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Websites:

WHO, 2010. Avian influenza – situation in Vietnam- update 8.

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ORIGINAL ARTICLE OPEN ACCESS

Preterm Labour Pain & Its Outcome in 50 pts attending at a Tertiary Care Hospital-ICMH

Mahe Jabeen*[1], Jebunnesa[2], Mossammat Dilruba Akter[3], Anjuman Ara[4], Md. Shabab Azmaeen[5]

Abstract

Introduction: *Preterm labor is the leading cause of neonatal morbidity all over the world. Over the past two decades despite major preventive efforts, the incidence of preterm birth has remained constant at about 5-10% of live births. The etiology is often multifactorial and poorly understood. Currently preterm labour is one of the most challenging problems confronting the obstetricians and perinatologists. With this background the present study was done to find out perinatal outcome in women presenting with preterm labour.* ***Aims:*** *To study the fetal and maternal outcome in preterm labor cases.* ***Materials and Methods:*** *It was Prospective, single centered, observational study. A total of 50 women with preterm labor in the study period i.e. from June 2019 to May 2020 were included for the study sample. This study carried out at the department of Obstetrics and Gynecology, Institute of Child and Mother Health (ICMH), Matuail, Dhaka, Bangladesh. The data were collected personally through a structural questionnaire.* ***Results:*** *Out of 50 subjects, majority of mothers 32(64%) were in age group of 21-30 years followed by 12(24%) in age group of 20 years. Majority 26(52%) of study subjects were primigravida followed by 24(48%) multigravida. Majority 32(64%) of study subjects were in lower class followed by 15 (30%) cases in middle class, 3(6.0%) cases in affluent class. Maximum 31 (62%) cases were unbooked cases and rest 19 (38%) cases were booked. Out of 50 babies who were <2500 grams, maximum 29 (58.0%) were low birth weight followed by 11(22%) being VLBW babies. 5 cases were >2.5 kgs, which are not LBW babies according to WHO Classification of low birth weight. Majority 17 (47.2%) stayed for 1-10 days followed by 9 (25.0%) babies for 11-20 days. Also 7 (19.4%) babies stayed for 21-30 days.* ***Conclusion:*** *Preterm infants are at high risk of overall morbidity and mortality. Clinical suspicion, early detection and correction of risk factors, institutional delivery and good neonatal care back up facilities can improve the outcome of preterm labour and decrease the maternal complications as well.*

Keywords: *Feto maternal outcome, Preterm labour.*

Number of Tables: 08; Number of References; 16; Number of Correspondences; 03.

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Introduction:

Babies delivered alive before 37 weeks of pregnancy are complete are considered preterm births according to the WHO. It is the leading cause of death worldwide for children below 5 years of age. Many preterm babies survive in high-income countries but in low- and middle-income countries a lack of adequate newborn care puts the lives of many preterm babies at risk[1]. One of the symptoms that are characterized by premature activation of the final path way of parturition is referred to as preterm labor. There are two possible explanations for preterm labor: either a physiological process that has begun too early or a pathological process that has followed an aberrant stimulation. There may be more than one cause involved in the development of premature labor. The earlier a woman goes into labor, the higher the risk that an underlying pathological condition is involved[2]. Premature babies are at risk of many immediate and long-term complications. Immediate (short term) neonatal morbidity includes respiratory distress syndrome, hypothermia, hypoglycemia, jaundice, intraventricular hemorrhage,

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necrotizing enterocolitis, broncho-pulmonary dysplasia, sepsis and patent ductus arteriosus. Long term morbidity includes cerebral palsy, mental retardation and retinopathy of prematurity. Residual mental and motor handicaps are the major deterrents to the optimal development of preterm infant[2]. A higher proportion of preterm births are preventable by adequate antenatal care, female literacy and health education, which increase the awareness about antenatal care. So our study aims to evaluate the fetal and maternal outcome in preterm labor cases and that proper measure can be undertaken to decrease the preterm birth rate and neonatal morbidity and mortality associated with prematurity.

