of primary and secondary infertility attending outpatient department of gynecology department of Nepalgunj medical college were included in the study. A detailed history and clinical evaluation was done along with estimation of serum Prolactin and Thyroid hormone profile. **Result:** Hormonal status of subjects showed 15 i.e. 50% participants were thyroid whereas 11 (36.33%) were hypothyroid and 4 (13.33%) were hyperthyroid. Serum Prolactin was raised in 17 (57%) and normal in 13 (43%). Serum TSH and prolactin were found to be significantly positively correlated in female infertility ($r=0.507$, $p=0.004$). **Conclusion:** There is a high incidence of hyperprolactinaemia and thyroid dysfunction in female infertility.

Keywords: Infertility, Prolactin, Subfertility, Thyroid

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INTRODUCTION

The World Health Organization defines infertility as follows¹.

Infertility is the inability to conceive a child .A couple may be considered infertile if after two year of regular sexual intercourse, without contraception, the women has not become pregnant and there is no other reason, such as breastfeeding or postpartum amenorrhea.

Similarly, In the UK, the NICE guideline defines infertility as failure to conceive after regular unprotected sexual intercourse for two year in the absence of known reproductive pathology². Infertility is a growing problem virtually almost all over the world .The WHO estimates that 8-12 % of couples around the world experience difficulty conceiving a child³. The major cause of infertility among couples include ovulatory dysfunction (15%), tubal and peritoneal pathology (30-40%) and male factor (30- 40%) and rest is unexplained⁴. Apart from several cause of infertility hormonal imbalance is one of the major causes of infertility. In a study conducted by O.S. Philippov et al with the aim to find out epidemiology and causes of infertility found that 32.8% of cases female infertility was due to endocrinal cause⁵. It has been seen that hypogonadism in hyperprolactinaemic women is due to high circulating level of prolactin interfering with the action of gonadotrophin at the ovarian level and impaired gonadal steroid secretion, which intern alters positive feedback

effects at the hypothalamic and pituitary levels. This leads to lack of gonadotrophin cyclicity and to infertility⁶. Apart from role of prolactin, thyroid hormone has profound effects on reproduction and pregnancy. Thyroid abnormalities, among women with infertility, particularly in countries like Nepal, considered as areas with endemic goiter are not uncommon⁷. In study conducted by B.Rijal et al, found that about 1/4th of women with infertility had some types of thyroid dysfunction⁹. Hypothyroidism can also be associated with an increased risk of polycystic ovaries, which is also associated with decrease fertility⁸. In our study hormonal assay was done with the aim to correlate the level of serum prolactin and thyroid hormone in infertile female and to determine relation of serum prolactin and thyroid hormone in female infertility.

MATERIALS AND METHOD

This is a hospital based descriptive study conducted at Nepalgunj medical college and teaching Hospital Nepalgunj, Banke for 12 months from September 2018 to August 2019. Total of 30 cases of primary and secondary infertility attending outpatient department of gynecology of Nepalgunj Medical College were included, A detailed history and clinical evaluation was done and blood sample was collected and sent for laboratory test for serum prolactin and thyroid hormone profile by Chemoilluminescence enzyme immune assay by LUMAX- CLIA stripe reader. Prolactin, thyroid function test

were assayed using standard and sensitive immune assay method using monobinInc. The data were analyzed using the SPSS.

Inclusion criteria: Females of primary and secondary infertility.

Exclusion criteria:

1. Abnormal Semen Analysis
2. Participants under treatment of thyroid disorder and hyperprolactinaemia.
3. History of drug intake which block dopamine receptors as phenothiazine, metoclopramide etc.

RESULT

Total 30 cases of female infertility were included in our study. Majority of participants i.e.; 17(56%) were from age group 20 – 24 yr followed by 11 (36.7%) from age group 25 – 29 yr and only 2(6.7%) participants were from age group 15 – 19 yr. Out of 30 participants majority i.e.; 19 (63.3%) found to seek medical help after 3-5 yr of their marriage followed by 5 (16.7%), 4 (13.3%), 1(3.3%) and 1(3.3%) participants came 6-8 yr and 9-11yr, 1-2yr and 12 – 15yr after their marriage. In our study 50% participants were Euthyroid whereas 11(36.33%) were hypothyroid and 4 (13.33%) were hyperthyroid. Among euthyroid group, the mean value of serum TSH, FT4, FT3 and Prolactin were 3.136+-1.39mIU/L, 1.142+- 0.214ng/dl, 2.436+-0.707pg/ml, 16.79+-10.11ng/ml respectively. In hypothyroid group, the mean values of serum TSH, FT4, FT3 and Prolactin were 32.29 +- 14.59 mIU/L, 0.59+-0.17 ng/dl, 1.19+ -0.564pg/ml, 34.03+-13.26 ng/ml respectively. In hyperthyroid group, the mean values of serum TSH, FT4, FT3 and prolactin were 0.105 +-0.026 mIU/L, 4.48=-1.36ng/dl, 8.85=-2.645 pg/ml, 23.27=-10.76 ng/ml respectively. Serum Prolactin was raised in 17 (57%) and normal in 13(43%) Both serum TSH and Prolactin were found to be significantly positively correlated ($r = 0.507$, $p = 0.004$).

	Categories	Frequency (%)
Age of patient	15-19 yrs	2(6.7)
	20-24 yrs	17(56.7)
	25 -29 yrs	11(36.7)
Duration of married life	1-2 yrs	1(3.3)
	3-5 yrs	19(63.3)
	6-8 yrs	5(16.7)
	9-11 yrs	4(13.3)
	12-15 yrs	1(3.3)

Table I: Age of marriage and duration of married life

TSH (mIU/L)	Euthyroid (n=15)15%	Hypothyroid (n=11)36.33%	Hyperthyroid (n=4)13.33%
FT4(ng/dl)	3.136+-1.39	32.29+-14.59	0.105+-0.026
FT3(pg/dl)	1.142+-0.214	0.59+-0.17	4.48+-1.36
Prolactin(ng/ml)	2.436+-0.707	1.19+-0.564	8.85+-2.645
	16.79+-10.11	34.03+-13.26	23.27+-10.76

Table II: Hormonal status in the whole study groups (values are expressed in mean +-SD)

Serum prolactin (ng/ml)	Frequency	Percentage
0-20	13	43
20-40	14	47
>40	3	10

Table III: Distribution of population according to serum prolactin levels (n=30)

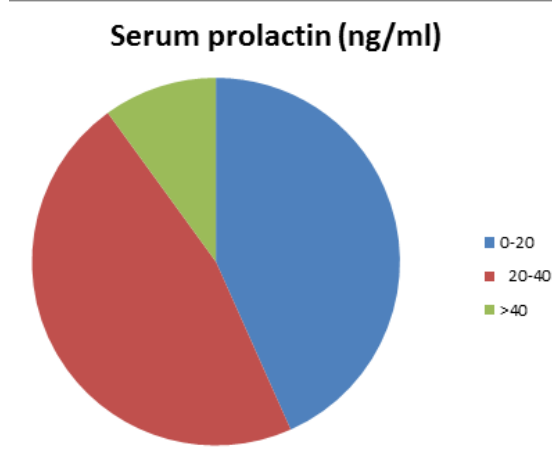


Figure 1

Data showed that majority of participants i.e; 17(57%) had Hyperprolactinaemia and 13(43%) had normal prolactin level.

Parameters	Pearson correlation value	P-value
Serum TSH (mIU/L)	0.507	0.004
Prolactin (ng/ml)		

Table IV: Correlation between serum TSH and Prolactin levels

Serum TSH levels were found to be significantly positively correlated with prolactin levels ($r=0.507$, $p = 0.004$).

DISCUSSION

The result of the present study have revealed that the majority of participants i.e.; 17(56.7%) were from age group 20-24 yr followed by 11 (36.7%) age group 25-29 yr and around 2/3rd i.e.; 63.3% of participants came for treatment in between 3-5 yr of their marriage. similar age group was found in study by Shrewastwa et al in which the mean age was 25.3+-3.5 yr¹⁰ and another study by B. Rijal et al in which mean age was 26.3+-3.1 yr⁹. Hormonal study of subjects in our study showed 15 i.e.; 50% participants were euthyroid, 11(36.33%) were

hypothyroid and 4 (13.33%) were hyperthyroid. Almost similar finding were revealed in other study done by Shriwastwa, M.K et al (2013) found that out of 635 infertile cases where 447 (70.39%) were euthyroid and 29.6% had different type of thyroid dysfunction ($P < 0.05$)¹⁰. In other study by Rahman D et al found 33.3% of sub fertile female were suffering from thyroid dysfunction¹⁷. Our study also had a similar result done by Shevaleela M Biradar et al where 42% of infertile female had thyroid dysfunction¹¹. Significant proportion of population in our study i.e.; 17(57%) had hyperprolactinaemia and 13(43%) had normal prolactin level. The finding is almost similar to M Poonam et al who found that incidence of hyperprolactinaemia in infertile women was 52%¹² overall hyperprolactinaemia was noted in 41% by Pratibha D et al, 69.5% by Kalsum A et al and 46% by Awasthi et al^{13,18}. Study done by A kumkum and B Goswami et al also revealed positive correlation between TSH and prolactin in infertile female^{15,16}.

CONCLUSION

Infertility is a growing problem almost all over the world. A couple is considered infertile if after two yr of regular sexual intercourse without contraception the woman has not been pregnant. The WHO estimates that 8-12% of couples around the world experience difficult conceiving a child. There are several causes of infertility among them hormonal imbalance is one of the major causes of female infertility. Prolactin and thyroid dysfunction have profound effect on reproduction and pregnancy. In our study 30 cases of primary and secondary infertile female were included. Hormonal study of participants showed 15 (50%) were Euthyroid, 11 (36.33%) were hypothyroid and 4 (13.33%) were hyperthyroid. And serum prolactin was raised in 17 (57%) and normal in 13 (43%) cases. Both serum prolactin and TSH P value ($r = 0.507$, $P = 0.004$) levels were found to be significantly positively correlated in infertile female. Hence it is recommended that the assessment of serum TSH and Prolactin levels should be routinely be done in the work up of all infertile women.

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Echocardiographic Assessment of Cardiac Dysfunction in Patients of Chronic Kidney Disease on Maintenance Hemodialysis

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ABSTRACT

Objectives: The Aim of this study to assess and analyze the echocardiographic changes in chronic kidney disease patients on maintenance hemodialysis. **Material and methods:** We Performed Prospective study of echocardiographic changes in chronic kidney disease (CKD) patients undergoing maintenance hemodialysis at our institute. We performed M-mode echocardiography in 80 CKD patients without obvious clinical evidence of coronary artery disease, Valvular heart disease, congenital heart disease. Data was collected from November 2018 to Nov 2019. **Results:** 80 Patients Undergoing Hemodialysis were included in our study, out of them Echocardiography finding shown LV dilation and diastolic dysfunction in 39 (48.75%), left ventricular hypertrophy (LVH) in 41 (51.25%), systolic dysfunction and pericardial effusion in 22 (27.5%) and 11 (13.75%) patients respectively. RWMA was present in 10% and Valvular calcification was seen in 5 patients. In sub-group of patients with Hb<10 gm%, LVH was present in 32 (78.05%) vs 9 (21.95%) in patient group with Hb $\geq$ 10 gm% ($p < 0.01$). Other Sub Group of Patients with BP > 140/90mmhg, LVH Was Present in 34 (82.92%) vs 7 (17.08%) in patients group with BP< 140/90 mm hg ($p=0.02$). In both sub group p value for systolic dysfunction, RWMA & pericardial effusion is statistically not significant. **Conclusion:** LV diastolic dysfunction and hypertrophy were most common echocardiographic findings. There was statistically significant correlation between anemia and presence of LVH and positive correlation between presence of hypertension and LVH.

Keywords: CKD, Diastolic dysfunction, Echocardiography: MHD, HB%, LVH

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INTRODUCTION

It has been noted that the epidemicity of chronic kidney disease, full spectrum of which range from asymptomatic state to obvious kidney failure is being increased. Kidney failure being the most visible aspect of this spectrum, it represents only a minimal of total population affected by kidney disease¹. Chronic kidney disease (CKD) is not uncommon but fortunately treatable and preventable. It is recognized worldwide as a public health problem. Patients with CKD are at significantly increased risk for both morbidity and mortality from cardiovascular disease (CVD). Patients on dialysis have a 10- to 30-fold increased risk for cardiovascular mortality compared with the general population. CVD is the single most important cause of death among patients receiving long-term dialysis; accounting for 44% of overall mortality². In the cardiovascular system, left ventricular hypertrophy (LVH) is the most frequent finding³. The prevalence of left ventricular systolic and diastolic dysfunction is less clear. Cardiac disease frequently predates is less clear. Cardiac disease frequently predates the start of dialysis and LVH is common in moderate to severe chronic renal failure. Echocardiography should be performed early in the course of CKD and may be valuable in the monitoring of therapy of these patients⁴.

One of the major structural cardiac anomalies in patients with CKD is left ventricular hypertrophy (LVH) and is associated with increase the risk for cardiac ischemia, congestive heart failure, as well as a very strong independent predictor of cardiovascular mortality⁵. Sudden cardiac death may be related to the high prevalence of left ventricular dysfunction secondary to the LVH in dialysis patients⁶.

MATERIAL AND METHODS

Eighty patients of CKD irrespective of etiology and duration of maintenance hemodialysis having ESRD (stage 5 CKD) who are under maintenance HD were included in the study. Data collected from November 2018 to November 2019. 2D-Echocardiography machine GE LOGIQ 400 PRO was used with 3.5 MHz transducer probe. Two dimensional echocardiography and M- mode performed along with blood parameters CBC, Calcium, blood urea, serum creatinine. E/A ratio less than 0.75 and more than 1.8 was considered as diastolic dysfunction. LVH was diagnosed when inter ventricular septum thickness or left ventricular posterior wall thickness was ≥ 12 mm. Blood pressure of all patients was measured. Study was done in Nepalgunj Medical college and Teaching Hospital.

STATISTICAL ANALYSIS

All collected data entered into the SPSS V20 Software and analysis has been conducted and using chi square test and fisher exact test has been used to calculate statistically significant value. A 'p' value less than 0.05 were considered significant.

RESULTS

This study included 80 patients of CKD on MHD Clinical examination; suggested laboratory test and echocardiography were performed in every patient.

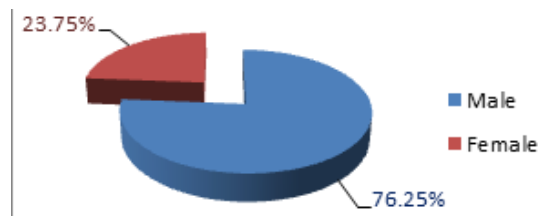


Figure 1: Gender wise distribution

Out of 80 patients, 76.25% (61) male and 23.75% (19) were female. Maximum patients were in age group between 41-50 years (34%) (Figure 1).

Mean age of the patients was 42.33 ± 12.48 (Figure 2).

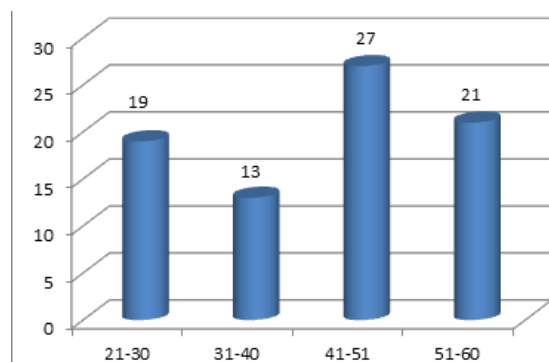


Figure 2: Age wise distribution

Basic demographic and clinical characteristic were shown in table I, where Hypertension was present in 76% mainly in age group more than 40 years.

Parameters	Range	Mean± SD
Age(Years)	20-68	42.33±12.48
Calcium (mg/dl)	6.8-13.5	9.87±1.72
Phosphorus (mg/dl)	3.5-12	7.72±2.01
Urea (mg/dl)	43-189	108.14±32.83
Creatinine (mg/.dl)	2.8-10.2	5.52±1.65
Hemoglobin % (gm/dl)	4.2-11.4	7.89±0.96
Serum albumin (gm/dl)	2.2-5	3.64±0.53
Total cholesterol(mg./dl)	111-268	160.32±27.56

Table I: Basic demographic profile and parameters of study population

Most common cause of CKD was diabetes 35(43.75%) followed by hypertension, chronic glomerulonephritis (CGN) and chronic tubulointerstitial nephritis (CTIN) in 23(28.75%), 11(13.75%), and 7(8.75%) cases respectively (Figure 3 & 4) (5%) were with unknown etiology.

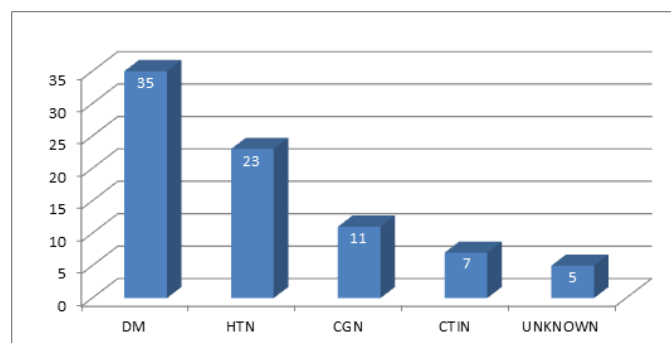


Figure 3: Basic disease of the study population

On comparing the echocardiographic findings in patients with Hb <10 gm% vs patients with Hb ≥ 10 gm%, statistically significant (<0.01) the number of patients had LVH: 77.1% vs 25% (Table II).

Echocardiographic Findings	Hb Level				P-Value
	<10mg/dl		≥10mg/dl		
	N (48)	60%	N(32)	40%	
LVH					
Absent	11	22.9	24	75	<0.01
Present	37	77.1	8	25	
Decreased (<55%)					
Absent	31	64.6	26	81.25	0.08(NS)
Present	17	35.4	6	18.75	
RWMA					
Absent	42	87.5	30	93.75	0.29 (NS)
Present	6	12.5	2	6.25	
Pericardial Effusion					
Absent	43	89.6	25	78.2	0.06 (NS)
Present	5	10.4	7	21.8	

Table II: Hemoglobin level and echocardiographic parameters

Similarly majority patients with LVH had hypertension (63.94%) compared to normotensives (36.85%) and it was statistically significant (P=0.02) (Table III) RWMA and pericardial effusion was present in 11.4% and 16.4% respectively although it was statistically not significant.

Echocardiographic Findings	Hypertension				P-Value
	≥140/90 mmHg		<140/90 mmHg		
	N (19)	23.75%	N(61)	76.25%	
LVH					
Absent	12	63.15	22	36.06	<0.02
Present	7	36.85	39	63.94	
Decreased (<55%)					
Absent	16	84.21	41	67.21	0.17
Present	3	15.79	20	32.79	
RWMA					
Absent	18	94.73	54	88.52	0.46
Present	1	5.27	7	11.4	
Pericardial Effusion					
Absent	18	94.73	51	83.6	0.18
Present	1	5.27	10	16.4	

Table III: Association between HTN with LV dysfunction

DISCUSSION

In our study Out of 80 patients, 76.25% (61) male and 23.75% (19) were female. Male to female ratio 3.21:1. In Michel Dahan et al study it was 1.85:1.7 DS Chafekar et al study it was found 4.67:1.8

Maximum patients were in age group between 41-50 yrs. (34%) (Figure 1). Mean age of the patients was 42.33 ± 12.48 (Figure 2). The mean age of the present study was compared with others studies, the mean age in the other studies are 41.1 ± 12.1 years in N.P. Singh et al. 48.7 ± 13.5 years in the Micheal Dahan et al⁷.

Most common cause of CKD was diabetes 35(43.75%) followed by hypertension, chronic glomerulonephritis (CGN) and chronic tubulointerstitial nephritis (CTIN) in 23(28.75%), 11(13.75%), and 7(8.75%) cases respectively (Figure 3 & 4) (5%) were with unknown etiology⁸. The commonest cause for chronic kidney disease reported by N.P Singh et al was diabetes mellitus in 9 patients (18%), chronic glomerulonephritis in 3 patient (6%), hypertension in 4 patient (8%), DM+HTN in 18 patient (36%), and other in 16 patient (32%) N.P Singh et al⁹. On comparing the echocardiographic findings in patients with Hb <10 gm% vs patients with Hb ≥ 10 gm%, statistically significant (<0.01) result was found majority of patients had LVH: 77.1% vs 25% (Table II). In subgroup of patients with hemoglobin level <10gm%, LVH was seen in 77.41% compared to 23.68% in patients with hemoglobin of ≥10 gm% ($P < 0.01$)¹⁰. In our study majority patients with LVH had hypertension (63.94%) compared to normotensives (36.05%) and it was statistically significant ($P = 0.02$) (Table III) RWMA and pericardial effusion was present in 11.4% and 16.4% respectively although it was statistically not significant. In a study conducted by Laddha M et al. in 2014, reported LVH in 74%, systolic dysfunction in 24.3% diastolic dysfunction in 61.4% and pericardial effusion

in 14.35% of ESRD patients on hemodialysis¹¹. Zoccall C et al. had reported incidence of LVH and systolic dysfunction of 77% and 22% respectively in ESRD population on hemodialysis¹². SA Kale et al (2001) had found that hypertension was identified as important risk factor for all three LV disorders LVH, diastolic dysfunction and systolic dysfunction¹³. Robert N. Foley et al (1995) had found abnormalities of left ventricular structure and functions were very frequent on baseline echocardiography: 73.9% had left ventricular hypertrophy, 35.5% had left ventricular dilatation and 14.8% had systolic dysfunction in ESRD patients¹⁴.

CONCLUSION

Cardiovascular abnormalities in CKD were observed in large numbers of patients among those left ventricular dysfunction was the commonest cardiovascular abnormality. Cardiac structural as well as functional abnormalities were common in patients with CKD on Maintenance Hemodialysis found more in those with hypertension and anemia. LVH is the commonest cardiac abnormality in CKD patients followed by diastolic dysfunction. Both conditions are more common in hypertensive and anemic patients. LVH has got prognostic implications because this group of ESRD patients having higher mortality of diastolic dysfunction or sudden cardiac death. Echocardiography is a cost effective noninvasive diagnostic tool which can detect early changes in the cardiac parameters. This is important for risk stratification and early preventive measures. Thus echocardiographic screening of CKD patients has both therapeutic and prognostic implications.

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Perinatal Outcomes of Hypertensive Pregnancy: A Case Control Study

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ABSTRACT

Background: Hypertensive disorders of pregnancy (HDP) are one of the maternal diseases that cause the most detrimental effects to the mother and the fetus. **Objective:** This study was conducted to compare the perinatal outcomes of neonates delivered by hypertensive mothers and normal mothers. **Methods:** This comparative hospital based study was conducted in Nepalgunj Medical College Teaching Hospital, Kohalpur from December 2014 to December 2015. Fifty mothers fulfilling the inclusion criteria and their fetal outcome in form of still birth and newborn babies were taken for the study and 50 healthy mothers with normotensive pregnancies and their newborn babies or fetal outcome were taken as control. They were followed up till their hospital stay in NICU or postnatal ward and final outcomes were noted. **Results:** The prevalence of HDP in our hospital was 2.16%. Among neonates, 27(54%) in case group and 9(18%) in control group were low birth weight which is statistically significant. It was found that 18(36%) neonates in case group and 7(14%) neonates in control group were IUGR(Intrauterine growth retardation). Seventeen (34%) neonates in case group were preterm as compared to 2(4%) neonates in control group (p value < 0.001). **Conclusion:** Pregnancies complicated by hypertension were characterized by an increase in the rate of preterm delivery and low birth weight infants compared with normal pregnancies.

Key words: *Hypertensive disorders of pregnancy (HDP), Low birth weight, Prematurity, Perinatal period*

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INTRODUCTION

Hypertensive disorders of pregnancy (HDP) are one of the maternal diseases that cause the most detrimental effects to the mother and the fetus¹.

Hypertension during pregnancy is defined as a sustained systolic blood pressure of 140 mmHg or more and/or a diastolic blood pressure of 90 mmHg or more. This is best confirmed when evidence is present on 2 occasions at least 6 hours apart but within 7 days².

The Working Group of the NHBPEP-National High Blood Pressure Education Program (2000) has categorized hypertensive disorders of pregnancy into 4 types¹:

1. **Gestational Hypertension:** Hypertension 1st diagnosed after 20 weeks gestation not accompanied by proteinuria.
2. **Pre-eclampsia/pre-eclamptic toxemia (PET) – Eclampsia:** Hypertension 1st diagnosed after 20 weeks gestation accompanied by proteinuria greater than 0.3g in 24 hours urine collection or greater than 3+ in a random sample; Eclampsia is occurrence of seizures in women with pre-eclampsia that cannot be attributed to other causes.
3. **Chronic Hypertension:** Hypertension present before pregnancy or 1st diagnosed before 20 weeks gestation.
4. **Pre-eclampsia superimposed on chronic hypertension.** Gestational hypertension is the dominant cause of

hypertension in pregnant population followed by pre-eclampsia - eclampsia while chronic hypertension is seen in small number of patients^{1,3}.

Hypertensive disorders of pregnancy (HDP) predispose women to acute or chronic utero-placental insufficiency, resulting in ante or intra-partum asphyxia that may lead to fetal death, intrauterine growth retardation and/or preterm delivery^{4,5}.

The complications can be prevented by more widespread use of prenatal care, education of primary medical care personal, prompt diagnosis of high risk patients and timely referral to tertiary medical centers and institutional management^{3,6,7,8}.

Since no such study has been carried out in this part of the country, the present study was carried out with the purpose to see perinatal outcome of neonates with maternal hypertensive disorders in pregnancy.

MATERIAL AND METHODS

A hospital based comparative study was carried out to evaluate the perinatal outcome of neonates delivered by hypertensive mothers without other comorbidities and to compare with the outcome of control group.

The data was collected from the NICU and the Department of Obstetrics and Gynecology of Nepalgunj Medical College

Teaching Hospital Kohalpur, Banke. The study was carried out from December 2014 till December 2015.

Fifty mothers which were given clinically the provisional diagnosis of hypertension in pregnancy admitted in our hospital for further management and neonates delivered to such hypertensive mothers fulfilling the inclusion criteria were taken as cases. Fifty normotensive mothers admitted as full term normal pregnancy in labor and without any complications during pregnancy were taken as control and their fetal outcome (i.e. still birth if any and neonates) were assessed for comparison.

Data regarding the demographic parameters like age, parity, literacy status, socio-economic status, antenatal checkup, gestational age, time of onset of raised blood pressure, associated medical disorders specially the history of hypertensive disorder during their previous pregnancy, family history of hypertension, mode of delivery, and fetal complications like intra uterine death (IUD) were recorded in a structured questionnaire.

Neonatal parameters like perinatal asphyxia, Apgar score, sex, gestational age, birth weight, small for gestational age, NICU admission and duration of stay in hospital, respiratory distress due to hyaline membrane disease (HMD), transient tachypnoea of newborn (TTNB), neonatal sepsis (NNS), meconium aspiration syndrome (MAS), Birth asphyxia (BA) were recorded.

The cases were followed up till their hospital stay in NICU or postnatal ward and outcome was noted. Statistical analyses of clinical and demographic factors were carried out.

RESULT

Out of total 100 mothers, 2 mothers from hypertensive group had twin delivery and 2 mothers from normotensive group were chosen with twin pregnancy. But only the first neonate from the twin delivery was selected for study from both the study groups.

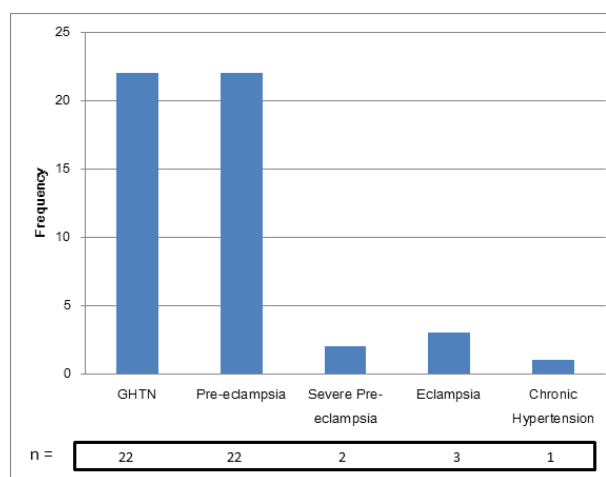


Figure 1: Distribution of cases according to type of hypertension

The above bar diagram shows that in the case group (n=50) maximum cases were diagnosed as gestational HTN 22 (44%) and pre-eclampsia 22 (44%) cases, followed by eclampsia only in 3(6%), severe eclampsia 2(4%) and chronic HTN 1(2%). Thus 88% of the cases fell in GHTN and pre-eclampsia group.

Out of total 50 neonates delivered from mothers with HDP, 3 were intrauterine death/stillbirth (IUFD). Similarly 1 intrauterine death (IUFD) was recorded out of 50 deliveries from normotensive mothers.

Among neonates, 27(54%) in case group and 9(18%) in control group were low birth weight which is statistically significant.

It was found that 18(36%) neonates in case group and 7(14%) neonates in control group were IUGR (Intrauterine growth retardation). Seventeen (34%) neonates in case group were preterm as compared to 2(4%) neonates in control group which is statistically significant.

Group	Outcome	Perinatal complications							Total (%)	P value
		Normal	TTNB	BA	HMD	MAS	NNS	STILLBIRTH		
Control	Alive	42	2	1	0	0	3	-	49 (98.0)	<0.01
	Death	0	0	0	1	0	0	1	1(2.0)	
Total (%)		42 (84.0)	2 (4.0)	1 (2.0)	1 (2.0)	0	3 (6.0)	1 (2.0)	50 (100.0)	
Case	Alive	15	3	9	3	2	10	-	45 (90.0)	<0.01
	Death	0	0	2	3	0	0	3	5(10.0)	
Total (%)		15 (30.0)	3 (6.0)	11 (22.0)	6 (12.0)	2 (4.0)	10 (20.0)	3 (6.0)	50(100.0)	

Table 1: Perinatal complications and neonatal outcome in study group

The table above shows different morbid conditions like TTNB, BA, HMD, MAS, NNS and still birth in both the case and control group.

In control group there was 1 (2%) stillbirth compared to 3 (6%) in case group. Similarly 22% of case had birth asphyxia followed by 20% NNS, 12% HMD, 6% TTNB, 4% MAS in case group as compared to 2% BA, 6% NNS, 2% HMD, 4% TTNB and no MAS in control group. It showed increased perinatal

morbidity in HDP as compared to normotensive pregnancy and it is statistically significant (p value <0.01).

Perinatal Outcome	Groups, n (%)		Total (%)	P value	Crude OR	95% CI for OR	
	Control	Case				Lower	Upper
Alive	48 (96.0)	42 (84.0)	90 (90.0)	0.046	4.571	0.919	22.730
Death	2 (4.0)	8 (16.0)	10 (10.0)				
Total	50 (100.0)	50 (100.0)					

Table II: Perinatal Outcome in terms of mortality

The table II shows the perinatal outcome of neonates in term of mortality delivered in case and control groups. It shows that 8(16%) of case had mortality compared to 2(4%) in control group. Out of total 10 mortalities 4 were stillbirths of which 3 were in cases and 1 still birth was in the control group which was the first twin of twin delivery. This table signifies that perinatal mortality was 4.571 times greater than in control group and it is statistically significant (p value 0.046).

DISCUSSION

Hypertensive disorders of pregnancy have been identified as a major world- wide health problem, associated with increased perinatal morbidity and mortality⁹.

Studies have shown that hypertensive disorders of pregnancy predispose women to acute or chronic uteroplacental insufficiency, there by having an effect on perinatal and neonatal outcome that may result in ante or intra partum anoxia that may lead to fetal death, intrauterine growth retardation and/or preterm delivery^{4,10}. Of 3,826 deliveries in our hospital during the defined period of 1 year, 83 cases were managed as hypertensive disorder of pregnancy showing hospital based prevalence of HDP as 2.16%.

According to several published studies, pregnancies complicated by hypertension are characterized by an increase in the rate of preterm delivery, LBW, and VLBW infants, compared with normal pregnancies.

This is true in all groups of hypertensive women independent of presence or absence of proteinuria^{11,12}.

In the present study, 54% of the babies born to HDP study group mothers were low birth weight compared to 18% in control group. Nadkarni et al study had similar experience in their study with an incidence of 51.7% LBW babies⁹.

There is an increased incidence of preterm deliveries in our study. 34% of the study group mothers had preterm babies compared to 4% of their counterparts in control group. There was a statistically significant association of preterm births in HDP as compared to control group with p value <0.001. Nadkarni et al study showed 44.3% preterm deliveries which is comparable to our study while Yadav et al study had 28.85% and Solange Regina study had 10.9%^{9,13,14}.

One of the main impacts on the fetus is under-nutrition as a result of utero-placental vascular insufficiency, which leads to intrauterine growth retardation. So, fetal growth is a useful marker for fetal well-being^{15,16}. Fetal complication associated with HDP is intrauterine growth restriction (IUGR). Pregnancies complicated by intrauterine growth restriction (IUGR), defined as a pathological process of reduced fetal growth, have been associated with an increase in perinatal mortality^{17,18}. The incidence of small for gestational age (SGA) amongst women with HDP in our study (36%) was higher than SGA neonates seen in control group (18%) which is statistically significant (p value 0.043). Our study compares favorably to study done by Tranquilli et al., 2002, which reported incidence of 51.3%⁵.

Morbid conditions like Birth asphyxia, HMD, NNS, MAS, TTNB in newborns were considered individually, which showed specific association with HDP in mothers in our study. For Birth asphyxia it was observed in 23.4% newborn in case group compared to 2.04% in control group; HMD (12.8%) in case group compared to 2% in control group; NNS (21.3%) compared to 6.1% in control group and were all statistically significant (p value<0.05). Whereas morbid conditions like MAS and TTNB did not show significant correlation in mothers with HDP and normotensive mothers. Similar studies done by Nadkarni et al showed higher risk of birth asphyxia (14%), neonatal sepsis (7.5%) and HMD (7.3%) in hypertensive pregnant mothers⁹. In one study carried out by Swetha Ananda et al showed increased association of MAS in neonates (5.4%) born to mothers with HDP¹⁹.

In this study perinatal mortality was 8 (16%) in case group, out of them, 3 (6%) IUD/stillbirth, 5(10%) babies expired during the course of treatment at NICU out of 50 babies. Similarly in control group out of total 50 babies, 2(4%) had perinatal mortality out of which 1(2%) IUD/ stillbirth and 1 (2%) early neonatal death. In the present study, prematurity (HMD) was the commonest cause of perinatal mortality. In the study by Shaheen et al. perinatal mortality was 41.6 percent and prematurity was the main risk factor²⁰. In a study done by Nadkarni et al., total perinatal death was 68 (15.9%) out of 427, 40 (31.1%) was early neonatal deaths and 28 (6.5%) still births⁹.

CONCLUSION

HDP is a common complication in antenatal women and is a major cause of maternal and fetal morbidity and mortality. The prevalence of HDP in our hospital was 2.16%.

Pregnancies complicated by hypertension were characterized by an increase in the rate of preterm delivery, LBW and VLBW infants compared with normal pregnancies. The commonest cause of perinatal mortality in the present study was prematurity (HMD) followed by birth asphyxia.

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Red Cell Distribution Width as a Predictor of Severity of Acute Pancreatitis

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ABSTRACT

Introduction: Acute pancreatitis (AP) is a disorder featured by local and systemic inflammatory response, which manifests as mild, self-limited disorder to severe and sometimes fatal disease. Red cell distribution width (RDW) is reflective of systemic inflammation and has been shown to be effective at predicting severity. This study was aimed to investigate the association between Red cell distribution width as coefficient of variation (RDW -CV) on admission and severity of acute pancreatitis. **Method:** This was a hospital based prospective study conducted in the Department of Surgery, Nepalgunj Medical College Teaching Hospital for a period of 2 years from July 2017 to June 2019. The patients with acute pancreatitis were categorized into mild, moderate and severe acute pancreatitis. The value of RDW-CV on admission was correlated with the severity of acute pancreatitis. **Results:** RDW-CV on admission was significantly correlated with the severity of AP (p value <0.001). Receiver Operating Characteristic (ROC) analysis showed that RDW has very good discriminative power for severe acute pancreatitis [AreaUnder curve (AUC) 0.963, 95% CI, 0.919 to 1.007, p-value <0.001] but not useful to predict mild AP (AUC 0.157, 95% CI, 0.063 to 0.250, p value 0.14) and moderate AP (AUC 0.397, 95% CI, 0.252 to 0.541, p value 0.234). The maximum sensitivity and specificity of detecting severe AP was 95.7% and 91.5% respectively. The positive predictive value (PPV) and negative predictive value (NPV) was 84.6% and 97.7% respectively. **Conclusion:** RDW-CV width on admission is a predictor of severity in patients with severe acute pancreatitis.

Keywords: *Acute pancreatitis, Red cell distribution width as coefficient of variation, Severity*

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INTRODUCTION

Acute pancreatitis (AP) is one of the common gastrointestinal causes of hospital admissions worldwide. Clinical manifestation and effects of AP range from a mild, self-limited disease to severe and sometimes fatal disease¹. However, reported mortality from AP is about 1% but this risk increases with age, co-morbidities and development of complications, and varies from 7–42% in severe disease². AP is often complicated with systemic inflammatory response syndrome and multiple organ failure³. Early identification of these patients who are at high risk of mortality in emergency room can help us with rational use of more aggressive treatment leading to decreased mortality rate. In previous studies, several AP scoring systems and laboratory tests have been developed to estimate the prognosis of AP, such as Ranson's score, Balthazar score, BISAP score and SIRS score, C-reactive protein (CRP) titre and procalcitonin levels⁴. However, there are multiple disadvantages associated with score systems such as hassle of calculation, need for ordering specific tests and testing parameters are expensive, operation trival, and not conducive to clinical implementation⁴. This also has brought up a need for finding a simple and easily available predictor of severity of acute pancreatitis.

Red blood cell distribution width (RDW) is an easily obtained, inexpensive, routinely reported parameter as a part of the complete blood count test⁵. It is the laboratory parameter which measures the variability in size of circulating erythrocytes. Higher values indicate greater variation in size of circulating erythrocytes, i.e. anisocytosis. Normal reference range of Red cell Distribution width as coefficient of variation (RDW-CV) in human red blood cells is 11-15% and normal Red cell distribution width as standard deviation (RDW-SD) is 39-46 fL⁶.

To date, multiple studies have investigated the usefulness of RDW in determining the prognosis of AP at the time of admission, but the results have not been consistent. RDW value has scarcely been investigated as a potential biomarker of AP. Therefore, the aim of this study is to investigate whether RDW is associated with the severity and mortality of AP.

MATERIAL AND METHODS

This was a prospective hospital based study conducted in the Department of Surgery, Nepalgunj Medical College Teaching Hospital from July 2017 to June 2019. All patients with Acute pancreatitis (AP) were included, the diagnosis is based on the 2 out of following 3 criteria: 1) Abdominal pain

characteristic of Acute Pancreatitis 2) Elevated serum amylase and/or lipase levels by at least threefold that of normal range 3) Characteristic findings of Acute Pancreatitis on abdominal ultrasonography and/or CT scan. The patients with presence of malignant tumor, active infections, respiratory diseases and serious cardiovascular disease, known chronic liver and/or kidney diseases, immune system disease, patients with recent transfusion history, recurrent AP, chronic pancreatitis and pregnant patients were excluded.

A detailed history was taken including history of pain on epigastric or periumbilical region that radiates to the back. Detailed physical examination of patient including abdominal examination was done. Demographic data, etiology of pancreatitis, organ failure, metabolic disorder, hospitalization time, and the following laboratory measures was obtained from each patient record on admission: serum amylase, RDW, white blood cell (WBC) count, platelets, hemoglobin, ABG, blood glucose, electrolytes, creatinine.

The value of RDW on admission was measured by automated cell counter, BeneSphera Avantor Model H33s Hematology Analyzer, in the Pathology Department Laboratory at NGMC, Kohalpur.

USG abdomen/pelvis was done to differentiate between biliary and non-biliary pancreatitis. The patients were categorized into 3 groups as per severity of acute pancreatitis: mild, moderate and severe according to the 2012 revised Atlanta criteria (Table I) ⁷. Organ dysfunction is defined by Modified Marshall scoring system (Table II). The patients were followed up regularly to monitor vital signs and severity assessment done every 48hrs till discharge or in-hospital mortality

Severity	Criteria
Mild	No organ failure. No local or systemic complications
Moderate	Organ failure that resolves within 48 hrs (transient organ failure) and/or Local or systemic complications without persistent organ failure
Severe	Persistent organ failure (>48hrs)

Table I: Revised Atlanta criteria Definition of Severity in Acute Pancreatitis

SCORE					
Organ system	0	1	2	3	4
Respiratory (PaO ₂ /FiO ₂)	>400	301-400	201-300	101-200	<=101
Renal (Serum Creatinine μ mol/L)	<=134	134-169	170-310	311-439	>439
Cardiovascular (systolic blood pressure, mm Hg, off inotropic support)	>90	<90, fluid responsive	<90, not fluid responsive	<90, pH<7.3	<90, pH<7.2

Table II: Modified Marshall Scoring System for Organ Dysfunction

A score of 2 or more in any system defines the presence of organ failure. After that, the value of RDW-CV on admission was correlated with the severity of acute pancreatitis. In addition, RDW-CV was also correlated with the etiology of pancreatitis. Furthermore, various demographic and clinical parameters were correlated with the severity of acute pancreatitis.

Data Analysis

All the data collected was processed and analyzed by using statistical package for social science (SPSS) version 21 using appropriate statistical tools like Analysis of Variance (ANOVA), Pearson's chi-squared test (χ^2 test), Student's t test, Receiver operating characteristic curves (ROC curve). A P<0.05 was considered as statistically significant.

RESULT

A total of 70 cases of Acute Pancreatitis were included over a period of 2 years. There were 48 (69%) males and 22 (31%) females. The mean age was 47.06 ± 16.56 (20-95 years). Acute pancreatitis was most common in the age of 31-40 years with the least incidence at the extremes of age group [Figure 3]. Out of 23 patients with severe pancreatitis 20 (28%) were males and there was statistical difference in proportion of severity of acute pancreatitis in male and female (p-value 0.045) [Table III].

Parameters	Mild	Moderate	Severe	p-value
Age (in years)	49.52 $\pm$ 20.42	48.43 $\pm$ 14.85	42.70 $\pm$ 9.69	0.303
Sex (Male/Female)	21/12	7/7	20/3	0.045
Etiology (Biliary/Non-biliary)	12/21	8/6	7/16	0.253

Table III: Comparison of demographic and clinical parameters in AP

In our study, the etiology of Acute pancreatitis was classified into two group as Biliary AP and Non-biliary AP. The majority of cases in this study were non-biliary AP. There was no statistically significant difference in the severity of acute pancreatitis in biliary and non-biliary etiology (p value 0.253) [Table III]

The majority of cases 33 (47%) in this study were mild acute pancreatitis, 14 (20%) were moderate pancreatitis and 23 (33%) were severe pancreatitis. The mean duration of hospital stay was 6.21 ± 3.49 days.

The relationship between Red cell distribution width on admission (RDW-CV) and severity of acute pancreatitis was analyzed. Fig 1 is a scatter plot showing relationship of RDW-CV on admission and severity of AP. When the value of RDW-CV on admission was correlated with the severity of acute pancreatitis, it was found to be statistically significant (p value <0.001).

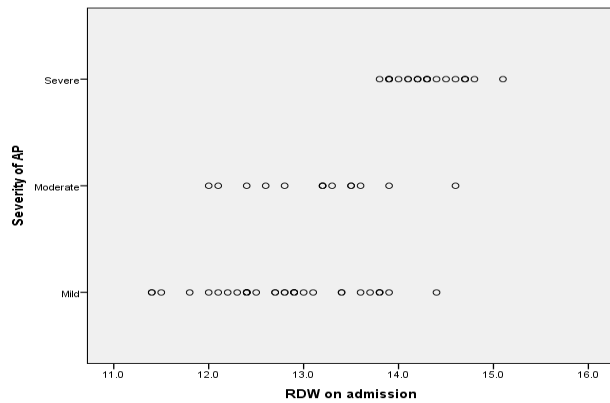


Figure 1: Scatter plot of RDW-CV on admission against severity of acute pancreatitis

Receiver-operating characteristics (ROC) analysis was done to measure the accuracy of RDW-CV on admission to detect severity of acute pancreatitis. For severe pancreatitis, area under the curve was 0.963 (95% CI, 0.919 to 1.007, p-value <0.001), which was statistically significant. The maximum sensitivity and specificity of RDW-CV on admission to assess severe acute pancreatitis was 95.7% and 91.5% respectively with a cut off value of 13.85 [Figure 2]. Similarly, the positive predictive value (PPV) and negative predictive value (NPV) of RDW-CV on admission in identifying severe AP was 84.6% and 97.7% respectively.

Furthermore, out of 70 patients there were two cases of severe acute pancreatitis who died eventually. In both these patients, the value of RDW-CV on admission was high (13.9 and 14.3).

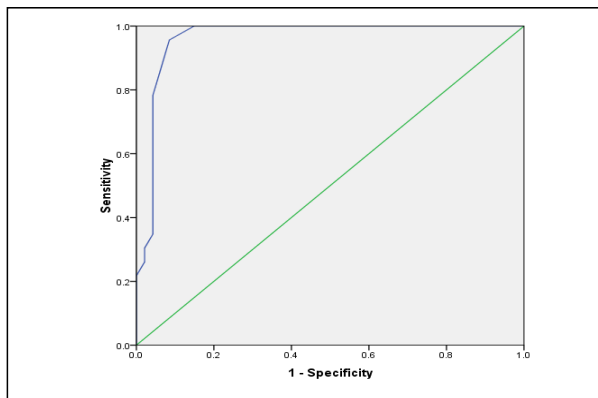


Figure 2: Receiver operating characteristics (ROC) curve for detecting severe AP

Similarly, (ROC) analysis was done to measure the accuracy of RDW-CV on admission to detect mild and moderate acute pancreatitis. For mild AP, the area under the curve was 0.157 (95% CI, 0.063 to 0.250, p value 0.14) which was statistically not significant [Figure 3]. In addition, for moderate AP the area under the curve was 0.397 (95% CI, 0.252 to 0.541 p value 0.234) which also was statistically not significant [Figure 4]. Therefore, RDW-CV was useful to predict severe AP but not useful to predict mild and moderate AP.