Materials and Methods:

It was prospective, single centered, observational study. A total of 50 women with preterm labor in the study period i.e. from September June 2019 to May 2020 were included in the study with the following criteria gestational age between 28 to 36 weeks, singleton pregnancy, with intact membrane. In preterm labor with regular uterine contractions at least 3 every 10 minutes, associated with cervical dilatation of at least 1cm but not more than 3cm and cervical effacement less than or equal to 50%, Maternal age >18 years, married mothers and Non medico-legal pregnancy. Patients with premature rupture of membranes, preeclampsia, malpresentations, fetal malformations, polyhydramnios, placenta previa and abruptio placentae, severe anemia, intrauterine fetal death, intrauterine growth restriction, Rh isoimmunization and uterine and cervical anomalies were all excluded from the study. The data was entered in Microsoft Excel sheet and SPSS version 26 was used for analysis, incidence and prevalence of feto-maternal outcome, demographic, clinical characteristics of pre-term labor were studied.

Results:

Table-I: Baseline characteristics of the study patients (n=50):

Variables	Frequency	Percentage (%)
Age group (years)		
≤20	12	24.0
21-30	32	64.0
31-40	6	12.0
Socioeconomic status		
Lower class	32	64.0
Middle class	15	30.0
Affluent class	3	6.0
Parity		
Primigravida	26	52.0
Multigravida	24	48.0
Type of case		
Booked	19	38.0
Unbooked	31	62.0

Table 1 shows the baseline characteristics of the study patients. Out of 50 subjects, majority of mothers 32 (64%)were in age group of 21-30 years followed by 12 (24%) in age group of <20 years. Mean age was 25.35±4.54 ranging from 18 to 38 years. Majority 26 (52%) of study subjects were primigravida followed by 24 (48%) having multigravida. Majority 32(64%) of study subjects were in lower class followed by 15 (30%) cases in middle class, 3 (6%) were in affluent class. Maximum 31(62%) cases were unbooked cases and rest 19 (38%) cases were booked.

Table II: Distribution of babies of preterm cases according to WHO Classification of low birth weight (n=50):

WHO classification of low birth weight (in grams)	Frequency	Percentage (%)
<1000 (ELBW)	5	10.0
1001-1500 (VLBW)	11	22.0
1501-<2500 (LBW)	29	58.0
>2500 (normal weight)	5	10.0
Total	50	100.0

*ELBW: Extremely low birth weight; *VLBW: Very low birth weight; *LBW: low birth weight

Table II shows distribution of babies of preterm cases according to WHO classification of low birth weight. Out of 50 babies who were <2500 grams, maximum 29 (58.0%) were low birth weight followed by 11(22%) being VLBW babies. 5 cases were >2.5 kgs, which are not LBW babies according to WHO Classification of low birth weight.

Table III: Distribution of pre-term cases according to postnatal complications.

Postnatal complications	Frequency	Percentage (%)
Absent	17	34.0
Present	33	66.0
Lactation insufficiency	15	45.5
Puerperal sepsis	12	36.4
Birth canal trauma - cervix, vagina and perineum	6	18.2
Post-partum hemorrhage	5	15.2
Retained placenta	2	6.1
Episiotomy gape	4	12.1
Post-partum psychosis and depression	4	12.1

Table IV shows distribution of pre-term cases according to postnatal complications. Out of 50 cases, 33 cases had postnatal complications. Majority 15(45.5) mothers had lactation insufficiency followed by Puerperal sepsis in 12 mothers. Also, 6 mothers had birth canal trauma - cervix, vagina and perineum and 4 mothers had post-partum depression and psychosis. Many mothers had more than one complication. Most common complication being lactation insufficiency followed by puerperal sepsis with or without puerperal pyrexia.

Table V: Distribution of babies of pre-term cases according to complications

Fetal complications	Frequency	Percentage (%)
Newborn jaundice	33	66.0
Immune system problems	16	32.0
Inborn metabolic error and Hypoglycemia	10	20.0
Birth asphyxia and Respiratory distress	9	18.0
Anemia/Thrombocytopenia	8	16.0
Hypothermia	8	16.0
Necrotizing enterocolitis	7	14.0
Hypoxic ischemic encephalopathy		
Meningitis	7	14.0
Seizure disorders		
PDA/ASD/VSD	6	12.0
Broncho-pulmonary dysplasia	2	4.0

Table V shows distribution of babies of pre-term cases according to complications. Out of 50 babies, newborn jaundice was seen in 33 babies followed by Immune system problems in 16 babies. Metabolism acidosis, inborn metabolic error and hypoglycemia was seen in 10 babies. Many babies had multiple complications. Birth asphyxia and respiratory distress was seen in 9 babies.