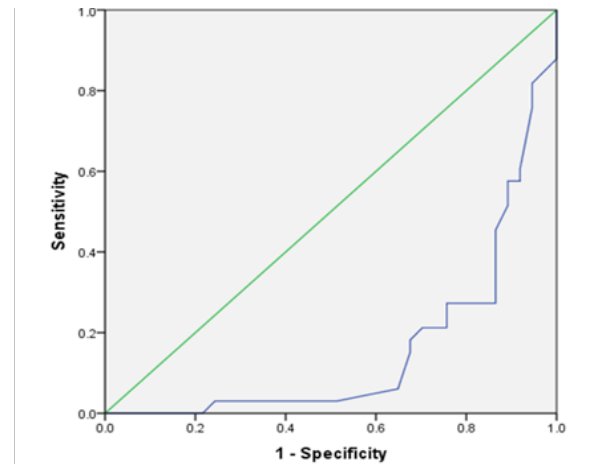


Figure 3: ROC curve for detecting Mild AP

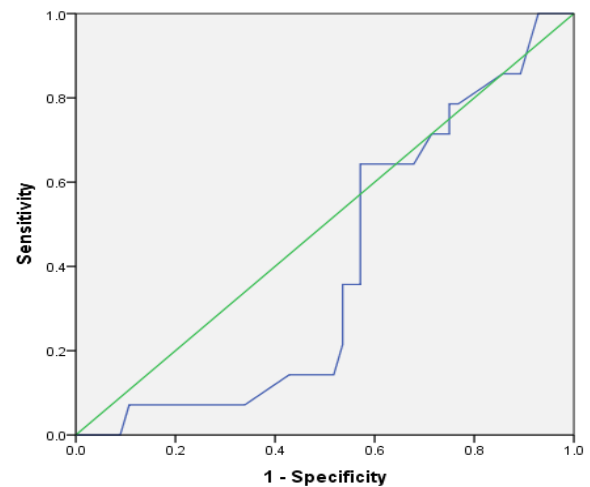


Figure 4: ROC curve for detecting Moderate AP

DISCUSSION

The pathophysiologic mechanisms for the association between higher RDW and mortality in AP are unclear. Inflammation may help explain the underlying association of RDW with mortality. Inflammation influences bone marrow function and iron metabolism, suppress erythrocyte maturation, accentuated with sepsis, allowing newer, immature, larger reticulocytes to enter the circulation, which is associated with RDW increase⁸. High oxidative stress can also lead to elevated RDW by reducing red blood cell (RBC) survival and increasing release of large premature RBCs into the peripheral circulation. In addition, inflammation alters RBC membrane glycoproteins and ion channels, contributing to the change of RBC morphology^{9, 10}. Previous studies have mostly focused on the ability of RDW to predict mortality and not on predicting severity of AP. This study focused mainly on the role of RDW at predicting severity of AP.

The result of this study revealed that RDW-CV on admission was significantly correlated with the severity of AP. ROC analysis revealed that RDW-CV was useful to predict severe AP but not useful to predict mild and moderate AP. The maximum sensitivity and specificity of detecting severe AP was 95.7%

and 91.5% respectively with a cut off value of 13.85 which is within the normal laboratory range 11-15% but at the upper limit of normal range.

The result in this study is similar to previous studies in which higher RDW level at the upper half of normal range were associated with unfavorable outcomes.

Karabulut et al (2014) who did a retrospective study comparing RDW at the time of diagnosis and after full recovery of the patient with acute pancreatitis. Further, red blood cell width and amylase values were statistically compared according to the time of sample collection. They concluded that an increase in red blood cell width value is a marker of acute pancreatitis and suggested that red blood cell width can be used as a tool for the early diagnosis and assessment of disease progression¹¹.

Wang et al (2015) who conducted a retrospective study in Guangzhou, China found that RDW was a good prognostic predictor of death in AP patients with a cut-off RDW value of 14.35 with a sensitivity of 88.2% and a specificity of 91.8 similar to this study¹². In addition in the study conducted by Yao et al (2017), the cut off value of RDW-CV for predicting mortality in AP was 14.2%, which was also at the upper half of normal range. Their study also revealed patients with AP with the highest RDW tertiles had the highest mortality and the non-survivors of AP had higher RDW values when compared with survivors¹³. Goyal et al (2017) and Moharamzadeh et al (2018) found that RDW can be used as a biomarker for predicting in-hospital mortality in pancreatitis^{14, 15}.

In addition, this study also revealed that RDW-CV on admission is not accurate in predicting mild and moderate AP and is not able to differentiate mild from moderate AP. The reason for similar RDW-CV between mild and moderate AP may be because systemic inflammatory process has not reached to a level that could affect and suppress bone marrow function.

Furthermore, this study revealed that the etiology of acute pancreatitis (Biliary and Non-biliary) was not a predictor of severity of acute pancreatitis. Lastly, the duration of hospital stay progressively increased with increase in severity of acute pancreatitis with severe AP associated with a longer duration of hospital stay.

CONCLUSION

This study has revealed that Red cell distribution width (RDW-CV) on admission which is an easily obtained, inexpensive, routinely reported parameter as a part of the complete blood count test, was useful to predict severe AP with a cut-off value of 13.85, which is within the normal laboratory range 11-15% but at the upper limit of normal range. However, it was not useful to predict mild and moderate AP.

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Evaluation of Outcome of Type 2 Clavicular Fractures with Pre-Contoured Locking Compression Plates

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ABSTRACT

Background: Clavicular fracture is a common traumatic condition encountered around shoulder region in adult population, while mid-shaft fractures (Robinson's type 2) are found to be a most common variety. Management trends have changed in recent years from conservative to surgery, considering the higher rates of malunion, nonunion and poorer functional outcomes when managed non-operatively. An open reduction and internal fixation with precontoured locking compression plates has been a backbone of treatment of these fractures for several years with the aim of anatomical reduction, stable fixation and early rehabilitation of affected shoulder. **Objective:** To evaluate the outcome of Robinson type 2 clavicular fractures managed surgically with precontoured locking compression plates. **Methods:** Prospective study of 100 adult patients with Robinson type 2 clavicular fractures managed surgically with precontoured locking compression plates from January 2017 to November 2019 at the department of orthopaedics of Nepalgunj Medical College, Kohalpur. Outcomes were evaluated radiologically as well as functionally on the basis of Constant and Murley's scoring system. **Result:** Union was achieved in 98% patients with an average duration of 4.16 months with standard deviation of 1.23. Functional results were excellent in 80% and good in 17%. There were two major complications, one requiring reoperation and hardware removal due to deep infection while other went into nonunion. One patient sustained re-fracture within 2 weeks following implant removal after another trauma. **Conclusion:** Outcome of surgery was satisfactory with desirable result in almost all of the patients. The surgery was simple, easy to perform and was free from radiation exposure.

Keywords: *Constant's score , Non-union, Plate exposure, Refracture , Type 2 Clavicular fracture*

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INTRODUCTION

Fracture of clavicle is a common skeletal injury around shoulder region due to its subcutaneous location. It accounts for almost 5% of all fractures in adult population^{1, 2, 3}.

Indirect trauma to the shoulder is associated most frequently with clavicle fractures. Fall on an affected shoulder leading to bending force account for most (87%) of the clavicle fractures, while direct impact results in 7% and falls onto an outstretched hand may lead to 6% of all clavicle fractures¹. Although rare, clavicle fracture may occur secondary to muscle contractions during seizures or secondary to minimal trauma due to pathological bone or as stress fractures⁴. The injury is more common in males as compared to females².

The standard treatment for midshaft clavicular fractures in adults has been conservative by an arm sling and a clavicular brace or a figure of eight bandage. But because of higher

incidence of re-displacement, malunion, nonunion, prolonged immobilization and also the idea of moving a fractured limb soon after injury; there has been shift of trend from managing these fractures from conservative to surgical fixation with an intramedullary or an extra medullary devices^{5, 6}. Of these two open reduction and internal fixation with pre-contoured locking plates enables an anatomical reduction, offers a stable fixation and allows early mobilization of fractured limb. The operative method has improved patient-oriented outcomes compared to that of non-operative treatment; considering incidence of non-union, functional outcome, pain scores, quality of life, cosmetic aspects and complications^{5,6,7}.

It has been observed that middle third fracture is the most common site of fracture, being the junction between the two cross-sectional bony configuration and lack of reinforcement by muscles or ligaments distal to the subclavius insertion, resulting in additional vulnerability⁸.

Robinson classified middle third clavicle fracture as Type 2 and further subdivided it into four different groups: ^{9,10,11}

Type 2A1: undisplaced

Type 2A2: Angulated

Type 2B1: Displaced/ simple wedge

Type 2B2: Segmental/ Communitated

In this study, angulated or displaced Robinson's type 2 clavicular fractures were selected for an internal fixation with pre-counter locking plate and results of surgical the treatment were evaluated.

Informed consent was taken from the patient and only those willing to take part in this study were included.

METHODS

Inclusion criteria:

100 patients with angulated or displaced Robinson's type 2 clavicular fractures, who attended Nepalgunj Medical College Teaching Hospital, Kohalpur from January 2017 to November 2019 were included in this prospective study.

Exclusion criteria:

1. Age < 18 years
2. Open fractures

Surgical technique

Under general anesthesia, patients were placed in beach chair position with a bolster placed in between two scapulas. An appropriate size plate was placed on antero-superior surface having at least six cortices purchase on either side of fracture. One, two or three lag-screws screws were used as an adjunct for interfragmentary compression on larger fracture fragments.



Figure I: Lag screws used to achieve interfragmentary compression

For comminuted fractures, fixation was supplemented with an autologous cancellous bone graft taken from iliac crest (Figure II). The wound was closed over layers and the arm was placed in a sling.



Figure II: Supplementation with an autologous bone graft

Active assisted exercises were started as soon as the patient was comfortable. Arm pouch sling was given for every patient for two weeks. The sutures were removed after 14 postoperative days. Patients were followed up every month till there was an evidence of clinical and radiological union. Union was assessed clinically by absence of pain, tenderness and mobility at fracture site and radiologically by evidence of consolidation. Functional evaluation of shoulder range of motion was done according to Constant's score (table I) ^{5,12,13,14}.

Constant score	Interpretation
<30	Unsatisfactory
30-39	Fair
40-59	Good
60-69	Very good
>70	Excellent

Table I: Interpretation of Constant score¹⁴

Deep infection was defined as an infection requiring implant removal, while superficial infections healed with an intravenous antibiotics and a regular change of dressing ¹⁵.

RESULT

Results were evaluated radiologically and on the basis of functional assessment in 100 patients with Robinson's type 2 clavicular fractures who were included as per inclusion criteria and underwent surgical fixation with pre-contoured locking compression plates. The patients were followed up for an average of 14 months (range, 12-16).

The injury was common between 30 to 40 years of age with an average age of 37 years with standard deviation of 8.42. Males were more commonly injured 65%. The most commonly observed fracture pattern was 2B1, 64%. Motor vehicle accident contributed the maximum number of patients 43% (figure III).

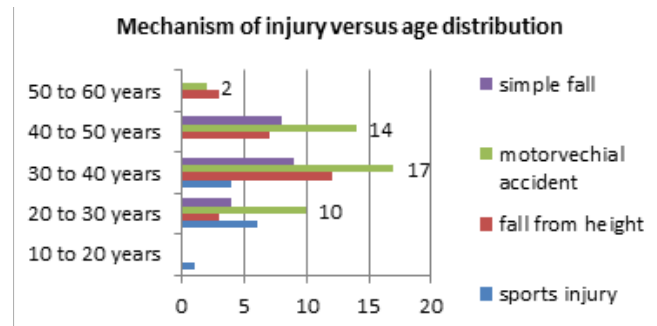


Figure III. Mechanism of injury versus age distribution

Union, both clinical and radiological, was achieved in most of the cases (98%) with an average duration of 4.16 months, standard deviation of 1.23.

One patient had to be re-operated due to deep infection. The implants had to be removed and fixed with an intramedullary elastic nail and skin grafting was done (figure IV), who became lost on subsequent follow up.



Figure IV: Plate removal and subsequent skin grafting after intramedullary splinting

While the other came with an exposed implants after a period of 6 months. The patient denied any further intervention. Plate was removed as per patients wish and no further management was done (figure V). On subsequent follow up he had fair functional outcome and opted to stay as such with physiotherapy.

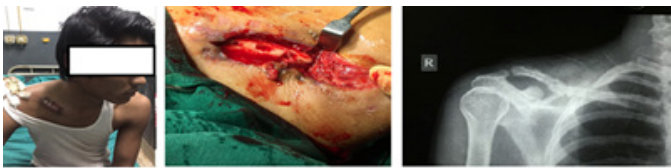


Figure V: Non union with plate exposure

One patient developed re-fracture within two weeks of implant removal following another trauma for which re-plating with bone grafting was done (figures VI).

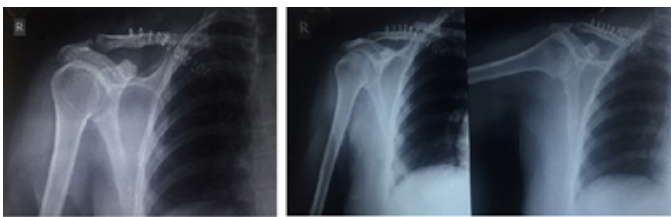


Figure VI: Re-fracture after implant removal

One patient had malunion (figure VII) due to implant loosening, but had good functional outcome.



Figure VII: Malunion in post-operative patient after implant removal

2 patients underwent revision surgery, while implant removal were not considered as a part of revision surgery. This particular subset included patient who underwent debridement with an intramedullary nail fixation (figure IV) and another who underwent re-plating (figure VII) for re-fracture. All remaining minor complications are shown in figure VIII.

Complications of plating of clavicle fracture

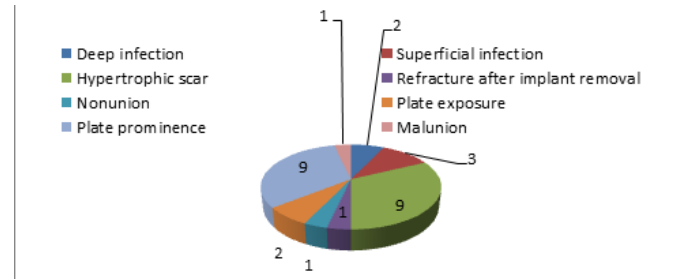


Figure VIII: Complications of plating of clavicle fracture

Functional outcome was excellent in 80 patients, good in 17 and fair in 2 patients (figure IX, X) among those one had non-union while the other had re-fracture after implant removal for which revision plating was done.

Functional outcome

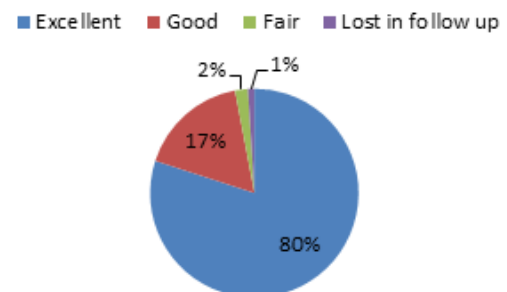


Figure IX: Functional outcome after final follow up according to Constant's score



Figure X: Shoulder range of motion at final follow-up the implants were removed in 45 patients

DISCUSSION

Traditionally clavicular fractures were managed with an arm sling and a figure of eight bandage or a simple arm sling alone. However neither of these techniques aid in direct reduction of fracture. Besides, it has also been observed that a figure of eight bandage carries a risk of an axillary pressure sores and compression of neurovascular bundles. Recent studies have also illustrated a poor functional outcome and a higher

rate of malunion and nonunion after nonoperative treatment, while the results of surgical management have improved substantially^{16,17}.

Altamimi et al. in his comparative study between non operative treatment versus primary plate fixation for displaced fractures concluded that plating group had better functional outcomes, lower rates of malunion and nonunion and a shorter time to union¹⁸.

Several intramedullary nails have also been used for internal splintage of displaced midshaft clavicle fractures; like Kirschner's wires, Knowels pins, Hagie pins, Rockwood pins and titanium nails more recently. But negotiation of nails in the medullary cavity of sigmoid shape bone possesses a challenge while the nail should also be strong enough to withstand deforming force across fracture site till it unites^{19,20,21,22}.

Golish et al. in his study summarized, plates to be more biomechanically superior than intramedullary nails in clavicular fracture fixation²¹. With the availability of precontoured locking compression plates, less stiffer implants like reconstruction plates have lost their favor in terms picking order being more prone to deform at fracture site.

This prospective study was designed to evaluate the outcome of pre-counter locked locking plate for displaced type 2 clavicular fracture.

In our study clavicular fracture was found to be more common in males 65% as compared to females 35%. The results were comparable with Toogood et al.².

Of 80 patients with displaced clavicle fracture 2B, high energy trauma like motorvehicle accident and fall from height resulted in 57 (71.16%) patients (figure III). This result was similar with the study of Schiffer et al. and Van der Meijden et al.^{1,4}.

Union was seen in all patients except one developed infected nonunion while the other was lost in follow up. Average time to union was 4.16 months with standard deviation of 1.23. The results were similar to that of Ethiraj et al.⁵.

Functional outcome was excellent in 80% and good in 17%. The results were comparable with that of Kumar Vijay BS 7 and Ethiraj et al.⁵.

Deep infection with staphylococcus aureus occurred in one patient where plate was exposed. Multiple debridements were done and eventually a skin flap was raised to cover the defect and was temporarily reduced with an intramedullary elastic nail (figure IV). After wound healing the patient did not come to her regular follow ups and suddenly stopped her visit.

A deep infection in another patient could not be controlled despite aggressive medical treatment and debridement. Subsequently the fracture developed in an established nonunion (figure V), but the patient refused any further treatment. That patient had fair functional outcome after implant removal. Shen et al.¹⁵ also mentioned deep infection to cause non-union.

One patient had malunion, most likely due to plate loosening after infection (figure VII) which was successfully managed with I/V antibiotics, eventually the plate was removed and the patient had good functional outcome.

Narsaria et al.²³ documented 3% refracture after plate removal. In our study, refracture occurred in one patient within two weeks of implant removal, after a simple fall injury for which replating with autologous bone graft was done (figure VI).

Of minor complications, superficial wound infection in 3 patients were controlled with an intravenous antibiotics and a daily change of dressing for 7-10 days. All had good functional outcome. No patient with infection developed osteomyelitis.

Toogood et al in his study mentioned plate prominence in 8% because of lesser soft tissue envelope². In our study Plate prominence was seen in 9 patients of which 3 had an excellent functional outcome and 6 had good functional.

CONCLUSION

Being a subcutaneously located bone, clavicle is more prone for fracture. Traditionally displaced midshaft clavicle fractures were treated conservatively which lead to increased rates of malunion and non-union. Of surgical intervention open reduction and internal fixation with pre-contoured locking plates seem to be superior to intramedullary nail. Current trend of management with pre-contoured locking plates allows anatomical reduction, stable fixation and better functional outcome. Early mobilization postoperatively within the limits of pain, allows the patient to return to his activities soon after surgery. The chance of infection however may exist which if superficial, can be managed with IV antibiotics and dressing. Plate prominence seemed to be a common complication because of lack of abundant soft tissue coverage which however had no effect in functional outcome. The surgery is simple and does not requires fluoroscopy, making it more feasible in rural settings as well. Duration of hospital stay is also not much of a concern.

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Clinico-Pathological Co-relation in Diagnosis and Management of Abnormal Uterine Bleeding

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ABSTRACT

Abnormal uterine bleeding is the third most common clinical presentation in gynecology OPD. Histopathological evaluation of the endometrial tissue plays a significant role in diagnosis and management of Abnormal Uterine Bleeding. **Aim:** To find out cause of abnormal uterine bleeding with the help of histopathological report of endometrial biopsy. **Methodology:** This is retrospective observational study done at NGMC from (1st June 2018 to -30th June 2019) of 100 patients endometrial biopsy sent for histopathological evaluation and diagnosis reports were correlated with age and bleeding pattern and patients were managed accordingly. **Result:** A total of 100 endometrial specimens submitted with clinical diagnosis of Abnormal Uterine Bleeding were studied. Patients age group ranged from 18 – 65 yrs and most of them were seen in the age group of 41–50 yrs (43%). The commonest complaint was menorrhagia i.e. 48%. The commonest endometrial pattern observed in the study was, proliferative phase endometrium (38%). **Conclusion:** Endometrial biopsy is one of the most useful diagnostic tools to find out cause of uterine bleeding in AUB cases and also helps in management of AUB patient.

Key words: Abnormal uterine bleeding, Endometrium, Endometrial biopsy, Histopathology, Menorrhagia

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INTRODUCTION

Abnormal uterine bleeding (AUB), it's a bleeding from the female genital that deviates from normal menstrual bleeding in frequency duration and amount, it is prolonged in duration and excessive in amount. This is due to hormonal imbalance, malignancy, uterine organic pathology and pregnancy related complications in reproductive age group. The Common presentations are menorrhagia, polymenorrhoea, metrorrhagia, and inter-menstrual bleeding. Endometrial biopsy is OPD based diagnostic tool in diagnosis and management of abnormal uterine bleeding. Gold standard is hysteroscopy guided biopsy but endometrial biopsy is quick, OPD based procedure needs no anesthesia. Hence, endometrial biopsy should be recommended in patient with AUB of peri-menopausal age group to exclude organic pathology of endometrium to plan appropriate management. The HPE of endometrial biopsy is considered as alternative tool to hysteroscopy guided endometrial biopsy for diagnosis of etiology of AUB and plays a significant role in early diagnosis and management of AUB.

METHODOLOGY

This is retrospective observational study carried out at NGMC. Data were collected from (1st June 2018 - 30th June 2019) of 100 patients who underwent OPD based endometrial biopsy

by standard technique, tissue had been sent to the pathology department NGMCTH kohalpur for evaluation. Data were collected from gynecology OPD and pathology department, with the consent from hospital director. The final report was carried out from histopathological resister of pathology department. The data were recorded in standard performa and analyzed by using version 17 of SPSS.

AIMS AND OBJECTIVES

- To find out the cause of AUB with the help of endometrial biopsy report.

INCLUSION CRITERIA

- Women presenting with Abnormal Uterine Bleeding.

RESULT

Age group	Frequency	Percentage (%)
<20yrs	3	3
21-30yrs	14	14
31-40yrs	30	30
41-50yrs	43	43
>50yrs	10	10
Total	100	100

Table I: Distribution of patients according to the age group

The above table shows, maximum number of patients were of 41-50 years (43%), least number of patients were under age group <20 years (3%), mean was 3.43 and standard deviation was (0.95%). (Table I)

Distribution according to the bleeding pattern

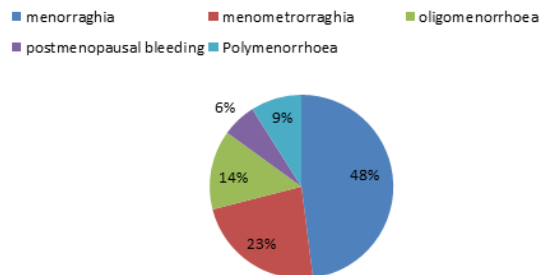


Figure 1: Distribution of patients according to the bleeding pattern

Menorrhagia is common bleeding pattern i.e. (48%) followed by menometrorrhagia (23%) in patient who presented with abnormal uterine bleeding in present study shown in (Figure 1).

Age group (yrs)	Histopathological findings among various age group							P value
	Disordered proliferative phase endometrium	Endometrial carcinoma	Proliferative phase endometrium	Secretory phase endometrium	Pregnancy and related complication	Endo-metrial hyper-plasia without atypia	Endo-metrial hyper-plasia with atypia	
<20	0	0	0	0	3	0	0	0.001
21-30	1	0	2	3	8	0	0	
31-40	2	0	10	12	4	2	0	
41-50	6	0	22	7	0	6	2	
>50	0	2	4	1	0	2	1	
Total	9	2	38	23	15	10	3	

Table II: Distribution of patients in relation to age group with histopathological findings

The secretory phase endometrium was common histopathological finding in patients of abnormal uterine bleeding of age group (31-40yrs) i.e. in 12 patients out of 35. The proliferative phase endometrium was common histopathological finding in age group (41-50yrs) i.e. in 22 patients out of 43. Pregnancy and related complication were seen in reproductive age group maximum number in age group (21-30 yrs) i.e. in 8 patients out of 14. Which is statistically significant p Value is 0.001. (Table II)

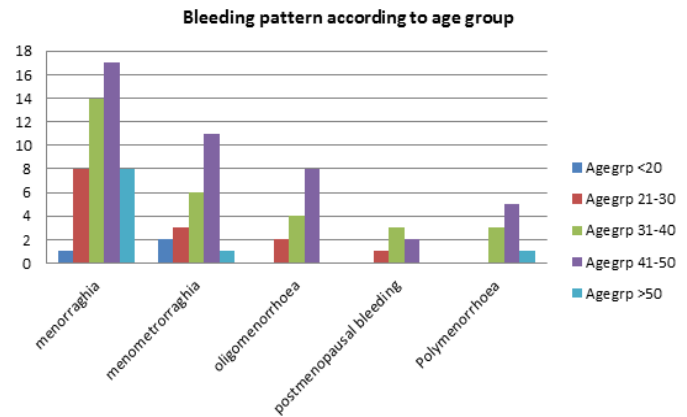


Figure 2: Distribution of patient according to bleeding pattern in relation to age group

Menorrhagia was most common complaint in study population, out of 43 patients in age group (41-50yrs) 17 patients had menorrhagia followed by menometrorrhagia. Similarly in age group (31-40yrs) out of 30 (14 patients) had menorrhagia and out of 10(8 patients) in age group (>50yrs) had menorrhagia. (Figure 2)

DISCUSSION

Endometrium biopsy is the most useful tool for diagnosis management of Abnormal Uterine Bleeding. In this study the highest incidence of Abnormal Uterine Bleeding was noted in 41 – 50 yrs age group (43%) followed by 31-40 yrs age group (30%) and the mean age was 45yrs which is similar to study done by Jagdale K¹. AUB is common in perimenopausal age group i.e. (41-50 yrs) similar finding was observed in study conducted by Padhye A³, Vaidya S⁶, Saraswathi D⁹ Mahapatra M Mishra P¹¹, Banale M¹⁴ and Singh P¹². The most common endometrial pattern in perimenopausal age group was proliferative (38%), followed by Secretory (23%). Similar study proliferative 47.3% and Secretory 16.1% in study done by Gopalan G⁵. According to Vaidya S⁶ secretory and proliferative endometrium is common in perimenopausal age group which is similar to this study. The incidence of disordered proliferative endometrium is 15% in this study which is quite similar with study done by Das B¹³. In the study done by Saraswathi D⁹ et al. the common pathology corresponding of age group was disordered proliferative endometrium but in present study proliferative endometrium is common followed by secretory endometrium. According to Suneet K⁷ proliferative endometrium is common histopathological finding in AUB followed by secretory endometrium. The incidence of AUB is more in perimenopausal age group then in postmenopausal age group which is similar to our study. Menorrhagia is common clinical finding in cases of AUB about 48% patient presented with menorrhagia in our study which is similar to the study done by Jagdale K¹ in (88%) cases, Tiwari A⁴ (60%) cases, Banale M¹⁴, Mahapatra M Mishra P¹(49.1%) cases and Khan R⁸(55.8%) cases. According to Azim P² the polymenorrhoea (35%) was common clinical feature in patient with AUB. The risk of endometrial carcinoma is

increasing with age it is more common in perimenopausal and postmenopausal age group in our study incidence is 2% which is similar to the study conducted by Singh P¹² i.e (2.6%), Vaidya S⁶ (2.4%) , Padhye A³ (2.9%) and the incidence of endometrial carcinoma is quite high i.e. (5%) in the conducted by Mirza T¹⁰ . In our study incidence of pregnancy and related complication was 18% which is similar to Jagadale K1 i.e. 15 % but in study done by Tiwari A⁴ it is only 6% which is only 1/3rd of our study result.

CONCLUSION

Endometrial biopsy is indicated in women over the age of 35 yrs with abnormal uterine bleeding to rule out premalignancy and malignancy related conditions. Timely evaluation of Abnormal Uterine Bleeding by endometrial biopsy helps in diagnosis and management and can be life saving tool.

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Histomorphological Spectrum of Diseases in Endobronchial Biopsy

Shrestha R¹, Shrestha A², Yogi S³

ABSTRACT

Aim: To study the histomorphological pattern of disease in endobronchial biopsy in Nepalgunj Medical College Teaching Hospital (NGMCTH), Kohalpur. **Background:** Study of endobronchial biopsy is mainly indicated for malignancies, however, various other conditions including inflammatory pathology can be correctly identified. **Material And Methods:** This is a hospital based descriptive study carried out at Department of Pathology, NGMC, Kohalpur from August 2017 to July 2018. The study included 51 cases of endobronchial biopsy. All bronchial biopsies were processed according to the standard method and the detail microscopic findings were studied and the data were analysed statistically. **Result:** The age of patients ranged from 20-80 years. Cough was the most common presenting symptom. Most common benign pathology was tuberculosis and among malignancies squamous cell carcinoma was common histopathological diagnosis. **Conclusion:** Identification of lung pathology at early stage with correct histological morphology is important to decrease morbidity and mortality related to both benign and malignant condition.

Key words: Endobronchial biopsy, Lung cancer, Tuberculosis

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INTRODUCTION

Endobronchial biopsy is obtained via bronchoscopy passed through the nose or mouth to visualize the upper airway, identify any changes or lesion and collect pieces of lung tissue which allows assessment of various diseases including infectious, benign and malignant.

Lung cancer is currently the most frequently diagnosed cancer in the world and the most common cause of cancer mortality worldwide, comprising 17% of total new cases in male and 23% in female¹.

The important indication for bronchial biopsy is the identification of bronchial malignancy, however, various other lesions including inflammation can be identified.

MATERIAL AND METHODS

This is a hospital based descriptive study carried out at Department of Pathology, NGMC, Kohalpur from August 2017 to July 2018. The study included 51 cases of endobronchial biopsy. All bronchial biopsies were received in neutral buffered formalin, were processed as per standard procedure. 4-5um thick sections were cut on microtome and stained with Hematoxylin and Eosin (H&E) stain and the slides were studied in details microscopically². Special stains like Periodic Acid Schiff (PAS) and Ziehl-Neelsen (ZN) were used when needed.

Data were analyzed using standard statistical method including SPSS 20.0.

RESULT

Among 51 cases included in the study, 22 (43.14%) were female and 29 (56.86%) were male with M:F ratio of 1.3:1 Table I. Age of the patient ranged from 20-84 years with mean age of 60.01. The maximum number of patients were in the age group of 51-60 years and 61-70 years (17 each; 33.33%) as shown in Table II. Cough was the most common presenting complaint in 17 cases (33.33%) followed by hemoptysis and chest pain (Table III). Benign (non-malignant) cases, including inadequate samples were 13 in number, most common benign pathology was tuberculosis (7; 13.73%). 3 cases were labeled inadequate/ unsatisfactory due to crushing artifact and presence of necrotic material only.

Most common indications of biopsy was suspicion of malignancy. 38 cases were malignant and most common malignancy was Squamous Cell Carcinoma (25; 49.02 %) followed by Adenocarcinoma and Small cell carcinoma (5 cases each; 9.80%) as shown in Table IV. The correlation between clinical and histopathological diagnosis were done and was roughly categorized as benign or malignant and was statistically significant with a P value of <0.05 (Table V). Growth/

mass on imaging was most common indication for biopsy followed by mucosal irregularity and erosion with necrotic plug. Out of 40 suspected malignant cases clinically, 32 were positive for malignancy and 8 was categorized as benign condition including inadequate sampling.

Sex	Frequency	%
F	22	43.14%
M	29	56.86%
Grand Total	51	100.00%

Table I: Sex Distribution

Age group (Year)	Frequency	%
20-30	4	7.84%
40-50	4	7.84%
51-60	17	33.33%
61-70	17	33.33%
71-80	7	13.73%
>80	2	3.93%
Grand Total	51	100.00%

Table II: Age group

Clinical Presentation	Frequency	%
Chest pain	14	27.45%
Cough	17	33.33%
Fever	2	3.93%
Hemoptysis	18	35.29%
Grand Total	51	100.00%

Table III: Clinical Presentation

Histopathological Diagnosis	Frequency	%
Adenocarcinoma	5	9.80%
Amyloidosis	1	1.96%
Fungal-aspergillus	1	1.96%
Idiopathic pulmonary fibrosis	1	1.96%
Inadequate	3	5.88%
Small cell carcinoma	5	9.80%
Squamous cell carcinoma	25	49.02%
Tuberculosis	7	13.73%
Undifferentiated carcinoma	3	5.89%
Grand Total	51	100.00%

Table IV: Histopathological diagnosis

	Histological Categorization			Total	
	benign	malignant	unsatisfactory		
Malignant					
Clinical diagnosis	6	32	2	40	P value <0.05
Tuberculosis	4	6	1	11	
Total	10	38	3	51	

Table V: Clinical diagnosis and Histological categorization Crosstabulation

DISCUSSION

Lung cancer is one of the leading case of cancer related deaths in men and women. The increasing number of deaths is mainly due to its detection at the late stage³. Thus, timely detection and management is important for long term survival of the patients. Bronchial biopsy and histopathology is a valuable tool in diagnosis of lung disease, both benign and malignant.

According to the latest World Health Organization (WHO) data published in 2017, lung disease death in Nepal reached 11.81% of total death and Nepal ranks 2nd number in the world⁴. In fiscal year 2074/75, a total of 32,474 cases of TB was notified and registered. Among the notified cases 71% of all TB cases were pulmonary TB and Terai belt reported more than half of the cases (57%). In Province 5 alone 7036 cases were noted with highest notification rate⁵.

Bronchial biopsy is performed through flexible fiberoptic bronchoscopy and tissue is submitted for histopathological examination. The drawback of this procedure is that the tissue may get crushed creating artifactual changes and difficulty during histopathological examination as well as the peripheral lesion may be missed⁶. It is important to know the true histological cell type in cases of primary lung cancer as it influences the management and allow prediction of prognosis.

Males were more involved by lung disease with M:F ratio of 1.3:1 which is similar to study done by Bhat et al, Fuladi et al and Bodh et al^{1,7,8}. Cough was the most common presenting symptom, followed by hemoptysis and chest pain which is similar to study done by Okugbo SV⁶.

Most common benign lesion in this study was Tuberculosis, similar to Okugbo SV study⁶.

Among malignancies, SCC was the most common finding similar to Bhat et al, Rajasekaran et al and Gupta et al, followed by Small cell carcinoma and Adenocarcinoma similar to other writers^{1,9,10}.

CONCLUSION

Identification of lung lesion at early stage is important to decrease mortality and morbidity. Infectious disease like tuberculosis can be treated with correct diagnosis. Malignancy with correct

histopathological typing can have correct management plan. Only drawback of endobronchial biopsy is inadequate sample or artifactual changes.

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Socio-Demographic Profile, Morbidity Pattern and Reason for Elderly People Living in an Old Age Homes: A Community Based Study From Banke District

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ABSTRACT

Background: Various aspects of socio-demographic conditions effect individual's life at the time of an old age which ultimately make their life vulnerable and dependent on other people. Old age home is one of the important place for those elderly people whose spouse are not alive, have nuclear family background and no one at home to take care of them. **Aims and objectives:** To study socio-demographic profile, disease morbidity and factors effecting elderly people to live in an old age homes. **Material and method:** A community based cross sectional qualitative study was conducted among geriatric age group 65 and above, without any physical and mental severity, and living in old age homes in community field area of department of community medicine of Nepalgunj medical college from 14th April 2019 to 16th September 2019. The total sample size was 84. **Results:** Majority of female occupants (63.1%) belonged to age group 65 to 75 years old. Half of them were illiterate and their spouses were not alive (71.4%). Family member's migration (63.1%) and nuclear family (67.9%) were the contributory factors for living in an old age homes. **Conclusion:** The result of the study showed that there is need of geriatric social services and health facilities for making elderly people financially and emotionally strong.

Key words: *Elderly people, Migration, Nuclear family, Old age homes, Spouse*

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INTRODUCTION

The natural cycle of human life from birth till an old age are very familiar and a universal phenomenon¹. Ageing is process of gradual change in state of physical, mental state as well as perspective of society towards old people. Population ageing is a relatively new concern for every country which has raised significantly large in number and proportion of aged persons in the society due to decline fertility rate (currently 1.9 % in Nepal), remarkable improvement in mortality and increased life expectancy at birth (currently 71.1 year for both Male and female in Nepal)².

WHO defines Healthy Ageing "as the process of developing and maintaining the functional ability that enables wellbeing in older age". Functional ability is about having the capabilities to fulfill their basic needs, to make decisions, to make mobile, to maintain relationships and to contribute to society³. Population ageing is expanding through the world that estimates the people age over sixty years and older comprises 12% of world wide population. The expected population of elderly people is to be doubled (22%) by 2050. In 2050, 80% of older people will be living in low-and middle-income countries⁴. In Nepal, individuals over 60 years of age are considered elderly. There were 2.1 million elderly inhabitants, which constitute 8.1 percent of the total population in the country⁵. According to

demographic census of Nepal 2011, Banke district comprises⁴, 91,313 of total population. Out of which 7% are belonged to elder people aged 60 or above which is 80% of the rate in Nepal (8%)⁶.

No matter, many scientific discoveries and medical interventions regarding diseases and life span to make people healthier and limit disability, the problem of ambiguity of old age is still with us since the stage of primitive society. The aged population has specific health problems that are basically different from those of adults or young persons. Most diseases in the aged are chronic cardiovascular disease, arthritis, stroke, cataract, deafness, chronic infections, cancer⁷. The older one gets, the more health care he or she needs. A growing aspects of being nuclear family and a large number of population in developing country like Nepal is facing migration of young generation for economic stability which eventually in turn bring poor consideration towards medical attention and health seeking behavior of elderly people.

Elderly people are so far preferred or being forced to live in an old age home either in government or private based. The first old age home run by the Ministry of Women, Children and Social Welfare, in 1975 residing 230 elders. A study showed that there are about 1,500 elderly living in about seventy different organizations registered all over Nepal at present⁸.

However, many of them still deprived of comfortable life and are less recognized by the nation. As a result, many conditions remain unreported and untreated till they become complicated. The present study measures perspective of socio-demographic aspect and morbidity profile of elderly people residing in old age homes of Banke district.

Since there is no as such data or very little is known about health status and demographic profile of elderly people residing in old age home in Banke district of Nepal, it emphasises the need for strengthening of geriatric health care homes and provision of quality of life for elderly population where government has given very little concern in peripheral part of Nepal.

Objectives of study

1. To study socio-demographic background and morbidity pattern of elderly people living in an old age homes of Banke district.
2. To explore factors effecting elderly people to go to old age homes.

MATERIALS AND METHODS

A community based cross sectional qualitative study was conducted at field practice area of department of community medicine, Nepalgunj medical college in four old age homes registered under government and private sector. Among those four old age home, the functional private old age home were three in number, namely, "Nilsagar old age home for hopeless and elderly people" in Kohalpur and Nepalgunj, "Swawlambi old age day care centre" and one government registered "Bheri Bridha Ashram" in Nepalgunj. Older people age sixty five years or above residing in old age homes were selected by using total enumerative sampling technique. Based on estimated proportion (46.5%) of elderly people living in an old age home in Kathmandu valley⁹, considering an precision of error 10% and confidence interval at type 1 error 1.96%, the study sample was recruited to 84 elderly people who met inclusion criteria of the study. The inclusion criteria were being sixty five years old or above, being able to answer the questionnaire items. Elderly people who were seriously ill, bed ridden, audio-visually impaired and mentally unstable were excluded from participation. Data collection was taken from 14th April 2019 to 16th September 2019. Ethical approval was obtained from institutional review committee of Nepalgunj medical college and management of concerned old age home. Informed verbal and written consent were taken prior to interview after self introducing and explaining the objectives of the study. None of the participants were forced to participate and confidentiality of the information gathered was assured. The data was collected using standardized pretested questionnaire consisting two study tools. First tool was used to gather information on socio demographic status of total study population and factors influencing their life to choose old age home for their rest of the life. Second tool was applied by testing random glucose test (BSR), followed by oral glucose tolerance test (OGTT) for those who had high fasting blood sugar level. Three consecutive measurement of

blood pressure was performed to note any alteration in blood pressure according to American heart association scoring¹⁰. The data collected then entered into an excel sheet and descriptive analysis was performed by using SPSS version 16 with statistical significance at $p \leq 0.05$. Bivariate relationships were shown by chi square test.

RESULT

Table 1: Shows enumerative data of old age homes in Banke district with their bed occupancy and charitable funds.

Name of old age homes	Address	Carrying capacity	Total occupant	Male	Female	Fund provided by
Nilsagar old age home for hopeless and elderly people	Nepalgunj	70 people	60	7	53	Donation by Private sectors, interested
Nilsagar old age home for hopeless and elderly people	Kohalpur	25 people	22	22	0	Donation by person, old age home themselves
Bheri Bridhashram	Nepalgunj	10 people	6	4	2	Run by government
Swawlambi old age day care centre	Nepalgunj	15 people	12	9	3	Run by private sector

Table 1: Old age home and its background in Banke district

The present study showed maximum occupants were females (63.1%) than male occupants (36.9%). Among the study population, (35.7%) and (32.1%) belonged to farmer and unskilled worker respectively by their past occupation. Most of their spouse were not alive (71.4%) and also had no any grandchildren (75%) at present. Though some of them had joint family, most of their family members were migrated outside (63.1%) for earnings.

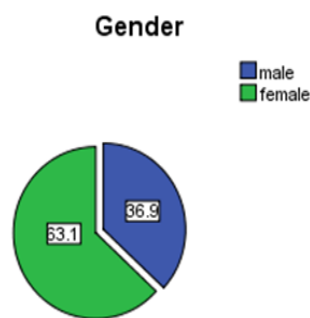


Figure 1: Distribution of elderly people by gender wise

Variables		Frequency(n)	Percent (%)
Age	65-75 yrs	54	64.3
	Above 75	30	35.7
Gender	Male	32	36.9
	Female	52	63.1
Education	Literate	32	38.1
	Illiterate	52	61.9
Past occupation	Farmer	30	37.5
	Business	15	17.9
	Govt. job	12	14.3
	Unskilled job	27	32.1
Marital status	Married with spouse	24	28.6
	Spouse not alive	60	71.4
Type of family	Nuclear	57	67.9
	Joint	27	32.1
Outside migration of family members	Yes	53	63.1
	No	31	36.9
Presence of grand children	Yes	21	25
	No	63	75

Table II: Distribution of socio-demographic status of elderly people (n=84)

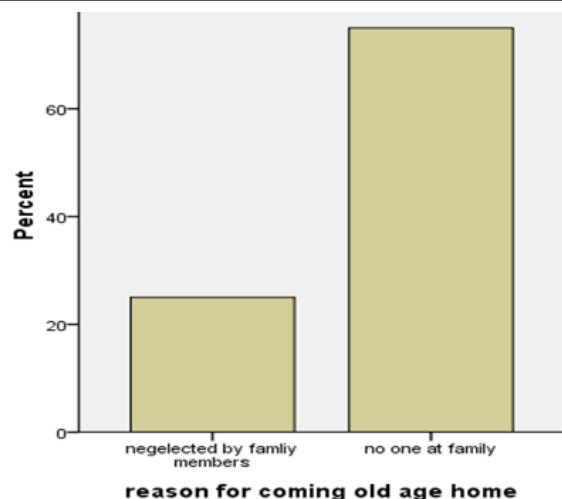
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Majority of elderly people (63.1%) had not received senior citizen allowance as per government rule of Nepal. Bivariate regression analysis shows (71.0%) literate elder people received senior allowance while 43(81.1%) of illiterate elder people did not receive senior allowance. Therefore, education seemed to be statistically significant association between these two groups ($p \leq 0.05$).

Senior citizen allowance	(n)	(%)	Literate	Illiterate	P value
Received	31	36.9	22(71.0%)	9(29.0%)	0.000
Not received	53	63.1	10(18.9%)	43(81.1%)	

$\chi^2 = 22.51$ df=1

Table II: Distribution of senior citizen allowance in relation to education in elderly people (n=84)



Seventy five percent of elderly people had no one in family in which was the major factor for going to old age home while (25%) of them were neglected by family members so they preferred to stay in old age home by their own interest. Nuclear family (71.4%) was found to be the contributory factor for elderly people coming to the old age home.

Type of family	reason for coming old age home	
	neglected by family members	no one at family
nuclear	13	45
	61.9%	71.4%
joint	8	18
	38.1%	28.6%

$\chi^2 = .66$ $p = 0.0014$

Table III

Marital status	reason for coming old age home	
	neglected by family members	no one at family
married with spouse	6	18
	28.6%	28.6%
spouse not alive	15	45
	71.4%	71.4%

$\chi^2 = .11$ $p = 0.001$

Table IV

Relation between staying in an old age home and their contributing factors

Health Status								
Gender	Hypertension	diabetes	Chronic bronchitis	Joint pain	cataract	Hearing problem	Skin disease	Dental problem
Male	8	6	9	0	4	1	0	0
Female	2	7	5	16	0	0	3	1

$\chi^2 = 29.87$ df=8 p= .002

Table V: shows most of the occupants fall under the morbid condition like dementia in both gender although it seemed to had majority of female occupants suffered from joint pain which was statistically significant too

DISCUSSION

In the present study, four old age homes in banke district were studied. The purpose of study was to find out socio-demographic variation and disease effecting elderly people and causes of living in old age home. Sixty three and four percent belonged between 65 to 75 years of age and females (63.1%) were predominant. This finding was similar to the study done by Acharya¹¹.

In present study, illiteracy was (61.9%), most of them were farmer (35.7%) and unskilled worker (32.1%) and were now totally dependent citizen. Due to age constraint and disability, they are unable and unfit for agricultural or other unskilled work which leads them to live in an old age homes for basic needs and social support. Study conducted in Lena et al, found that old home occupants were still performing skilled or unskilled work (78%)¹².

Almost all elderly people living in an old age home had found different morbid health conditions in this study. Dementia (26.2%), joint pain (19%), bronchitis (16.7%), alteration in blood glucose level (15.5%) and hypertension (11.9%) were observed. Study in Tripura medical college had showed that most of the occupants had respiratory disease (31.2%) and some of them had non-communicable disease (13.7%)¹³.

In present study, (67.9%) belonged to nuclear family who were without spouse (71.4%) showed significant reason for living in an old age home. This findings reflect similar to the study done by Singh et al¹⁴, reported (42.1%) of occupants had no family to look after them at home.

Fifty three occupants out of (n=84), complained that their family had problem of migration. Hence there was absence of able bodied person who could look after them. Khanalet al¹⁵, showed (67.7%) occupants had similar problem of family migration.

CONCLUSION

Elderly people, today, are one of the most challenging and new concern around the world. Due to various social factors making these people live alone and old age homes are the best option to live their rest of the life. The result of this study showed that the major proportion of elderly occupying the old age home were without spouses, belonged to nuclear family, had history of family members migrating out of city or country and illiterate. So, all these contributory factors made them to get shelter in old age homes.

Most of the old age homes are run by private personal charitable funds and very minimal responses have been given by the government sector. Therefore, a social and government support is needed in old age homes of banke district for provision of social geriatric and health services to them.

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Relation of Age and Serum Prostatic-Specific Antigen level with Histopathological diagnosis in Transurethral Resection of Prostate specimen, an Experience from Eastern Tertiary Hospital

Shah RS¹, Panday DR²

ABSTRACT

Background: Prostatic Specific Antigen (PSA) is a protease secreted by epithelial cells of prostate. Serum PSA level is increased when the normal structure of gland is destroyed by benign or malignant tumor or inflammation. Though there is established relation between PSA plasma level and age among the two most common prostate diseases (Benign prostatic hyperplasia and Carcinoma Prostate) in the literature, relation has not been explored in our part of the world, therefore, this study was done to see the relation between age and PSA amount with Prostate diseases. **Material and Methods:** This was a Cross-sectional study conducted in a tertiary hospital, Nobel Medical College Teaching Hospital from January 2017 to December 2018. Ethical clearance was obtained from Institutional Review Committee (IRC). All the cases of prostate diseases presenting to urology department undergoing transurethral resection of the prostate (TURP) were included. Histopathology report of TURP specimen were collected from department of pathology and the relationship between diagnosis, PSA level and age were established. **Results:** BPH was the most common diagnosis (72.41%). Age of BPH patients ranged from 48-78 years and mean age with SD was 60.56 ± 7.32 . Median age with interquartile range was 61.00. Similarly, in the BPH group, PSA value ranged between 0.80-15.40 ng/ml with mean PSA value along with SD being 5.64 ± 4.16 ng/ml. Similarly, Median PSA value with interquartile range was 4.20 ng/ml. Carcinoma Prostate (27.59%) was the second most common diagnosis. Histological type of all cases diagnosed as cancer was adenocarcinoma. Their age ranged between 54-83. Their mean age with SD was 67.67 ± 7.68 . Similarly, Median age with interquartile range was 68.00. PSA value in this group ranged between 8.50-147.30 ng/ml. Again, the mean PSA value with SD is 55.72 ± 33.40 ng/ml. Similarly, Median PSA value with interquartile range is 54.30 ng/ml. **Conclusion:** PSA level in the blood of men over 40 years is highly correlated with a Age, irrespective of diagnosis. In above 40 age group, with advancing age, Carcinoma Prostate becomes more and more common diagnosis than BPH. Similarly, average PSA level is higher in Carcinoma Prostate than BPH.