Table VI: Distribution of babies of pre term cases according to duration of NICU stay (n=36).

Duration of stay (in days)	Frequency	Percentage (%)
01-10	17	47.2
11-20	9	25.0
21-30	7	19.4
>30	3	8.3
Total	36	100.0

Table VI shows distribution of babies of pre-term cases according to duration of NICU stay. Out of 36 babies who stayed in NICU, 17(47.2%) were immediately shifted after birth due to low birth weight and remaining 9(25%) were shifted from mother mostly due to jaundice. Majority 17 (47.2%) stayed for 1-10 days followed by 9 (25.0%) babies for 11-20 days. Also 7 (19.4%) babies stayed for 21-30 days. Only 3 (8.3%) babies stayed for >30 days in NICU.

Table VII: Distribution of neonates of pre term cases according to cause of death (n=18).

Cause of death	Frequency	Percentage (%)
Sepsis	5	27.8
Birth asphyxia	4	22.2
Respiratory distress	4	22.2
Metabolic disorders	2	11.1
Neonatal jaundice	3	16.7
Total	18	100.0

Table VII shows distribution of babies of pre-term cases according to cause of death. Out of 18 total neonatal deaths, maximum 5 (27.8%) babies died due to sepsis followed by 4(22.2%) due to birth asphyxia.

Table VIII: Distribution of babies of pre-term cases according to duration in which neonatal deaths occurred (n=18).

Duration of NND within (in days)	Frequency	Percentage (%)
≤2	5	27.8
3-8	7	38.9
9-14	6	33.3
Total	18	100.0

Table VIII shows distribution of babies of pre-term cases according to duration in which neonatal deaths occurred. Out of 18 deaths that occurred, majority i.e. 7 (38.9%) occurred within 3-8 days followed by 6 (33.3%) deaths within 9-14 days.

Discussion:

In present study, majority of cases 32(64%) were in age group of 21-30 years followed by 12 (24%) in age group of 20 years. Mean age was 25.35±4.54 ranging from 18 to 38 years. In similar study by Dingens et al.[3] from USA, majority (29%) of mothers from preterm group were in age group of 20 -25 years. Lakshmi et al.[4] observed majority of the women in both groups of preterm and term labor were between 20-29 years which is similar to present study. Philip et al.[5] in their study on neonatal outcome of preterm births found no significant association of the maternal age to the neonatal outcome in preterm births in present study which is similar to present study. Following table shows mean age in different studies[3-5]. In present study, majority 32(64%) of study subjects were primigravida followed by 15 (30%) having multigravida. Derakhshi et al.[6] observed double or multiples pregnancies most common in their study, Palomer et al.[7] in their study observed 19.2% of preterm newborns related to the multiple pregnancies, Mohsenzadeh et al.[8] in their study observed 19.7% of premature newborns were due to multiple pregnancies which is not consistent with our study[15-16]. In present study, majority 31(62%) of mothers belonged to lower class followed by 16 (32%) cases in middle class. A study by Ali et al.[9] observed that socioeconomic status was found be lower in preterm cases. Another study by Jain et al.[10] found that preterm labor was more common lower socioeconomic class (58%) which is higher than present study. Lata et al.[11] found more mothers in lower class with BV positive as compared to other socioeconomic classes and this is similar to present study. In present study, majority 29 (58%) babies were having weight <2500 grams followed by 11 (22%) babies having weight between 1001-15000 grams. This is higher as compared to other similar studies as present study had most of deliveries between 32-35 weeks of gestation. Akhter et al.[2] in their study on perinatal outcome in preterm labor found 42% of low birth babies in preterm group which is lower than present study. Laxmi et