Keywords: Benign prostatic hyperplasia (BPH), Prostatic Neoplasms, Prostate specific antigen (PSA)

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INTRODUCTION

Prostatic Specific Antigen (PSA) is a serine protease which is secreted by epithelial cells of prostate. Blood level of PSA is increased when the normal structure of gland is destroyed by either benign or malignant tumor or inflammation¹. Therefore, PSA as a marker for early detection and monitoring of patients with Carcinoma Prostate is being widely used². Immunoassay is used to measure the serum samples of PSA³.

Discovered by Wang et al. in 1979, PSA has had a strong impact in the management of patients with Carcinoma Prostate. Despite the serum levels of PSA greater than 4 ng/ml by hybritech assay are compatible with Carcinoma Prostate; it can also be elevated from the normal value in benign prostatic hyperplasia. Moreover, patients who present with values between 4 and 10 pose a clinical puzzle⁴.

Carcinoma prostate is the second most common malignancy in the men. Patients with Carcinoma Prostate are generally asymptomatic at the early stage but may present with difficulty

with urination, increased frequency of urination and nocturia. Late stage of disease can present with retention of urine and back pain since vertebra is the commonest site of metastatic disease⁵. Carcinoma Prostate accounts for 9.5% of all new cancer cases in the USA making it the second most common cancer⁵. Relatively, Asians have lowest rates especially Chinese, and the highest rates are found among the North-American and Scandinavian especially African-Americans of USA⁶.

Benign prostatic hyperplasia (BPH) presents with prostate enlargement and lower urinary tract symptoms (LUTS). It cannot be escaped by the ageing male population. However, not all patients with BPH develop LUTS and not all patients with LUTS have BPH⁷. Area of prostate which is most vulnerable to develop BPH is periurethral transitional zones⁸. Age, prostate volume, and serum prostate specific antigen (PSA) level are some useful parameters to identify progression of BPH⁹.

Though there is established relation between PSA plasma level and age among the two most common prostate diseases (BPH and Carcinoma Prostate) in the literature, relation has not

been explored in our part of the world, therefore, this study was done to see the relation between age and PSA amount with Prostate diseases.

MATERIALS AND METHODS

This was a Cross-sectional study conducted in a tertiary hospital, Nobel Medical College Teaching Hospital from January 2017 to December 2018. Ethical clearance to carry out the study was obtained from Institutional Review Committee (IRC) of the institute. Patients were enrolled after giving consent. The patients diagnosed to have prostate disease earlier than presentation or those on allopathic drugs for any Prostate disease were excluded from the study. Additionally, patients with histological diagnosis other than BPH or Carcinoma Prostate were also excluded. Only those aging 40 or above with LUTS (Lower Urinary Tract Symptoms) were included in the study. All the cases of prostate disease presenting to Urology department and undergoing Transurethral Resection of Prostate (TURP) during the study period fit the eligibility criteria and were included in the study. Blood samples were taken just before TURP and at least one week after digital rectal examination to avoid possible errors caused by the release of PSA from the prostate. The serum samples were stored at -20 °C and were tested for PSA. PSA was estimated by ELISA technique using high affinity Biotin-Streptavidin system, with analytical sensitivity of 0.05ng/mL (HUMAN, Germany). The tissue samples collected after TURP were sent to department of Pathology for evaluation. These biopsies were fixed overnight in 10% formalin, processed in automatic tissue processor (Yorco) and paraffin blocks were prepared. Paraffin embedded sections were stained with Hematoxylin and Eosin (H and E) for histopathological examination and diagnosis. Histopathology report of TURP specimen were collected from Department of Pathology and the relationship between diagnosis, PSA level and age were found out. Data was entered in Microsoft excel sheet (office 2016) analyzed using the statistical software package SPSS 11.5 (Statistical Package for Social Science) for Windows. Associations between different diagnostic categories and PSA were tested with chi square test and correlation where appropriate. P-value <0.05 was considered as statistically significant.

Sample size calculation

Total sample size required to determine whether a correlation coefficient differs from zero ¹⁰.

The standard normal deviate for $\alpha = Z_{\alpha} = 1.960$

The standard normal deviate for $\beta = Z_{\beta} = 0.842$

$C = 0.5 * \ln[(1+r)/(1-r)] = 0.292$

Total sample size = $N = [(Z_{\alpha} + Z_{\beta})/C]^2 + 3 = 95$

RESULT

Overall, there were 116 patients with age ranging from 48 to 83 years. Their mean age in years with standard deviation (SD) was 62.52 ± 8.04 . The median age with interquartile range in years was 62 (57-68). All of them underwent PSA detection

and histopathological examination. Their PSA value ranged from 0.80 to 147.30 ng/ml. The mean PSA value with SD was 19.45 ± 28.61 ng/ml. The median PSA value with interquartile range was 7.05 (3.0-17.42) ng/ml.

A positive correlation (Spearman's $\rho = 0.775$; p -value < 0.001) between Age and PSA (Figure 1) was found.

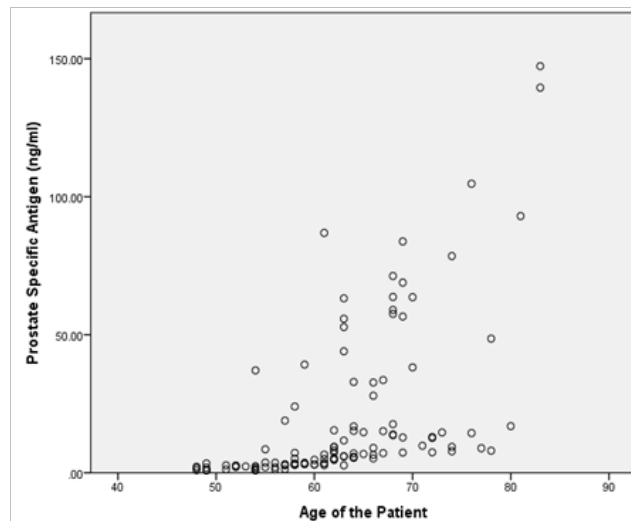


Figure 1: Scatter-plot diagram showing correlation between age of the Patient and PSA level overall

On histopathological examination, BPH was the most common diagnosis ($n=84$; 72.41%). Age of BPH patients ranged from 48-78 years and mean age with SD was 60.56 ± 7.32 years. Median age with interquartile range was 61.00 (55.25-64.75) years. Similarly, in the BPH group, PSA value ranged between 0.80-15.40 ng/ml with mean PSA value along with SD being 5.64 ± 4.16 ng/ml. Similarly, median PSA value with interquartile range was 4.20 (0.80-15.40) ng/ml. A significant positive correlation (Spearman's $\rho = 0.872$; p -value < 0.001) between Age and PSA (Figure: 2) was observed in BPH group.

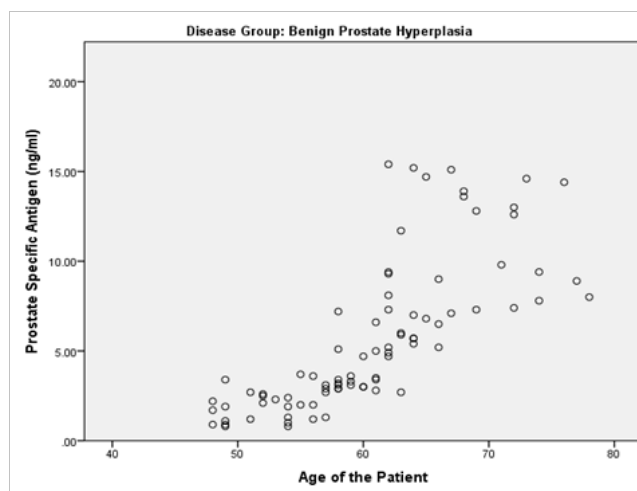


Figure 2: Scatter-plot diagram showing correlation between age of the Patient and PSA level in BPH group.

Carcinoma Prostate (n=32; 27.59%) was the second most common diagnosis. Histological type of all cases diagnosed as cancer was adenocarcinoma. Their age ranged between 54-83 years. Their mean age with SD was 67.67 ± 7.68 years. Similarly, median age with interquartile range was 68.00 (63-70) years. PSA value in this group ranged between 8.50-147.30 ng/ml. The mean PSA value with SD is 55.72 ± 33.40 ng/ml and median PSA value with interquartile range is 54.30 (32.75-70.70) ng/ml. Carcinoma Prostate group also showed significant positive correlation (Spearman's $\rho=0.539$; $p\text{-value}<0.001$) between Age and PSA (Figure 3).

Disease group: Prostate carcinoma

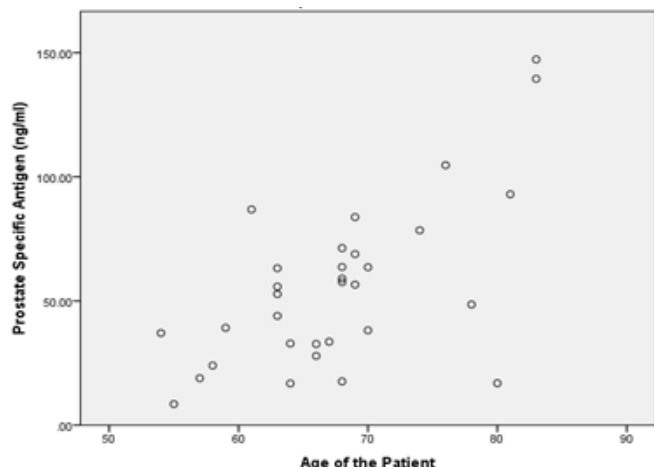


Figure 3: Scatter-plot diagram showing correlation between age of the Patient and PSA level in Carcinoma Prostate group

In either cases, common symptoms were urinary obstruction, frequency of micturition, nocturia and hesitancy.

The association between different diagnostic groups as determined by histopathological findings of prostate and age or PSA ranges were statistically significant ($p<0.001$, Table I and Table II).

Disease				
Age groups	Benign prostatic hyperplasia	Prostate carcinoma	Total	p-value
41-50	8 (9.5%)	0 (0%)	8	<0.001
51-60	30 (35.7%)	5 (15.6%)	35	
61-70	36 (42.9%)	18 (56.3%)	54	
71-80	10 (11.9%)	5 (15.6%)	15	
>80	0 (0%)	4 (12.5%)	4	
Total	84 (100%)	32 (100%)	116	

Table I: Comparison of age groups of patients with histopathological findings of prostate using chi-square test

Disease				
Prostate specific antigen (ng/ml)	Benign prostatic hyperplasia	Prostate carcinoma	Total	p-value
<4	42 (50%)	0 (0%)	42	<0.001
4-10	30 (35.7%)	1 (3.1%)	31	
11-20	12 (14.3%)	4 (12.5%)	16	
21-50	0 (0%)	10 (31.3%)	10	
>50	0 (0%)	17 (53.1%)	17	
Total	84 (100%)	32 (100%)	116	

Table II: Comparison of prostate specific antigen of patients with histopathological findings of prostate using chi-square test

In our study sample, PSA level above 20 ng/ml was diagnostic of Prostate Carcinoma and similarly Prostate disease below 4 ng/ml was BPH

DISCUSSION

Literature shows that BPH is one of the most common diseases of older men, with more than 70% of men over 70 years affected, and prostate cancer is one of the most common cancer in men^{11,12}. In our study, similar to the works done in different parts of India, most BPH patients were in the age range of 61-70 years and so were the cases of Prostate Carcinoma¹³. This finding is also in line with with another study done in Kathmandu valley¹⁴.

In our study sample those below 50 years, independent of PSA level, had no Carcinoma Prostate (Table I). The median age for Carcinoma Prostate is 68 years¹⁴. On the other end of spectrum, anyone above 80 years with LUTS that have undergone TURP, independent of PSA level, were found to have Prostate Carcinoma whereas, no such patient was diagnosed of having BPH. Most studies show that BPH develops earlier than Carcinoma Prostate¹⁵. In our study it is seen that BPH develops earlier (mean age: 60.56 ± 7.32) than Carcinoma Prostate (mean age: 67.67 ± 7.68). It was similar in most studies^{13,16,17}.

All cases having PSA level below 4 ng/ml were later diagnosed to have BPH, and all patients with PSA level above 20 ng/ml, were diagnosed Prostate Carcinoma. These findings were similar to the studies done by the researchers elsewhere^{1,9,13,14,16,17,18}. Our study also points at the fact that BPH has lower level of PSA (mean= 5.64 ± 4.16 ng/ml) compared to Carcinoma Prostate (mean= 55.72 ± 33.40 ng/ml) similar to other studies^{18,19}.

We found significant positive correlation between age and PSA level, irrespective of the diagnosis, with strongest correlation in BPH group. However, in a Turkish study, no significant correlation was found between serum PSA levels and age. It might be because age-range was more broad in that study²⁰.

This study is first of its kind from Eastern part of Nepal, which reflects local scenario of Prostate disease (Histopathological dichotomy into Prostate Carcinoma and BPH) and its relation

with age and PSA level. Since the populations in the developing countries like ours are aging, males over 40 should have their PSA level regularly checked, especially if there are features of LUTS or family history of Prostate disease or symptoms. Government should initiate PSA screening programs among the aged male with a priority to catch the disease in early curable state. Our finding is a single center experience. To extrapolate the findings, bigger multicentric (multi-state and multi-regional) studies should be contemplated.

Our work has some correctable limitations namely;

- i) Associated conditions of Prostate that can independently influence PSA levels like inflammation, acute retention of urine were not taken into account.
- ii) Histologic evaluation was done on TURP specimens and not prostatectomy specimens.

CONCLUSION

PSA level in the blood of men over 40 is highly correlated with Age, irrespective of diagnosis. In above 40 age group, with advancing age, Carcinoma Prostate becomes more and more common diagnosis than BPH. Similarly, average PSA level is higher in Carcinoma Prostate than BPH.

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Effect of Radiofrequency Ablation (RFA) on Cutaneous Manifestations of Varicose Vein

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ABSTRACT

Introduction: The varicose vein is a common chronic vascular disease affecting people with predisposing factors like restricted mobility, pregnancy, obesity, and long-standing jobs. According to CEAP (Clinical, Etiological, Anatomical, and Pathological) classification, there are six categories of CEAP ranging from C0 or no sign to C6 or active ulceration of the vein. Radiofrequency Ablation (RFA) is the minimally invasive procedure to manage varicose vein. This study aims to assess cutaneous manifestation and quality of life among participants who underwent RFA in the Dhulikhel Hospital. **Methodology:** This study is retrospective review of the clinical and surgical report of 171 consecutive number of patients admitted with varicose veins and treated with Radio Frequency Ablation from January 2015 to December 2016. The cutaneous manifestation of all the patients were noted prior to surgery and were followed up in two months to note the manifestation again. **Results:** The total number of patients were 171 with 79 male (46.2%) and 92 female (53.8%). The mean age was 48.9 years (S.D. 6.8). In pre-ablative stage, there were 42.1% patients in C4 stage, 30.4% patients in C3 stage, 16.4% in C2 stage. In post-ablative stage, there were 39.8% patients in C4 stage, 16.4% in C1 and 11.7% in C2 stage. In 53.8% of patients, there was a decrease in C stage postoperatively. Findings of this study are encouraging in terms of C staging after RFA, and it paves the way for further exploration of RFA.

Key Words: CEAP Classification of Varicose vein, Chronic Venous Disease, Radiofrequency Ablation, Varicose veins

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INTRODUCTION

Varicose veins are prominent dilated tortuous veins usually seen in a lower limb due to reflux of blood from deep venous system to the superficial venous system¹. The disease affects one or both of the superficial venous system of lower limb namely Great Saphenous Vein or Lesser Saphenous Vein¹. The disease occurs due to defective valves inside these connections and usually is found in people who need to stand for a long time in their occupation^{1,2}.

Cutaneous manifestation of the varicose vein can range from a few slightly dilated reticular veins to multiple ulceration². CEAP (Clinical, Etiological, Anatomical and Pathological) classification of chronic venous diseases (CVD) classifies cutaneous manifestation of varicose vein into seven subtypes namely; C0, C1, C2, C3, C4, C5 and C6²⁻³. In detail, C0 presents no cutaneous signs and C1 consists of telangiectasias and reticular veins². Progressively, C2 has a large varicose vein, and C3 shows edema with no skin changes, whereas C4 has visible skin changes like pigmentation, eczema, and lipodermatosclerosis². C5 and C6 are advanced forms of C4 with healed (C5) and active ulceration (C6) respectively². Worldwide acceptance and dissemination of the CEAP classification significantly improved the management of cutaneous manifestation of chronic venous disorders classification³. This classification serves as an important landmark in the field of venous disease

because it provides uniformity in understanding the cutaneous manifestation of the venous disease which allows comparative assessment of varicose vein before and after the intervention, for instance, RFA⁴.

Varicose vein is commonly found among 23% of American populations, however, there is a lack of prevalence study of varicose vein among Nepalese population⁴. A study from India among railway workers found 26% of prevalence of varicose vein among south Indians and 7% among north Indians⁵.

There are high ligation and vein stripping procedure, foam sclerotherapy of veins, and catheter-assisted procedures using radiofrequency or laser energy, known as radiofrequency ablation (RFA) to treat varicose vein⁶. Traditionally, high ligation and stripping is a standard procedure to treat varicose vein in resource limited settings like Nepal, but RFA is emerging in recent years because of its benefits like minimal pain, short hospital stay, early restoration of productivity of the patients^{5,6}.

In RFA, radiofrequency energy is directed through a thin catheter inserted through a small incision in the vein to close off the vein, as shown in Figure 1⁶.



Figure 1: RFA catheter along with RF generator that is used in Varicose Vein intervention

RFA is an emerging practice in Nepal, and Dhulikhel Hospital is the one of the first institution to initiate this alternative procedure to high ligation and open surgical stripping of the incompetent saphenous vein. This study aims to assess the outcome of RFA among patients attending Dhulikhel hospital in relation to cutaneous manifestation change.

METHODOLOGY

This study is an observational study in which we did a retrospective review of the clinical and surgical report of 171 consecutive numbers of patients admitted in a single institute, Dhulikhel Hospital, with varicose vein and treated with RFA from January 2015 to December 2016. Cases, where RFA was done in both legs, were taken as two patients for ease in the analysis.

All the cases subjected to Radiofrequency ablation of varicose vein had a clinical examination for cutaneous manifestation. The cutaneous manifestation was measured as per the CEAP classification. For RFA, VNUS closurefast catheter (60 or 100 cm depending upon the height of the patient) along with the RFA generator of Covidien was used. Double segment RFA was done in the first and last segment and in a segment where there are significant perforators or major branches (>4mm diameter branches or perforators). Each RFA segment was 7cm with the pullback of at most 6.5cm. Following RFA, crepe bandage was applied on the treated limb and was elevated by about 25-30cm overnight. Patients were discharged after they can walk for more than 20feet unassisted. The patient was followed in two months to note the change in Clinical staging.

Analysis was done in SPSS in which scalar variables were interpreted using mean and standard deviation; and the categorical variables by using frequency and percentage.

RESULTS

Study Subjects

The total number of patients were 171 with 79 male (46.2%) and 92 female (53.8%). The mean age was 48.9 years (S.D. 6.8).

CEAP Classification

Clinical Staging	Pre-ablative (number)	Pre-ablative (Percentage)	Post-ablative (Number)	Post-ablative (Percentage)
C0	0	0	24	14
C1	0	0	28	16.4
C2	28	16.4	20	11.7
C3	52	30.4	16	9.4
C4	72	42.1	68	39.8
C5	10	5.8	14	8.2
C6	9	5.3	1	0.6

Table I: Number of cases in different clinical staging in the preoperative and postoperative stage

The number of cases in different clinical staging in the preoperative and postoperative stage is shown in Table I. In the pre-ablative phase, the most common clinical stage was C4 (42.1%) followed by C3 (30.4%). Thus about three fourth of all the patients were in stage C3 or C4. None of the patients were in C0 or C1. Patient with ulceration was 11.1% with that in C5 is 5.8% and in C6 5.3%. In terms of postoperative finding, the most common clinical stage is also C4 which was present in 39.8% which was followed by the C1 stage which was present in 16.4%. Even in C0 stage, there were 14% patients. Percentage of patients in C5 stage was 8.2. Increase in C5 stage in postablative stage can be seen which is due to change in C6 stage patient in pre-ablative stage to C5 stage post procedure. There was a decrease in C6 stage with only one patient with active ulceration (0.6%). Table II shows the number of patients in the distinct difference in the C stage between preoperative and postoperative status.

There were no patients with an increase in the C stage in the postoperative period. There were 79 patients (46.2%) with no change in the C stage. There were 48 patients (28.1%) with a difference (decrease) of 1 stage in the C stage. There were 44 patients (25.7%) with a difference (reduction) of 2 stages in the C stage. There were none patients with a difference of more than two stages in the C stage. Thus in 53.8% of patients, there was a decrease in C stage postoperatively.

C stage difference	Number	Percentage
0	79	46.2
1 (Decrease)	48	28.1
2 (Decrease)	44	25.7

Table II: C stage difference in preoperative and postoperative status



Preoperative Postoperative
(with markings)

Figure 2: The preoperative and postoperative outcome of a case following radiofrequency ablation of varicose veins



Preoperative Postoperative

Figure 3: Healing of ulceration and a decrease in pigmentation



Figure 4: Size of scar in Radio Frequency Ablation: Usual size is 3-5mm

DISCUSSION

Varicose veins and Chronic Venous Diseases (CVD) is one of the frequent cardiovascular problems presented in surgical clinics in the world and Nepal as well⁵⁻⁶. Approximately 23% of US adults have varicose vein.⁵ There is limited prevalence study in the context of Nepal and India; 26% South Indian and 7% north Indian, railway workers have a varicose vein⁵.

The varicose vein can affect all genders. However, prevalence among women is disproportionately higher than men⁷⁻⁸. Also in our study, 53.2% of participants were female. Our finding in this regard is comparable to a study conducted in Bulgaria (64%)¹⁰. However, a study in Canada found a remarkably higher prevalence of varicose vein among women (83%)⁶. Women are prone to varicose vein because of their physiological conditions like pregnancy, menopause, hormonal fluctuation and alteration of the viscosity of blood because of oral contraceptive pills^{5,7}.

Increased age is another crucial predisposing factor of the varicose vein^{1,6}. Mean age of our participants is 48.9 ± 6.8 years. This finding is comparable to the mean age of studies by Tonev et al. (48.3 years)⁸ and Casanaet al.⁹, (48.5 years). Aging causes wear and tear on the valves, and results flow back into our veins where it collects instead of flowing up to the heart⁷.

In our study, about three fourth of all the patients are in stage C3 or C4. None of the patients were in C0 or C1. As a patient is usually asymptomatic in C0 or C1, they typically do not present for consultation. Patient with ulceration was 11.1% with that in C5 is 5.8% and in C6 5.3%. This relatively high percentage of patients with ulceration might be because of good referral to a vascular specialist by different specialties. In terms of postoperative finding, the most common clinical stage is also C4 which was present in 39.8% followed by the C1 stage which was present in 16.4%. Even in C0 stage, there were 14% patients. This improvement in stages indicates beneficial cosmetic results as well as physiological correction in these improved groups. Patients with ulceration are 8.8% (C5 or C6) in the postoperative period.

In our study in 53.8% of patients there was decrease in C stage postoperatively. In a study done at Italy to see the results of radiofrequency ablation of varicose veins, improvement in the clinical stage was noted in 36.1% at the first month of follow-up which increased to 61.1% in six months follow-up which is comparable to our study findings¹⁰.

Despite our attempt to achieve methodological rigor in this study, this study consists of limitation such as only two months follow up for our participants¹⁰. However this is one of the pioneer studies among Nepalese population in terms of improvement in clinical classification and it paves the way for further studies related to RFA and its prognosis.

CONCLUSION

The initial result in relation to Clinical classification of varicose veins after RFA is promising and comply with global standards.

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Antibiotic Sensitivity Pattern of Pathogens Isolated from Pus Culture- A Tertiary Care Hospital Based Study

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ABSTRACT

Background: Microbial pathogens cause human skin and soft tissue infections (SSTI) and surgical site infections (SSI) after surgical procedures. These can result in the production of pus, yellowish fluid comprising of dead WBCs and cellular debris. The microorganisms responsible for pus production vary greatly in relation to their spectrum of prevalence in different hospital and also in their antibiotic sensitivity. Further, the antibiotic sensitivity also changes because of the emergence of resistant strains. It is therefore, important that the common bacterial pathogens causing infection in a particular hospital and their sensitivity should be known. This will help in the choice of prophylactic antibiotic and in initiating the empirical antibiotic prescription for the infected cases before the culture sensitivity report is made available which takes about 2-3 days. **Objective:** To identify the spectrum of aerobic bacteria which are responsible for SSTI and SSI and their antibiotic sensitivity pattern. **Method:** This cross sectional hospital based study was conducted in Nepalgunj Medical College and Teaching Hospital (NGMCTH), Kohalpur from January 2019 to November 2019. These pus swabs were obtained from the Department of Surgery and Department of Gynaecology & Obstetrics. Samples were cultured in the Microbiology laboratory of NGMCTH, Kohalpur. Identification and characterization of isolates were performed on the basis of Gram staining and cultural characteristics. Antibiotic sensitivity test was performed in vitro by Bauer-Kirby method. Collected data were statistically analyzed using SPSS 20.0 and Microsoft Excel 2015. **Results:** During the study period, a total number of 311 pus swabs were obtained among which only 164 (52.73%) pus swab showed bacterial growth. Out of 164 pus swabs, 150 pus swabs yielded monomicrobial growth (150 bacterial isolates) and 14 pus swabs yielded polymicrobial growth (33 bacterial isolates). Gram Negative Bacteria (60.1%) was more prevalent than Gram Positive Bacteria (39.9%). Combined together, the most common isolate was *S.aureus* (36.1%) followed by *E.coli* (24.0%), *Klebsiella* (14.2%), *Enterobacter* (11.5%), *Pseudomonas* (9.8%), *S.pyogenes* (3.3%) and *Proteus* (1.1%). *S. aureus* was highly sensitive to Doxycycline (90.6%), Chloramphenicol (81.5%), Amikacin (79.5%) and Ceftriaxone (72.7%). *S. pyogenes* showed 100% sensitivity to Cefexime, Amikacin, Chloramphenicol, Azithromycin and 80% sensitivity to Doxycycline. Similarly, most common gram negative isolate *E.coli* showed higher sensitivity to Chloramphenicol (71.4%) and Amikacin (66.7%), *Klebsiella* showed higher sensitivity to Doxycycline (92.3%), Gentamicin (87.5%) and Amikacin (81.0%), *Enterobacter* showed higher sensitivity to Amikacin (90.9%) and *Pseudomonas* was highly sensitive to Chloramphenicol (71.4%) and Amikacin (66.7%). Piperacillin, Amikacin, Gentamicin, Ofloxacin and Ceftriaxone showed 100% sensitivity to *Proteus* spp. Amoxycylav, Cefepime and Cefexime (except in *S. pyogenes*) showed least sensitivity in both gram negative and gram positive bacterial isolates. **Conclusion:** In our study, the most common isolate was *S. aureus*. Amikacin, as a single drug was found to be effective for empirical therapy of both gram negative and gram positive bacteria whereas Doxycycline and Amikacin was found effective in gram positive isolates. Amoxycylav and Cefepime was commonly resistant in all bacterial isolates.

Keywords: Antibiotic sensitivity, Pus culture, SSTI, SSI

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INTRODUCTION

The invasion of pyogenic bacteria during or after trauma, burn injuries and surgical procedures can result in inflammation and pus formation^{1,2}. Body's defense mechanism recruits immune cells into the infection site to fight against bacteria. Accumulation of these cells produces pus, causing pyogenic infection which actually delays the wound healing and may cause complication like wound dehiscence or wound breakdown³.

Clinicians who care for patients with skin and soft tissue infection (SSTI) and surgical site infection (SSI) are responsible for determining the presence of an infection, identifying the extent of infection, ascertaining the causative microorganism, administering the appropriate antibiotics, and deciding on surgical treatments for purulent and necrotizing infections^{3,4}. Rational use of antibiotics can hasten the patient recovery, prevents severe complications such as skin deformation,

body defect, and death and prevents the abuse and misuse of broad-spectrum antibiotics and expression of antibiotic-resistant bacteria⁵.

The bacterial spectrum can vary in different hospital and the bacterial sensitivity to a particular antibiotic is also different in different hospitals. Further, the bacterial sensitivity is not a static phenomenon but many sensitivity changes can occur in bacteria with time. Therefore, this study has been conducted at NGMCTH to see the spectrum of bacteria in pus culture and its sensitivity to a particular antibiotic. Further, if the antibiotic sensitivity of particular bacteria is known then we can empirically prescribe the patient till the culture report is thrown. Thereafter, the culture report dictates the choice of the antibiotics.

MATERIALS AND METHOD

This is a cross sectional hospital based study conducted in Department of Bacteriology, NGMCTH. This study was for a period of eleven months i.e. from January 2019 to November 2019. Pus samples were obtained from the Department of Surgery and Department of Gynaecology/Obstetrics. Pus samples were processed for aerobic culture, identification of bacteria and antibiotic sensitivity test in the Microbiology Laboratory, NGMCTH.

The samples were inoculated on blood agar and mac conkey agar and incubated overnight at 37°C in aerobic condition. Identification and characterization of bacteria were performed on the basis of gram staining and microscopic/ colony characteristics.

Antibiotic susceptibilities of bacterial isolates were determined by Kirby- Bauer disc diffusion method using Clinical and Laboratory Standards Institute (CLSI) guidelines⁶.

For fastidious organisms such as Streptococci, agar was supplemented with 5% sterile defibrinated blood. Antibiotic discs containing Piperacillin (100mcg), Cefexime (5mcg), Amikacin (30mcg), Gentamicin (10mcg), Ofloxacin (5mcg), Chloramphenicol (30mcg), Doxycycline (30mcg), Ceftriaxone (30mcg), Azithromycin (15mcg) and Cefepime (30mcg) were used. The numerical data obtained from the study were entered and analyzed in SPSS software version 20.0 and results were expressed in charts and tables.

RESULTS

Out of 311 pus swabs received for culture and sensitivity test in the Microbiology laboratory, NGMCTH, 164 cases (52.73%) cases yielded positive culture, and the rest of 147 (47.27%) cases were growth negative. Among the 164 culture positive pus samples (100%), 150 (91.46%) yielded pure bacterial isolates, 9 (3.05%) yielded two organism and 5 yielded (1.22%) three organisms; so, a total number of 183(58.84%) bacterial strains were isolated from 311 (100%) pus samples.

Order of isolates	Frequency (%)
Aerobic monomicrobial growth	150 (48.23%)
Aerobic polymicrobial growth	14 (2.25%)
No growth	147 (47.27%)
Total	311 (100%)

Table I: Shows Bacterial Yield in Culture of Pus Samples

Distribution of bacterial agents

Out of 164pus swabs that showed bacterial growth, 183 bacterial strains were isolated. A total number of 110 (60.1%) Gram Negative Bacilli (GNB) and 73 (39.9%) Gram Positive Cocci (GPC) was observed. Most common organism isolated was Staphylococcus aureus 66(36.1%) followed by E.coli 44(24%). Other isolates included were Klebsiellaspp 26(14.2%), Enterobacterspp 21(11.5%), Pseudomonas spp 18 (9.8%), Streptococcus pyogenes 6(3.3%) and Proteus spp 2(1.1%).

Gram Staining	Frequency	Percentage
Gram Positive Cocci	73	39.9%
Gram Negative Bacilli	110	60.1%

Table II: Shows the Frequency/Percentage of Gram Stained Bacteria

Bacteria	Frequency	Percent
S. aureus	66	36.1%
E.coli	44	24.0%
Klebsiella	26	14.2%
Enterobacter	21	11.5%
Pseudomonas	18	9.8%
S. pyogenes	6	3.3%
Proteus	2	1.1%
TOTAL	183	100%

Table III: Shows Rate of Isolated Bacteria after Aerobic Culture

Antibiotics	Staph. aureus	E.coli	Kleb siella	Entero bacter	Pseudo monas	S. pyogenes	Proteus
Piperacillin	43	31	20	14	12	3	1
Cefexime	42	20	19	6	9	3	1
Amikacin	44	27	21	11	9	2	1
Amoxyclav	31	23	17	12	7	2	1
Gentamicin	39	28	16	11	7	6	1
Ofloxacin	33	17	17	5	4	3	1
Chloramphenicol	27	21	12	7	5	3	2
Doxycycline	32	24	13	17	8	5	1
Ceftriaxone	33	22	18	8	3	2	1
Azithromycin	16	13	3	8	6	3	1
Cefepime	43	25	14	9	6	5	2

Table IV: Shows Frequency Distribution of Antibiotics Screened in Pus Culture Reports

Pattern of sensitivity for Gram Positive Cocci

Most common isolated organism *S. aureus* showed highest sensitivity to Doxycycline (90.6%) which was followed by Chloramphenicol (81.5%), Amikacin (79.5%) and Ceftriaxone (72.7%). Amoxycylav (3.2%), Cefexime (11.9%) and Cefepime (14.0%) were the least sensitive antibiotics. Similarly, *S.pyogenes* was 100% sensitive to Cefexime, Amikacin, Chloramphenicol, Azithromycin and 80% sensitive to Doxycycline. Amoxycylav and Ofloxacin were not sensitive at all. Both of the Gram Positive Cocci were highly sensitive to Doxycycline, Amikacin and Chloramphenicol and least sensitive to Amoxycylav, Cefepime and Ofloxacin.

Antibiotics	<i>S.aureus</i> (Number/Percent)	<i>S.pyogenes</i> (Number/Percent)
Piperacillin	27 (62.8%)	1 (33.3%)
Cefexime	5 (11.9%)	3 (100%)
Amikacin	35 (79.5)	2 (100%)
Amoxycylav	1 (3.2%)	0(0%)
Gentamicin	21 (53.8%)	2 (33.3%)
Ofloxacin	14 (42.4%)	0(0%)
Chloramphenicol	22 (81.5%)	3 (100%)
Doxycycline	29 (90.6%)	4 (80%)
Ceftriaxone	24 (72.7%)	1 (50%)
Azithromycin	10 (62.5%)	3 (100%)
Cefepime	6 (14.0%)	1 (20%)

Table V: Shows the Antibiotic Sensitivity Pattern of Gram Positive Cocci

Pattern of sensitivity for Gram Negative Bacilli

Most common gram negative isolate *E.coli* showed higher sensitivity to Chloramphenicol (71.4%) and Amikacin (66.7%) and least sensitivity to Amoxycylav (0%), Cefexime (5%) and Cefepime (8%). *Klebsiella* showed higher sensitivity to Doxycycline (92.3%), Gentamicin (87.5%) and Amikacin (81.0%) while showed least sensitivity to Amoxycylav (0%), Cefexime (10.5%), Ceftriaxone(16.7%) and Cefepime (28.6%). Similarly, *Enterobacter* showed higher sensitivity to Amikacin (90.9%) and least sensitivity to Amoxycylav (0%), Cefepime (11.1%), Ceftriaxone (12.5%) and Chloramphenicol (14.3%). *Pseudomonas* was sensitive to Chloramphenicol (71.4%) and Amikacin (66.7%) and least sensitive to Amoxycylav (0%), Cefexime (5%) and Ofloxacin (5.9%). Piperacillin, Amikacin, Gentamicin, Ofloxacin and Ceftriaxone showed 100% sensitivity to *Proteus* spp. Amikacin was the most effective antibiotic for all the isolated Gram Negative Bacilli.

Antibiotics	<i>E.coli</i> (Number / Percent)	<i>Klebsiella</i> (Number / Percent)	<i>Enterobacter</i> (Number / Percent)	<i>Pseudomonas</i> (Number / Percent)	<i>Proteus</i> (Number / Percent)
Piperacillin	20(64.5%)	8(40%)	4(28.6%)	20(64.5%)	1(100%)
Cefexime	1(5%)	2(10.5%)	2(33.3%)	1(5%)	0(0%)
Amikacin	18(66.7%)	17(81.0%)	10(90.9%)	18(66.7%)	1(100%)
Amoxycylav	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Gentamicin	10(35.7%)	14(87.5%)	6(54.5%)	10(35.7%)	1(100%)
Ofloxacin	1(5.9%)	8(47.1%)	1(20%)	1(5.9%)	1(100%)
Chloramphenicol	15(71.4%)	6(50%)	1(14.3%)	15(71.4%)	1(50%)
Doxycycline	7(29.2%)	12(92.3%)	6(35.3%)	7(29.2%)	0(0%)
Ceftriaxone	6(27.3%)	3(16.7%)	1(12.5%)	6(27.3%)	1(100%)
Azithromycin	8(61.5%)	1(33.3%)	3(37.5%)	8(61.5%)	0(0%)
Cefepime	2(8%)	4(28.6%)	1(11.1%)	2(8.0%)	1(50%)

Tale VI: Shows Antibiotic Sensitivity Pattern of Gram Negative Bacilli

DISCUSSION

Irrational use of antibiotics has been held responsible for the emerging resistant bacterial strains. Rational use of antibiotic would include the selection of right antibiotic, to right patient, at right dose, for right duration of time. However, empirical therapy of antibiotic has to be followed in infection if it is life threatening to avoid the complications and severity of pyogenic infections. The problem is that we do not know the bacteria responsible and its sensitivity to particular antibiotics. Appropriate empirical therapy of antimicrobials should be initiated on the basis of knowledge of the common pathogens of the area, producing the particular disease and their antibiotic sensitivity. This is only possible by such a study conducted here.

In our present study, predominance of monomicrobial (48.23%) was observed while polymicrobial infections (2.25%) were uncommon. This result is in accordance with the study done by Hanuman thappa et al⁷ (2016) where mono microbial infection was 54.2% and polymicrobial infection was 2.8%. However, Basuet al⁸ (2009) reported 86.54% of monomicrobial infections and 9.61% of polymicrobial infection and Sowmya et al⁵ (2014) reported 91.7% of monomicrobial growth.

Our study showed 60.1% of Gram Negative Bacilli (GNB) and 39.9% of Gram Positive Cocci (GPC). A study by Sowmya et al⁵ (2014) also reported 60% of GNB and 40% of GPC. Zubair et al⁹ (2011) yielded predominance of GNB (63.8%) in aerobic pus culture and Mantravadi et al¹⁰ reported 59.3% of GNB growth which is consistent with our findings.

The commonest gram positive organism producing pus in our hospital patient was *S. aureus* (36.1%) followed by *S. pyogenes* (3.3%) in small number of cases. Our findings are in accordance with Pandeya et al¹¹ that reported 32.3% of *S. aureus* and 2.40% of *S.pyogenes*. Sowmya et al⁵ (2014) reported 37.4%

of *S. aureus* and Mantravadi et al¹⁰ reported 37.2% of *S. aureus* and 2.2% of *Streptococcus* spp which was similar to our findings.

Our study showed that *S. aureus* was most sensitive to Doxycycline (90.6%) followed by Chloramphenicol (81.5%), Amikacin (79.9%) and Ceftriaxone (72.7%). Similarly *S. pyogenes* showed 100% sensitivity to Amikacin, Cefepime, Chloramphenicol, Azithromycin and 80% sensitivity to Doxycycline. Hanuman thappa et al⁷ (2016) showed 76.1% sensitivity of *S. aureus* to Amikacin and Mantravadi et al¹⁰ (2015) showed 71.4% sensitivity of *S. aureus* to Amikacin and 100% sensitivity of *Streptococcus* to Amikacin which are in accordance with our study results. Similarly, Chaudary et al¹² (2017) reported in their study that the most sensitive antibiotic for gram negative isolates was Amikacin (93%) followed by Chloramphenicol (92.6%). However, Naimi et al¹³ (2017) showed that *S. aureus* had 77% sensitivity to Doxycycline and 84.8% sensitivity to Chloramphenicol which was different from our study with 90.6% sensitivity to Doxycycline and 79.5% sensitivity to Amikacin. Similarly, *S. aureus* was least sensitive to Amoxycyclav (3.2%) and *S. pyogenes* showed no sensitivity to Amoxycyclav. This was comparable to Trojan et al¹⁴ that reported 89% of resistance to Amoxycyclav and Mantravadi et al¹¹ reported 77.4% of Amoxycyclav resistance in *S. aureus* but only 10% Amoxycyclav resistance in *S. pyogenes* which was different from our findings.

Empirically for gram positive infections, the treatment in the life threatening condition should be started with Doxycycline as Chloramphenicol is not favored by Clinicians because of bone marrow suppressing action. In pediatric patients, Amikacin may be a better choice.

The commonest gram negative offender in our study is *E. coli* (22.6%) followed by *Klebsiella* (14.5%), *Enterobacter* (11.5%), *Pseudomonas* (9.8%) and *Proteus* (1.1%). In their study Basuet al⁷ report that *Pseudomonas* (40.38%) and *E. coli* (15.38%) to be the most common isolates in wound infection which is inconsistent with our finding. Our finding is in accordance with the Pandeya et al¹¹ that reports 20.7% of *E. coli* and the least isolated bacteria was *Proteus mirabilis* (0.6%). Similarly, Mantravadi et al¹⁰ also supports our findings with most common gram negative organism being *E. coli* (21.7%) followed by *Klebsiella* (16.8%) and *Pseudomonas* (7.5%) among other isolates.

Antibiotic sensitivity of these microorganism showed that all of them are commonly sensitive to Amikacin. i.e. *E. coli* showed higher sensitivity to Chloramphenicol (71.4%) and Amikacin (66.7%), *Klebsiella* showed higher sensitivity to Doxycycline (92.3%), Gentamicin (87.5%) and Amikacin (81.0%), *Enterobacter* showed higher sensitivity to Amikacin (90.9%), *Pseudomonas* showed higher sensitivity to Chloramphenicol (71.4%) and Amikacin (66.7%) while *Proteus* spp.

showed 100% sensitivity to Piperacillin, Amikacin, Gentamicin, Ofloxacin and Ceftriaxone. A study by Chaudary R et al¹² (2017) reports Amikacin (93%) to be the drug of choice for

gram negative bacterial isolates which was comparable with our study results with 81.06% sensitivity of Amikacin to gram negative isolates. Similarly, Timilsina et al¹⁵ (2015) shows the sensitivity of Amikacin to be 93.62% followed by Gentamycin 89% for gram negative isolates. For *E. coli*, Timilsina et al¹⁵ found out that the most effective antibiotic was Amikacin (100%). Shrestha et al¹⁶ (2009) also showed Amikacin (94.38%) to be the most sensitive antibiotic for *E. coli*. Abdullah et al¹⁷ (2013) showed low sensitivity of Doxycycline (11.5%) and high sensitivity to Amikacin (89.4%) in *Klebsiella* isolates. However, a study by Khare et al¹⁸ (2017) reported higher sensitivity of *Klebsiella* to Doxycycline (67%) and another study by Ravichitra et al¹⁹ (2014) showed 87.3% of sensitivity of Gentamycin to *Klebsiella* which was similar to our findings. Pandeya et al¹¹ also reports higher sensitivity (80%) of *Pseudomonas* to Amikacin and Chloramphenicol and *E. coli* higher sensitivity to Amikacin (70.6%). Khanam et al²⁰ in their study concluded that Amikacin among the aminoglycosides showed good sensitivity whereas resistance to Gentamicin and Tobramycin is on the rise. Similarly, our study reports that all gram negative isolates were 0% sensitive to Amoxycyclav and very less sensitive to Cephalosporins; Cefexime and Cefepime. *E. coli* was 88.2% resistant to Cefepime in the study by Pandeya et al¹⁰ which was similar to our findings with only 8% sensitivity of Cefepime to *E. coli*. Timilsina et al¹⁵ also supports our finding with 88.46% resistance of Amoxicillin and 73% resistance of Cefixime. Stanley et al²¹ (2018) also reports very high resistance in Amoxicillin-Clavulanate in *E. coli* and *Klebsiella* in his study in Uganda.

From above discussion, it is clear that Amikacin, as an empirical drug, is the drug of choice for life threatening infections which covers both gram negative & gram positive organism. Once a culture report is thrown, a proper antibiotic according to the report should be prescribed. The emerging resistance pattern of the established antibiotics threatens the treatment strategy for pyogenic infections. With the limited number of antimicrobial agents currently available and many other antibiotics that are still under the clinical trials, it is utterly important to rationally select the antibiotics.

CONCLUSION

Study concludes that the most common isolated bacteria after aerobic culture of pus is the *Staphylococcus aureus*. The most effective antibiotic for gram positive isolates was Doxycycline and Amikacin for gram negative isolates. Amikacin, as the single drug was found to be most effective for both gram negative and gram positive infections.

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Routine Counseling Vs Comprehensive Counseling: Do they affect patient's Satisfaction Level?

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ABSTRACT

Background: Communication with the patient is not just an add-on; it is the backbone where patient care rests. Effective communication is an important tool to develop good relationship with the patients. **Objectives:** The present study was undertaken to assess the difference in the satisfaction level of the patients after a "Routine counseling" and "Comprehensive counseling". **Materials and Method:** It is hospital based comparative study. In this study one hundred patients admitted to the surgical ward of the Nepalgunj Medical College Teaching Hospital, Kohalpur were taken. These patients were divided into two groups. Group (A) which consist fifty patients, had a Routine counseling and group (B) consisting of another fifty patients had a Comprehensive counseling pre-operatively. After operation, the satisfaction level was noted before the patients were discharged. In this series only patients between 20-65 years and who had routine operation were included. **Routine Counseling:** It is usual practice in the hospital that the patients are routinely counseled by the doctor in the unit before operation. This counseling is not standardized but is done by the doctors as they deem fit. **Comprehensive Counseling:** The basic components of the comprehensive counseling include explaining the nature of operation in simple language, why it is needed; its possible complication and outcome of the operations. **Results:** The present study showed that comprehensive counseling after the routine counseling by the doctors provides a much higher level of satisfaction in the operated patient (P value 0.001). **Conclusion:** The present study showed that comprehensive counseling on the top of a routine counseling provides a much higher level of satisfaction in the operated patient (P value 0.001) in comparison to routine counseling only. The routine counseling usually is done by a doctor and lacks comprehensiveness possibly because of the time constraints.

Key words: *Comprehensive counseling, Patient satisfaction, Routine counseling*

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INTRODUCTION

Counseling is the process that occurs when a client and counselor set aside time to explore difficulties which may include the stressful or emotional feelings of the client. It is the act of helping the client to see things more clearly and a relationship of trust. In people based professions if the patient and of course the relatives understand the treatment or operation, their limitations and complications, the patient party gets reconciled and does not harbors impractical and imaginary great results. The ultimate benefit is a satisfied patient. After all, a patient is happy if patient meets desirable results out of the treatment from his perspective but not from the perspective of the health providers.

OBJECTIVES

The present study was undertaken to assess the difference in the satisfaction level of the patients after a "Routine counseling" and "Comprehensive counseling".

HYPOTHESIS

There is a significant change in the satisfaction level of the patients if they undergo a comprehensive counseling in comparison to a non- standardized Routine counseling.

METHODOLOGY AND MATERIALS

It is hospital based comparative study. In this study one hundred patients admitted to the surgical ward of the Nepalgunj Medical College Teaching Hospital, Kohalpur were taken. These patients were divided into two groups. Group (A) which consisted of fifty patients had a Routine counseling only and group (B) consisting of another fifty patients had a Comprehensive counseling on the top of routine counseling. Both counseling were done pre-operatively. After operation, the satisfaction level was noted before the patients were discharged. In this series only patients between 20-65 years and who had routine operation were included.

Description of the tools

Routine Counseling: It is usual practice in the hospital that the patients are routine counseled by the doctor in the unit before operation. This counseling is not standardized but is done by the doctors as they deem fit.

Comprehensive Counseling: The basic components of the comprehensive counseling include explaining the nature of operation in simple language, why it is needed, its possible complication and outcome. The components of Comprehensive counseling are:

1. The patient is taken into confidence and is given a brief outline of the disease.
2. Explaining the need of operation for the disease and is explained that alternative methods of the treatment are inferior to operation.
3. Explaining the operation in common language and the usual outcome of the operation.
4. Explaining peri-operative possible complications i.e. infections and others.
5. About post-operative care and follow up.

Group A (n=50)

Assessing Satisfaction level of the operated patients who were given only Routine Counseling:

Questionnaire:

1. Did you have counseling by a doctor before operation? (Yes or No)
2. Did you find it comprehensive (satisfying all your queries viz. nature of operation, complications, follow-up etc)? (Yes or No)
3. After the operation do you satisfied that you should have been given more information to cope with the situation? (Yes or No)

Group B (n=50)

Assessing Satisfaction level of the operated patients given Comprehensive Counseling after Routine Counseling:

Questionnaire:

1. Do you find the extra counseling by the researcher provided more information? (Yes or No)
2. Was it more adequate and more satisfactory than the routine counseling only? (Yes or No)

RESULT

Demographic variables	Group A Routine Counseling (n=50)		Group B Comprehensive Counseling after Routine Counseling (n=50)	
	Total number (n)	Percentage (%)	Total number (n)	Percentage (%)
Age				
20-35yrs	9	18%	10	20%
36-50yrs	31	62%	27	54%
51-65yrs	10	20%	13	24%
Sex				
Male	32	64%	27	54%
Female	18	36%	23	46%
Marital status				
Single	8	16%	10	20%
Married	42	84%	40	80%
Education				
Primary school	3	6%	2	4%
Middle school	29	42%	23	46%
High school	26	52%	25	50%

Table I: Age, Sex, Marital Status and Education of the patients participated in Routine Counseling and Comprehensive counseling followed by Routine Counseling done by doctors

	Patients satisfied n(%)	Patient not fully satisfied n(%)	P-Value
Routine counseling alone	32(64%)	18(36%)	0.001
Routine Counseling + Comprehensive Counseling	46(92%)	4(8%)	

Table II: Comparison of patient's satisfaction: Routine counseling alone Vs Routine counseling + Comprehensive counseling

Comparing the Group A and group B showed that there is no significant demographic difference between them. The highest age group (62%) in group A and (54%) in group B belonged to the age group (30-50 years). The male sex predominated in both groups (64% in group A and 54 % in group B) as well as majority of the patient were married (84%). More than 50% of the participant of this study had attained high school level of education. The satisfaction level was statistically significantly higher ($P=0.001$) in group B.

DISCUSSION

Some form of counseling is always done in this hospital. Yet, the counseling done by doctors is usually short and informal possibly due to time constraint. Furthermore patients get intimidated by the white coat and do not freely open up before the doctors regarding their queries. This walling off, between the patient and doctors prohibits to develop a trust between them and patient doesn't courage to get their queries satisfied. The anxiety persists about this major event of the life (i.e. about surgery, anesthesia, pain, possible infection, and others). Hence, a need of a comprehensive counseling was felt. The lack of removal of the anxiety of the patient brews some dissatisfaction. This comparative study was undertaken to evaluate the satisfactory level with routine counseling only and after comprehensive counseling complementing to routine counseling.

In the present study a total of 100 patients were admitted to the surgery ward for routine operation and they were divided into group (A) and group (B) each having $n=50$.

The analysis showed that there were no demographic difference in group A and group B as far as age, sex, marital status and education were concerned. The satisfaction level was statistically significantly higher ($P=0.001$) in group B.

Schommer J.C. (1995)¹ studied 360 pharmacist-patients interactions and noted that higher level of consultation services increases patient satisfaction. Exceeding patient's expectation is key to patient satisfaction with counseling. Zhang CY² et al. (2012), analyzed in his study the effect of nurse initiated pre-operative education and counseling on post-operative complications and anxiety symptoms following Coronary Artery Bypass Grafting (CABG). The nurse initiated pre-operational education and counseling where associated with a reduce rate of peri-operative complications ($p<0.05$) and a reduced level of anxiety following CABG in the study group (15% Vs 45 %, $p=0.41$).

Watson M.et. al.(2007)³ reported the effect of the specialist nurse counseling services on patients operated for breast cancer. Forty newly diagnosed breast cancer patients, treated by mastectomy, were randomized to receive either routine care or routine care plus counseling by nurse. Psychological morbidity was assessed at one week, 3 months and 12 months postoperatively to determine the efficacy of the service. Comparisons between the groups indicated that counseled patients were significantly less depressed at 3 months postoperatively and reported more beliefs in personal control over health. Another study done by Bachmann G et al (2018)⁴ focused need for comprehensive counseling in women requesting Oocyte Cryo-presentation. Chi-kong L. et al. (2012)⁵ carried a cross section study on (n=100) and opened that preoperative teaching is beneficial to surgical patients in alleviating their and promoting their postoperative recovery.

CONCLUSION

The present study showed that after the comprehensive counseling on the top of a routine counseling provides a much higher level of satisfaction in the operated patient (P value 0.001) in comparison to routine counseling only. The routine counseling usually is done by a doctor and lacks comprehensiveness possibly because of the time constraints.

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Dental Anxiety and Its Possible Effects on Caries Prevalence Among Group of Dental Students In Kathmandu Medical College

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ABSTRACT

Introduction: The prevalence of high dental anxiety varies from 2% to 30% worldwide depending on the study population, the methods applied, and the cut-off scores used. There is strong evidence that dental anxiety is associated with dental attendance; it has been reported that individuals with higher dental anxiety tend to visit the dentist irregularly, which in turn may lead to deterioration in oral health. Studies have demonstrated that dental anxiety is associated with poor self-reported and clinically assigned oral health, more decayed and missing teeth, fewer filled teeth and worse periodontal health. Dental students are the future dental doctors who will be dealing with fearful patients in future. Knowing the facts on dental anxiety will have positive impact while treating and dealing such patients. **Objectives:** The overall objectives of the study were to assess level of anxiety and its possible effect on prevalence of caries among dental students studying at Kathmandu medical college and Dental hospital. **Specific:** To access the level of anxiety among dental students of different years (from first year to final year) along it was further focused to analyse the level of anxiety among male and female dental students. **Methodology:** A cross sectional study was conducted to choose a random convenient sample. The data were collected from dental students of first year to final year studying at Kathmandu medical college dental hospital–KMCDH. A structured questionnaire based on modified dental anxiety scale was used to collect the data. Patients were examined for dental caries prevalence using decay, missing and filled teeth (DMFT) index according to World Health Organisation guidelines. **Results:** The highest MDAS was seen among the younger batches and the mean values for MDAS declined with higher batch of dental students. The mean dental anxiety score for males was 8.9 and 15.5 for females. The difference was statistically significant the most fearful stimulus in dental clinic for both genders was local anesthetic injection, followed by drilling of teeth. **Conclusion:** Dental anxiety remains a significant problem for many patients of both gender and different age groups of examined students. Dental anxiety has a negative effect on oral health status by increasing the prevalence of decayed teeth. Further studies should be carried out using large random samples before generalizing this conclusion.

Key words–Dental anxiety, Dental students, Modified Dental anxiety scale

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INTRODUCTION

Oral health is one of the most important integral parts of general well-being and a significant public health issue. Despite increased awareness among dentists and patients of a preventive approach to oral diseases, and innovations in dental equipment and pain reduction, dental anxiety always persists^{1,2}. Dental anxiety (DA) is described as a state of excessive and unreasonable apprehension that “something dreadful is going to happen in relation to dental treatment, and it is coupled with a sense of losing control”. Dental fear is related to dental anxiety and is described as a normal unpleasant emotional reaction to perceived threat or danger

in a dental situation^{3,4,5}. The concepts of dental fear and dental anxiety are frequently used interchangeably in dental studies, implying “strong negative feelings associated with dental treatment”. Several psychometric tests have been developed to differentiate people with and without dental anxiety. Along with single-item questions, Corah’s Dental Anxiety Scale (DAS), the Modified Dental Anxiety Scale (MDAS), and Kleinknecht’s Dental Fear Survey are the most commonly used tools in epidemiological studies to measure dental anxiety in adults, although none of the existing instruments are regarded as a gold standard^{6,7}. The prevalence of high dental anxiety varies from 2% to 30% worldwide depending on the study

population, the methods applied, and the cut-off scores used⁸. There is strong evidence that dental anxiety is associated with dental attendance; it has been reported that individuals with higher dental anxiety tend to visit the dentist irregularly, which in turn may lead to deterioration in oral health^{9,10}. Studies have demonstrated that dental anxiety is associated with poor self-reported and clinically assigned oral health, more decayed and missing teeth, fewer filled teeth and worse periodontal health¹¹⁻¹⁴. Dental students are future dental doctors who will be dealing with fearful patients in the future. Knowing the facts on dental anxiety will have a positive impact while treating and dealing with such patients. Considering those facts this study is intended to check the level of dental anxiety using MDAS and caries prevalence following the WHO guidelines for DMFT (Decayed, Missing, Filled treatment needs) index among the undergraduate dental students at Kathmandu Medical College. This study imparts the level of anxiety and caries prevalence among the dental students of a different year studying at Kathmandu Medical College and Dental Hospital, Duwakot, Bhaktapur, Nepal.

METHODOLOGY

A cross-sectional study was done with a sample size of 246 adults. The study consisted of 57 males and 189 females studying from the first year to the final year at Kathmandu Medical College Dental Hospital (KMCDH). This dental college provides dental education as well as health care facilities for a large group of population. A well-structured questionnaire was used for the collection of the data. The questionnaire composed of two parts: the first part included the demographic details of the patients. The second part consisted of the 5-item modified dental anxiety scales (MDAS) of the Humphris G et al which is an improvement over a 4-item Corah Dental Anxiety Dental Scale (DAS), where an important item regarding local anesthetic injection was added. This Modified Dental Anxiety Scale (MDAS) is a questionnaire that contains five multiple-choice questions related to dental anxiety. Each question has five possible answers, the answers for each item range from "not anxious" with a score of 1 to "extremely anxious" with a score of 5. The scores are summed together with a minimum score of 5, and a maximum of 25. The MDAS is a reliable, valid, has good psychometric properties, and require just 2-3 minutes to complete, The MDAS has been validated in the United Kingdom and a number of other countries. A cut-off value of 19 and above was used in the MDAS to indicate high dentally anxious medical students studying in the Kathmandu Medical College and dental hospital who may require special attention in the college.

Inclusion and Exclusion Criteria

All those students willing to participate in the study and patients who were consented to examine were only included in the study whereas none of the respondents denied participating and provided an accent to participate in the study. Thus, all the students from the first year to the final year were included in the study.

Clinical Examination

After the acceptance of written consent from each individual, the patients filled the questionnaire. The dental caries status was evaluated by using the decayed (D), missing (M) and filled (F) teeth (DMFT) index, according to WHO guidelines using plane mouth mirror and an explorer under good light. Dental radiographs were not included and third molars were excluded. Decayed teeth (D) were defined as the number of teeth with primary and secondary caries, missing teeth (M) were defined as a number of missing teeth, irrespective of the reason, filled teeth (F) was defined as the number of teeth filled, including all types of filling materials and crowns. The individual values of D, M, and F for each subject then the sum of these three values gave the corresponding DMFT score, which is an indicator of dental disease and previous dental treatment experience until the examination was taken. Ethical approval for the study was obtained from the Institutional Review Committee of Kathmandu Medical College.

Statistical Analysis

All the data collected by a set of questionnaires were entered in MS- Excel and coded and imported in SPSS version 18, for further statistical analysis

RESULT

The study population sample consisted of 246 dental students, 23.1% males, and 76.9% females. Only 44 patients (8.8%) showed high dental anxiety. Table I shows the distribution of student's respondents according to gender and academic year. The year-wise student distribution was from the first year to the final year. The involvement of female students in the study process was found greater as compared to that of males. The highest MDAS was seen among the younger batches and the mean values for MDAS declined with a higher batch of dental students, with a statistically significant difference between batches of students, regarding the association between dental anxiety and gender, dental anxiety was higher among females compared to males. The mean dental anxiety score for males was 8.9 and 15.5 for females. The difference was statistically significant for the most fearful stimulus for both genders was a local anesthetic injection, followed by drilling of teeth (Table II). The least fearful situation for both genders was picking up an appointment for a dental procedure in the following day. Individual with high dental anxiety had a statistically significant higher number of decayed teeth however there were no statistically significant differences for missing (M), filled (F) teeth and total DMFT index scores between high and low dental anxiety groups (Table III).

Students	Male	Female	Total
Final Year	7(26%)	19(74%)	26
Fourth Year	14(18%)	61(82%)	75
Third Year	9(20%)	35(80%)	44
Second Year	16(31.37%)	35(68.6%)	51
First Year	11(22%)	39(78%)	50
Total	57(23.1%)	189(76.9%)	246

Table I: Distribution of students residence according to sex

Questionnaire item (MDAS)	Males	Females	p-value
If you went to your dentist for Treatment Tomorrow, how would you feel?	1.12	2.54	.002
If you were sitting in the Waiting Room, how would you feel?	1.4	3.51	.011
If you were about to have a Tooth Drilled, how would you feel?	1.8	4.1	.001
If you were about to have your Teeth Scaled and Polished, how would you feel?	1.52	2.25	.001
If you were about to have a Local Anesthetic Injection in your gum, how would you feel?	2.2	4.5	.0011
Total mean score according to gender.	8.9	15.5	.04

Table II: Single item MDAS mean according to gender and academic year

Variable	Low dental anxiety MDAS<19	High dental anxiety MDAS≥19	p-value
Decayed (D)	2.25	4.14	.02
Missing (M)	1.4	2.52	.41
Filled (F)	4.1	2.7	.1
DMFT	7.75	9.36	.09

Table III: Mean decayed, missing and filled permanent teeth by low and high dental anxiety

DISCUSSION

The prevalence of dental anxiety among the students was 8.8%. This result is within the range between 5-20% reported from other countries such as Saudi Arabia (8.5%)¹³, Netherlands (17.9%)¹¹, United Kingdom (11.6%)¹⁵, USA (12.2%)^{16,17}, Australia (9.5%)¹⁸, China (8.7%)¹⁹ and Denmark (10.2%)²⁰. A lower range of dental anxiety was seen in the present study. This may be due to the fact that this study was carried out among the dental students studying and working at the same dental college.

Since, many individuals with extremely high dental anxiety would not attend or will to study dental education voluntarily; this may have resulted in an underestimation of the prevalence of dental anxiety. This study population does not reflect dental anxiety among all Nepali adult student population, and further studies that include more representative samples are required. It has been found out that the dental anxiety scale among the dental students significantly decreased with the higher batch students. Various cross-sectional studies have reported that the prevalence of dental anxiety decreases with age^{15,21}. This study revealed that females were significantly more anxious than males. The result has an agreement with many studies that assessed dental anxiety between both genders and reported that the prevalence of dental anxiety was higher in females than in males^{15,16}. However, some studies failed to find a significant difference in dental anxiety between genders¹⁷. The explanation for this gender difference may be due to actual differences in anxiety levels between both genders, a greater readiness among females to acknowledge feelings of anxiety, or minimum level to cope with the dental situation, or may simply reveal gender differences in self-reporting dental anxiety with male's denial or maybe a combination of multiple factors. On the basis of MDAS, needle injection during dental treatment was found to be the most common anxiety-producing stimulus for both genders. This is consistent with other studies³. The authors explained these situations as a four-dimension problem. The dimensions were in terms of fear of pain, fear of local anesthetic solution, fear from acquired diseases and physical injury. Avoidance of necessary dental treatment is said to be related to dental anxiety, furthermore, if anxious dental patients attend for an emergency dental visits, they will likely avoid necessarily follow up appointments to complete dental treatment properly²². This dental avoidance behavior will lead mostly to more extensive development of carious lesions, which ultimately requires more invasive and painful treatment, that will augment the level of dental anxiety and the patient will be in the zone of "vicious cycle of fear". The effect of dental anxiety on caries prevalence was discussed by many researchers and found that avoidance of dental treatment was highly correlated with anxiety scores and with increased caries morbidity. The present study supports these findings and was related to the fact that the one with high dental anxiety had a statistically significant higher number of decayed teeth (D), compared with low dental anxiety patients. It is found that individuals with high dental fear, had a statistically significantly higher number of decayed and missing teeth, but statistically significant lower number of filled teeth. The present study supports its finding regarding the differences in DMFT between both groups and precisely explained that the dentally anxious patients had significantly more missing and fewer filled teeth compared to low dental fear subjects. In general, dental anxiety had a negative effect on the utilization of dental services and oral health status. So, breaking this "vicious cycle" is important to improve the oral health status of those fearful individuals. This needs efforts from both the dentists and patients. The dentists should have

more understanding, patience, higher communication skills, and behavioral management procedures for better treatment outcomes. From the patient perspective, they should be able to recognize and control their fears from dental treatment and improve dental utilization behaviors to improve their oral health status. If this approach fails, pharmacological means may be used to solve this problem.

CONCLUSION

Dental anxiety has a negative effect on oral health status by increasing the prevalence of decayed teeth. It has been found out that the dental anxiety scale among dental students significantly decreased with the higher batch students. In order to generalize the results of such studies among adults, future studies should be carried out using larger random samples.

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Surgical Management of Gastric Cancer: An Institutional Experience

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ABSTRACT

Introduction: Gastric cancer (GC) is the second most common cause of cancer-related deaths causing about 800,000 deaths worldwide/year. In Nepal gastric cancer is the second common cancer among males after the lung cancer. Gastric cancer shows a wide variation in incidence worldwide, being highest in Korea and Japan. It is detected early due to the low threshold for upper gastrointestinal endoscopy and screening programs. In the rest of the world and particularly in developing countries, GC is advanced in most of the cases. In spite of controversies in extent of resection and lymphadenectomy, surgery remains the gold standard treatment. The study was conducted to determine the outcome of the patients with gastric cancer. **Methods:** The study was conducted in the department of surgery at Nepalgunj Medical College and Teaching Hospital Kohalpur from November 2015 to Dec 2018. Patients diagnosed with GC were studied. The patients with resectable disease underwent radical resection followed by adjuvant chemo-radiation as indicated. Patient's demography, clinical presentation, stage of disease, types of surgery performed and survival were analysed. **Results:** 58 patients were diagnosed with gastric cancer. The age ranged from 20-83 years with the mean of 61.26±11.28. Male to female ratio was 2.41: 1. The common clinical presentations were weight loss, anorexia and anemia, 17 (29.31%) had gastric outlet obstruction at initial presentation and 4 (6.89%) presented with perforation peritonitis. Antropyloric region was the commonest site of tumor location seen in 41 (70.68%). 7 (12.06%) patients had distant metastasis and 5 (8.62%) had ascites at presentation. Out of 58 patients, 43 (74.13%) were operated. Only 18 (41.86%) patients underwent R0 resection. 14 (24.13%) underwent palliative gastrojejunostomy. Two (3.44%) patients underwent primary repair for perforation and in 9 (15.51%) the procedure was abandoned due to and presence of metastasis. There was one post-operative mortality. The histology of gastric cancer was found to be adenocarcinoma in all patients. There was no patient in stage I. 3(16.66%) patients were in stage II and 15 (83.33%) in stage III. 17 (29.31%) had stage IV disease. Out of 43 operated patients, 13 lost follow up. All 17 resected patients and those with metastatic disease were followed up. There was no death and no local recurrence in stage II. In stage III, 78.57% were alive and in stage IV 35.29% were alive. **Conclusion:** Gastric cancer is one of the common gastrointestinal malignancies affecting predominantly male gender. Stage of the disease is one of the major prognostic factors related with the survival. Adenocarcinoma is the commonest histology. Radical resection followed by adjuvant chemotherapy is the standard of care. Palliative chemotherapy can prolong the overall survival in patients with metastatic disease.

Keywords: Gastric Cancer, Gastric Resection, Survival Outcome

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INTRODUCTION

With newer surgical techniques and improvements in chemotherapeutic drugs, the treatment of gastric Cancer (GC) has improved a lot but despite that, still it is a fatal disease¹.

There is a wide variation of incidence of gastric cancer worldwide, being highest in Korea, Mongolia and Japan². Detection of GC is very early in more than half of the cases due to the low threshold for upper gastrointestinal (GI) endoscopy and screening programs. In the rest of the world and particularly in developing countries, GC is advanced in most of the cases.

In Nepal lung cancer is the top most common cancer followed by stomach and colorectal cancers in males³. The stage of disease at presentation along with controversies in extent

and type of surgical resection makes GC a challenging disease to cure. Surgery remains the cornerstone of management. Excision with 5-6 cm resection margin is an established recommendation; however, the extent of lymphadenectomy continues to be a matter of debate.

The aim of this study is to determine the hospital based incidence, demographic characteristics, clinico-pathological characteristics, postoperative outcome and the survival of the patients treated in our hospital.

MATERIAL AND METHODS

This was a prospective longitudinal study conducted in the department of surgery at Nepalgunj Medical College and Teaching Hospital. The study period was from November 2015 to December 2018. All patients with GC on preoperative

endoscopic histopathological examination were included while the patients with <12 months follow up were excluded. The institutional research ethics committee approval was obtained.

Detail history and thorough examination of the patients were done. Upper gastrointestinal endoscopy was performed in all patient, sites and extent of the tumor was noted. Biopsy was taken from the suspected lesion and sent for histological examination. Contrast enhanced CT abdomen and chest done in all patients to determine the resectability, type of surgery and to detect the distant metastasis. Hematological and biochemical studies were also done.

Staging laparoscopy, before proceeding to laparotomy was performed in all patients undergoing surgery except in patients with gastric outlet obstruction and perforation. Subtotal gastrectomy was performed for tumors of pylorus and antrum with a surgical resection margin of at least 5 cm. Total gastrectomy was performed for proximal and mid GC. Modified D2 lymph node dissection was performed. Organ resection was done if indicated. Histopathological examination of the resected specimen was performed. Patients were followed up as per National Comprehensive Cancer Network guidelines.

Patient's sociodemographic and outcome-related variables were assessed. Short term outcome variables included duration of surgery, estimated blood loss, perioperative mortality. Perioperative mortality was defined as death occurring during the same admission irrespective of the cause or within 30 days of discharge attributable to surgical intervention.

Data were analyzed using Statistical Package for Social Sciences Version 20 (SPSS). Nominal data were provided as numbers (%) and continuous data as mean, range and standard deviation.

RESULT

Gastric cancer was the second most common GI cancer comprising of 58 (18.83%) patients among all GI cancers in the study period. The commonest GI cancer was gall bladder cancer. The age ranged from 20-83 years with the mean of 61.26 ± 11.28 . There was male predominance. Male to female ratio was 2.41: 1. (Table I)

The major clinical presentations were weight loss, anorexia and anemia, which was seen in 37 (63.79%) patients. 17 (29.31%) had gastric outlet obstruction at initial presentation and 4 (6.89%) presented with perforation peritonitis. Among the 58 patients 13 (22.41%) consumed alcohol, 9 (15.51%) were smoker and 19 (35.84%) consumed alcohol and smoked also.

Antropyloric region was the commonest site of tumor location seen in 41 (70.68%). Involvement of the body, cardia and the gastroesophageal junction (GEJ tumor type III) were seen in 9 (15.51%), 5 (8.60%) and 3 (5.17%) respectively. 7 (12.06%) patients had distant metastasis and 5 (8.62%) had ascites at presentation. Liver was the commonest site of metastasis followed by peritoneum. (Table I)

Out of 58 patients, 43 (74.13%) were operated. 13 (22.41%) underwent subtotal gastrectomy with Biliroth 2 gastrojejunostomy, 5 (8.62%) underwent total gastrectomy with Roux en Y esophagojejunostomy, 14 (24.13%) underwent palliative gastrojejunostomy, six among them were irresectable. The mean duration of surgery for subtotal gastrectomy was 196.2 min and that for total gastrectomy was 263.4 min. The mean blood loss for both procedures was 89.47ml. Two (3.44%) patients underwent primary repair for perforation and in 9 (15.51%) the procedure was abandoned due to and presence of metastasis. One patient died on postoperative day 6. The cause of death was suspected to be duodenal stump blow out.

Only 18 (41.86%) patients underwent R0 resection. The histology of gastric cancer was found to be adenocarcinoma in all patients. Among all (58 patients) 17 (29.31%) had signet ring cell type cancer. Two (13.33%) patients with stage III disease had positive margin after complete resection. The mean number of lymph nodes identified on histopathological examination was 19 ± 5.34 . There was no patient in stage I. 3(16.66%) patients were in stage II and 15 (83.33%) in stage III. There were 17 (29.31%) patients out of 58, with stage IV disease. 9 out of 17 patient's metastasis was detected intraoperatively. All patients who underwent complete resection and 10 out of 17 patients with stage IV disease received chemotherapy.

Age (Mean)		61.21
M:F		2.4:1
Tumor location	Antropyloric	41 (70.68%)
	Body	9 (15.51%)
	Cardia	5 (8.60%)
	GEJ (type III)	3 (5.17%)
Type of Surgery	Subtotal gastrectomy	13 (22.41%)
	Total gastrectomy	5 (8.62%)
	Palliative gastrojejunostomy	14 (24.13%)
	Primary repair	2 (3.44%)
	Open & Shut	9 (15.51%)
Duration of Surgery	Subtotal gastrectomy	196.23(160-270)**
	Total gastrectomy	274.57(210-360)**
Blood loss (ml)		197.83 (50-450)
Perioperative mortality		1(2.32%)
Histology	Adenocarcinoma	58(100%)
	Signet ring cell	17 (29.31%)
Stage (R0 resection)	Stage I	0
	Stage II	3(16.66%)
	Stage III	15(83.33%)
	Stage IV	17 (29.31%)*

*Preoperative and intraoperative ** Mean and range

Table I: Demographic data and perioperative details

Out of 43 operated patients, 13 lost follow up. All 17 resected patients and those with metastatic disease were followed up. The last operated patient was followed up for one year. There was no death and no local recurrence in stage II during one year follow up. Among 14 patients in stage III, 3 (21.42%) died due to the disease and among the survivors, 3 (21.42%) developed loco regional recurrence and 2 (14.28%) developed distant metastasis to liver. Among the 17 patients with stage IV disease, 11 (64.70%) died. (Table II)

Stage	No. of patients	Lost F/U	Locoregional Recurrence	No. of deaths	Survival	Distant recurrence
Stage I	0	0	0	0	0	0
Stage II	3 (16.66%)	0	0	0	3 (100%)	0
Stage III	14 (83.33%)	0	3 (21.42%)	3 (21.42%)	11 (78.57%)	2 (14.28%)
Stage IV	17 (29.31%)	0		11 (64.70%)	6 (35.29%)	

Table II: Survival of patients with R0 resection and metastatic patients

DISCUSSION

Gastric cancer is one of the frequent causes of morbidity and mortality. The incidence, site of involvement and aggressiveness varies. The extent of resection and lymphadenectomy had been always a matter of debate. There is no clear guideline till date. The surgical management varies across Europe, America and Japan. In Japan D2 lymphadenectomy is considered as a standard procedure⁴. In the west, D2 lymphadenectomy is considered preferable but not mandatory, and consensus is on a minimum number of 15 lymph nodes required for proper staging. In most of the Europe, perioperative chemotherapy is considered as the standard of care after the MAGIC trial⁵. We follow the upfront surgery with modified D2 lymphadenectomy followed by adjuvant therapy in resectable cases.

We analyzed the gastric cancer among all GI malignancies in the above mentioned study period and found that the most common hospital incidence was of gall bladder cancer then in second was gastric cancer. Cancer registration in Nepal also indicates that the lung cancer is the commonest cancer in males followed by stomach and colorectal³. The age of the patients ranged from 20-83 with the mean age of 61.26. Various studies have showed that the gastric cancer peaks at 5th and 6th decades⁶. The male to female ratio was 2.4:1. All over the world gastric cancer is common in males⁷. The high incidence of male preponderance may be explained by higher amount of alcohol consumption and smoking seen in males.

The common presentation was with anemia, anorexia and weight loss. 17(29.31%) presented with gastric outlet

obstruction and 4(6.89%) presented with gastric cancer perforation with peritonitis. Similar incidence of gastric outlet obstruction are shown in other studies also⁸.

In our study we found the distal stomach involvement (i.e. antropyloric region) in 41(70.68%) patients in comparison to proximal stomach. This may explain the higher incidence of gastric outlet obstruction. All patients underwent upper gastrointestinal endoscopy and biopsy prior to surgery. 18 (41.86%) underwent radical resection. In majority of the patients only palliative gastrojejunostomy was possible. The lower radical resection rate is explained by the advanced stage of the disease at the presentation.

The survival of the patients undergoing radical resection and those having metastatic disease were compared with the stage of the disease. There was not a single patient in stage I. There were three patients in stage II. All of them were surviving during the period of follow up without any evidence of locoregional or distant metastasis. In stage III, three (21.42%) died and 5(35.71%) had recurrence. In stage IV, 64.70% died within the period of follow up. In stage IV when the survival of the patients receiving chemotherapy compared with not receiving, it was found that patients receiving chemotherapy had improved survival with a mean of 15.67 months vs. 11.29 months. The result indicated that the incidence of disease recurrence increases with the stage and the survival reduces. Similar conclusion has been drawn by the other studies also^{9,10}.

CONCLUSION

Gastric cancer is one of the common gastrointestinal malignancies affecting predominantly male gender. There is no specific sign or symptom however the common presentation is with anemia, weight loss and pain. The part of the stomach commonly involved is antropyloric lesion making the gastric outlet obstruction another common presentation. Majority of the patients present with advance disease which makes the radical resection impossible and that obviously leads to shorter survival. Stage of the disease is one of the major prognostic factors related with the survival. Adenocarcinoma is the commonest histology. Radical resection followed by adjuvant chemotherapy is the standard of care. Palliative chemotherapy can prolong the overall survival in patients with metastatic disease.

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Diagnosis and Management of Choledochal Cyst : A Single Center Experience

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ABSTRACT

Objective: Choledochal cyst is cystic dilatation of intrahepatic and/ or extrahepatic bile duct. Its incidence is 1 in 1000 in Asian population. The objective of the study was to study the presentation, diagnosis, treatment and postoperative outcome of choledochal cyst operated in Dhulikhel Hospital, Kathmandu University Hospital, Dhulikhel, Nepal. **Methods:** This retrospective study was done by reviewing all the records of patients with choledochal cyst who underwent operative treatment in Dhulikhel Hospital from January 2015 to July 2019. **Results:** We analyzed twenty cases of Choledochal cyst. It was found to be common in age group (21-30) years with female preponderance (85%). Most common presenting symptom was abdominal pain. Abdominal Ultrasonography was the initial diagnostic tool. Todani type I choledochal cyst was the commonest type. All the cases underwent complete excision of extrahepatic biliary tree followed by hepato-jejunostomy. There was no post-operative anastomosis stricture in follow up period. **Conclusion:** Choledochal cyst presents commonly with abdominal pain. It can be diagnosed with abdominal ultrasonography. It has good outcome if treated adequately with good surgical technique.

Key words: *Choledochal Cyst, Hepatojejunostomy, Ultrasonography*

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INTRODUCTION

Choledochal cyst (CC) is disproportionate dilatation of the biliary system¹. Its incidence is 1:1000 in Asian population^{2,3,4}, and female : male ration is 3:1⁵. Todani type I cysts are the most common type accounting for 50-80%⁶. The precise etiology of CC is not well understood. Anomalous pancreatobiliary duct union is generally accepted hypothesis⁷.

The classical triad of clinical presentation of CC i.e abdominal pain, abdominal mass and Jaundice is present only in 5-10% of the pediatric age group and on all most none in adult patients⁸. Chronic abdominal pain is the main presenting symptom in 50-96% of the cases⁸. The diagnosis of the biliary cyst is frequently based on ultrasound of abdomen. CT scan of the abdomen has 70-96% sensitivity⁹. MRCP is the best non -invasive method for the diagnosis of CC¹⁰.

The objective of this study is to perform retrospective analysis of cases of choledochal cyst operated in Dhulikhel Hospital in respect to its presentation, diagnosis, treatment and postoperative outcomes.

METHODS

This retrospective observational study was done by reviewing all the records of the patients with CC who was operated in Dhulikhel Hospital from January 2015 to July 2019. Data regarding demography, clinical presentation, investigations,

operative findings, postoperative complications and follow up were retrieved and analyzed. The CC was classified as per the Todani Classification¹¹. The case was followed up every 6 months, 12 months, 18 months and yearly thereafter telephonically.

Statistical analysis of Data was done using SPSS 20 software for descriptive statistics, frequencies and central tendency measures.

RESULT

During the study period, there were a total of 20 cases of CC underwent surgical treatment in Dhulikhel Hospital. Female: male ratio was 5.66:1. The mean age of presentation was found to be 27 years with the highest age of 65 years and lowest age of 2 years.

None of the patient in our review had triad of abdominal pain, Jaundice and mass per abdomen. However, all the patients had abdominal pain.

Only 3 patients (15%) had obstructive jaundice at presentation. All the patients underwent abdominal sonography as the first radiological investigation.

Following abdominal sonography, 20% of the patients underwent CT scan of the abdomen and 65% underwent MRCP. Only 3 patients (15%) had undergone ERCP. These patients had obstructive jaundice.

There were 15 cases of (75%) of Todani Type I (11 cases of type Ia and 4 cases of type Ib) and 5 cases (25%) of Type 4b.

All the patients were operated through midline incision and all undergone Roux-en Y Hepato-jejunostomy. Eighteen cases had complete excision of extrahepatic biliary radical. Two patients had Lilly technique by ablating mucosal lining of retained cyst wall as there was dense adhesion and fibrosis in distal most part of Common Bile duct (CBD) which was deep inside the pancreatic head. Two Patients had Stone within CC. One patient was found to have APBDJ (anomalous pancreatobiliary duct Junction.) He had pancreatic duct injury which was repaired on table with good post-operative outcome.

Six patients (30%) had Surgical Site Infection (SSI). Out of them 3 patients had Superficial SSI and 3 patients had deep SSI.

One patient (5%) had anastomosis leak and one patient had pancreatitis in postoperative period. Both of them were managed conservatively.

The mean hospital stay was 10.9+/- 6.42 days. The histopathological examination of CC showed malignancy in none of the cases. No anastomosis stricture or malignancy was found in follow up. The average follow up period was 25.05 months

DISCUSSION

The incidence of CC is found to increase in adult in many case series conducted in both children and adults^{12,13}. This is also true in our series as the mean age of CC is 26.90 years. This increase is justified, according to some authors, by advance in hepato-biliary imaging technique¹⁴.

The most acceptable theory in explaining the pathogenesis of CC is Babbitt's theory of APBDJ. This anomalous Junction leads to reflux of pancreatic secretion in CBD due to higher pressure in pancreatic duct. This theory is supported by radiological detection of APBDJ or high level of amylase in cyst fluid. In our series, only one (5%) case had APBDJ. This APBDJ was not diagnosed at radiology imaging but it was diagnosed on table during operation. Cyst fluid¹⁵ analysis for amylase is not routinely practiced in our Centre. Other series^{1,12} are showing 15% of APBDJ in their study. This difference may be due to small number of cases in our study.

The classical triad of jaundice, abdominal pain and abdominal mass was found only in minority of the cases according to most of the case series¹⁶. The most common presentation was abdominal pain which was nonspecific^{17,18}. These clinical findings were well corroborated with our study.

Abdominal ultrasonography is the initial imaging modalities of choice for any biliary symptoms. Further accurate delineation of the biliary system mandates cholangiography with advantage of non-invasive MRCP over ERCP^{1,19}. In our series, initial imaging was also abdominal ultrasonography. Biliary system was delineated by MRCP in majority of the cases. These findings were well consisted with other studies^{20,18,21}.

As per the Todani modification of Alonso-Lej classification, Type I CC consists of 50-80% of all CC and Type IV consists of 15-35% of all CC¹¹. Our Findings were well correlated with Todani classification as 75% of our cases are Type I CC.

Complete excision of extrahepatic component of CC with Cholecystectomy followed by Roux-En Y biliary reconstruction is considered treatment of choice for Type I and Type IV CC as per Libsitt et al²² and Cho et al²³.

Dissection towards the upper end of the cyst should be performed considering measures to avoid postoperative anastomosis stricture. The best strategy is to resect at the level of Carina with left duct spatulation to obtain wide stoma for anastomosis. We follow the same operative strategy at the treatment. That may be cause to have no postoperative anastomosis stricture in our series, though the reported incidence of anastomosis stricture is 4.1%²⁵. Other reason may be small sample size in our series and limited period of follow up.

Limitation of our study is small number of cases and limited period of follow up.

CONCLUSION

Choledochal Cyst is common in adult age group. Initial evaluation should be done with abdominal ultrasonography. Delineation of the biliary system is must before operative treatment. Complete excision of extrahepatic biliary tree and biliary reconstruction using Roux-En Y hepato-jejunostomy is the treatment of choice for Type I and IV Choledochal Cyst.

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Giant Condyloma Acuminata with Maggots in Perianal Area of HIV Infected Male:

A Case Report of Giant Condyloma Acuminata

Parajuli S¹, Shrestha A², Paudel U³

ABSTRACT

We report a case of 28-year-old HIV-positive male with giant condylomaacuminata in anogenital region. This homosexual patient presented with a large foul smelling growth along with maggots in a perianal region refractory to treatment at presentation. The patient was successfully managed with excision and there was no recurrence of lesion at last follow-up at 2-months. The case highlights the rare presentation and management of difficult-to-treat case of giant condylomaacuminata with maggots of anogenital region in HIV-positive patients.

Key words: *Buschke-Lowenstein tumour, Condylomataacuminata, Papilloma virus infections*

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INTRODUCTION

Giant Condylomaacuminata (Buschke-Lowenstein Tumor) is a rare sexually transmitted diseases which present as large exophytic cauliflower like lesion of the anogenital region with histological characteristics of condyloma acuminata^{1,2}. About 630 million new cases of Human Papilloma Virus (HPV) infection occur each year, out of which 30 million develop anogenital warts. It is seen that men who have sex with men (MSM) have highest prevalence of anal HPV(57%)³. We report a case of giant condylomaacuminata of anogenital region in HIV infected patients.

Case report

A 28- year-old homosexual and HIV infected male patient on anti-retroviral treatment (4-months) presented to us with large exophytic genital wart arising from perianal area of 6 months duration (Figure 1).



Figure 1

There was history of rapid growth of the lesion since 2 months. The large growth caused difficulty in gait and defecation. Patient developed severe itching, bleeding, pain and insect crawling sensation in the lesion for past 1 week prior to hospital visit. His lesion in perianal area was secondarily infected and was associated with foul smell and maggots (Figure 2).



Figure 2

Cutaneous examination revealed 10x7x5 cm size hyperpigmented, reddish to brown colored, well-circumscribed, pedunculated fungating growth with multiple crusts and verrucous surface over perianal area. There was no lymphadenopathy. The lesion was foul smelling and on close inspection maggots were crawling from inner surface. His CD4 count was 624cells/ul and viral load was 53 copies/ml.

Histopathological examination revealed marked papillomatosis,

acanthosis, hyperkeratosis, parakeratosis and crust formation. Focal koilocytic cells were seen. Dermis showed dense lymphoplasmocytic and neutrophilic infiltration as well as marked pigment incontinence. No granuloma, dysplasia and malignancy was seen (Figure 3).

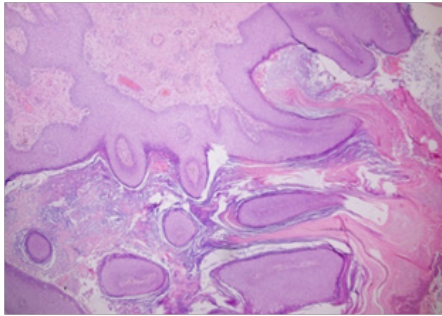


Figure 3

Patient was treated with multiple application of Podophyllin and single application of imiquimod before presenting to our center. To reduce the size of tumor, acitretin 25mg two times a day was given for 3 months. As there were multiple number of maggots in the mass, the maggots were extracted by turpentine oil application. Antibiotic coverage (Intravenous Ceftriaxone and metronidazole) was done for secondary infection. Local excision was done under spinal anesthesia. There was no recurrence of lesions at last follow up at 2 months (Figure 4).



Figure 4

DISCUSSION

There is paucity of literatures on giant condyloma acuminata of anogenital region in HIV infected patients. Our patient was unusual in terms of rare presentation with development of giant tumour despite normal CD4 count. Moreover, the picture was complicated by development of maggots within the lesion.

HPV is an epidermotropic DNA virus which causes various benign and malignant lesions involving the anogenital region. Almost 120 types of HPV have been identified, of which 40 of them primarily infect the squamous epithelium of lower anogenital tract of men and women⁴.

Giant Condyloma acuminatum develops by overgrowth of condyloma acuminatum and has high risk for malignant transformation. Intra-anal warts in HIV-positive men who have sex with men can contain regions of high-grade anal intraepithelial neoplasia. They may additionally present as pelvic pain, perianal secretion, anorectal bleeding and anal sphincter incontinence.

Anogenital wart of HIV-infected patients differ from those of HIV-negative individuals with respect to their spread, occurrence on more unusual anatomical sites, tendency to recur and risk of malignant transformation. Around 18 and 56% of anogenital warts of HIV-positive patients has high-grade dysplasia, which calls for early recognition and treatment of this condition. It is a slow growing, locally invasive and verrucous appearing tumor that does not spontaneously resolve. The progression from condyloma acuminatum probably occurs during the immune suppression, such as congenital or acquired immunodeficiency, alcoholism, diabetes or chemotherapy with immunosuppressive therapy. Contrary to earlier belief, sexually transmitted diseases of the anorectum, including HPV, are not limited to homosexual men, and it is important for both the primary care physician and the colorectal surgeon recognize recent trends in sexual behavior. With increase in prevalence of HIV and AIDS, an increase in Giant Condyloma acuminata and associated malignancy can be expected¹.

Podophyllotoxin is not currently recommended for giant condyloma as its use may cause histological changes that resembles carcinoma and cause diagnostic difficulties⁵.

Early complete surgical resection is essential for optimal treatment of giant Condyloma acuminata and abdominoperineal resection should be done wherever necessary¹.

Advantages of surgical approach is that it allows tissue biopsy for diagnosis, requires fewer physician visits than medical treatment and has excellent clearance with lower recurrence rate³.

Abdominoperineal resection should be done for any patient demonstrating external anal sphincter involvement¹.

As relapse and even malignant transformation of condyloma have been reported, close follow-up is recommended, especially, for lesions positive for high-risk HPV types⁴. The HPV vaccine could lead to a potential reduction in the incidence of genital warts as well as cervical, anal, vulvar, cancers and its precursor lesions⁴.

Quadrivalent HPV vaccine is effective for preventing anogenital warts in young males in Male having sex with Men³.

CONCLUSION

Giant condyloma acuminata with maggots in anogenital region is a rare case presentation in homosexual HIV positive male patient. The diagnosis is usually made on clinical ground and histopathological examination is necessary to rule out malignant transformation. Surgical treatment offers a greater possibility of cure compared to other forms of treatment.

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Neglected Ocular Trauma by Patient and Local Practitioner

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ABSTRACT

Ocular trauma is the major cause of vision loss. The circumstances and agents implicated in such injuries are diverse. In context of Nepal, fall injury is most common form of accident. We present a case of penetrating ocular trauma in 30 years old house wife who fell from tree. The impacted wooden foreign body was removed on emergency basis. Delay in seeking specialty medical help by patients and ignorance of local practitioner for referral resulted in macerated conjunctiva. This case highlights the propensity of grievous ocular trauma in domestic environment.

Keywords: *Barrier to seek care, Blindness, Ocular trauma,*

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INTRODUCTION

Ocular trauma is most common cause of unilateral blindness. Its prevalence is common in pediatric age group. However it varies along with lifestyle, socio-economic status, creative activities, and traffic state. The injuries are most frequently occurred in actively working people and, men are five times more affected than women. About half a million people in the world are blind as a result of Eye injuries. About 30-40% of monocular blindness is due to ocular trauma. Woods, sharp object and glass are the most common agents of penetrating ocular trauma.



Figure 1: Penetrating ocular trauma

According to report publish by US National Institute of Health, about 38-52% of all cases presenting to ophthalmic emergency are Ocular trauma. National population based survey of

blindness in Nepal (1981) found a blindness prevalence rate of 0.84% with trauma responsible for 7.9% of monocular blindness.

CASE REPORT

30 years old housewife resident of Dailekh presented in Outpatient department of Nepalgunj medical college, Nepalgunj with history of fall injury from tree of height two meter 7 days back. She complained of bleeding, discomfort on her left eye with profuse watering and redness. Her vision was blurred from the day of incident.

On further inquiry, she reported that she delayed in seeking medical help for 4 days. She was referred to NGMC Nepalgunj on her 7th day of incident from Community Eye care centre, Dailekh via Nepal Red Cross Eye hospital, Surkhet.

On clinical examination her Left eye lids were swollen and congested, eye opening was not full, conjunctiva was congested, swollen and has multiple defect supero-nasally on 9-12 o'clock with visible foreign body in sub-conjunctival space. The posterior margin of the foreign body couldn't be palpated. The cornea, anterior and posterior segment examination revealed no abnormality. Left eye visual acuity was 6/9 (P) whereas right eye being 6/6.

Ultrasound scan was done immediately which was concluded as Low medium reflecting mass on anterior orbits suggestive of wooden foreign body in anterior orbit.

Conservative treatment was started with prophylactic oral antibiotics, Antibiotic and antifungal eye drops. Emergency surgery to remove foreign body was planned. Surgery was done on peri bulbar block through conjunctival approach. The

superior conjunctiva was macerated due to multiple attempts by local practitioner, localized peritomy was made. Limbal traction suture was used to expose fornix and anterior orbit. Tenon's capsule and conjunctiva were separated from foreign body. Using toothed forceps 3 broken pieces of foreign body were extracted. The underlying sclera was thinned out and lack episcleral tissue. Cornea was normal. After cleaning peritomy was closed using 8.0 poly glycolic acid (vicryl) absorbable suture and patch was applied. Post-operative regimen included oral antibiotic, topical antibiotic, antifungal and lubricants.



Figure 2: Extracted foreign body



Figure 3: Eye Post-Operative view

DISCUSSION

Penetrating ocular trauma is the important cause of Monocular blindness. Prompt diagnosis and treatment preferably within first twenty four hours, are essential for best possible prognosis. In context of Nepal, the detrimental effects of delayed case reporting or case outside of the specialty eye clinic may reflect geographic or economic barrier to care. For optimal vision outcome patients who are injured in a rural setting should recognize the injury and seek early case at specialty Eye care facility. VA is one of the important prognostic clues to final visual outcomes. On lowest scheme Local practitioner should be well trained for referral on the basis of VA outcome. Good discipline in manner of referral shows excellent outcome in

patient's prognosis. There is need to implement Eye health awareness programme targeted at increasing safety measures in working site. Workers working in field should be provided with personal protective equipment for safety measure.

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