al.[4] found that LBW was present in 33.3% of the women in the study group (preterm mothers) and 3.33% in the control group (term mothers). This finding is lower than present study[4]. Seth et al.[12] observed that 20% babies were LBW in preterm group of women which is lower than present study. Henderson et al.[13] discussed that almost 57% of babies were LBW in mothers with gestational period of <37 weeks which is similar finding as present study but the percentage is lower than present study findings. Out of 50 cases, 33 (66%) cases had postnatal complications and 34% had no complications. Majority 15/33(45.5%) mothers had lactation insufficiency followed by Puerperal sepsis in 12/33 (36.4%) mothers. 6/33(18.2%) mothers had birth canal trauma cervix, vagina and perineum and 5/33(15.2%) mothers had post-partum depression and psychosis. Jiang et al.[14] observed that cases with scarred uterus, women who had cesarean section once or more or other previous uterine surgery, occurred in both control and preterm pregnancies, but were significantly increased in the latter which is consistent with present study. Women with placenta previa or abnormal S/D ratio were more likely to have preterm delivery. In present study, out of 50 babies, 36(72%) babies who stayed in NICU, majority 9(25.0%) stayed for 11-20 days followed by 7 (19.4%) babies for 21-30 days. Henderson et al.[13] in their study observed that women with gestational age of 32-36 weeks had 62.4% of babies admitted in NICU which is lower than present study. Laxmi et al.[4] in their comparative study on preterm and term labor found 43.33% babies from preterm group with NICU admission which is lower than present study. NICU stay more than 2 days was seen in 43.33% babies in preterm group which is higher than present study findings of 28.12%. In present study, out of 18(36%) total neonatal deaths. Maximum 10 (27.78%) babies died due to sepsis followed by 08 (22.2%) due to birth asphyxia. Respiratory distress was cause of death in seen in 07 (19.4%) neonates. Out of 18 total neonatal deaths, majority 5(27.8%) had neonates who died due to sepsis. Akhter et al.[2] found 35% neonatal deaths in preterm labor group which similar to present study findings. Respiratory distress was most common cause of NICU admission and mortality which is similar to present study whereas Laxmi et al.[4] discussed 20% neonatal deaths in their study which is lower than present study. Bangal et al.[15] found that neonatal mortality was 100% in the babies born with birth weight of 1000 grams. Neonatal mortality was directly proportional to birth weight of the baby. Neonatal mortality was 63.33% in babies born before 31 weeks of gestation. Overall early neonatal mortality was 27.27%. Sepsis, respiratory distress and birth asphyxia was most common cause of NICU admission and mortality which is similar to present study. Singh et al.[16] found that septicemia and hypoxic ischemic encephalopathy were the two most common causes of neonatal morbidity and mortality after RDS, accounting for 16.8% and 9.2% respectively in less than 34 weeks gestational age group. Hyperbilirubinemia developed in approximately 50% of preterm babies irrespective of gestational age which is higher than present study.

Conclusion:

Preterm onset of labour is a heterogeneous condition with multifactorial aetiology Clinical suspicion from the past obstetrical history, early detection and correction of risk factors (Medical, Obstetrical) like control of blood pressure in pre eclampsia, correction of anaemia, treatment of cervico- vaginal infections and asymptomatic bacteriuria, avoidance of coitus in late pregnancy, use of tocolytics in overdistended uterus, cervical encirclage in proven cases of cervical incompetence, use of injectable progesterone in ediopathic threatened preterm labour can reduce the incidence of preterm labour. Deliveries in the institution having facilities for neonatal care will improve the perinatal outcome in preterm labour.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Prevalence of Caries with its Distribution by Age & Gender in Institutional Clinical Patients

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Abstract

Introduction: *Consequence of dental caries is loose of healthy tooth structure which impacts negatively on aesthetics, function, self-esteem and quality of life of the patients. Different age groups and populations exhibit distinct caries prevalence rates, observations of which could provide a useful descriptive measure of caries susceptibility in tooth surfaces.* ***Materials and Methods:*** *In this study, patients attending the Department of Conservative Dentistry & Endodontics of Dhaka Dental College & Hospital, located in Mirpur-14 and Department of Conservative Dentistry & Endodontics of Sapporo Dental College & Hospital, located in Abdullahpur (North Dhaka City), Bangladesh, were examined between 2017 and 2019. The location of dental caries on the teeth surfaces was recorded as following surface: Occlusal , Mesio-occlusal, Disto-occlusal, Proximal and Cervical for statistical evaluation and comparison. Furthermore, the age and gender of the patients were recorded on the chart for each caries tooth.* ***Results:*** *Female had higher incidence 86 (57%) of caries than males 64 (43%). Caries distribution was common in the maxillary jaw (53.38%) than in the mandibular jaw (46.62%). Among our study patient occlusoal surface caries was most commonly observed (43.4%). Then, the proximal surface caries was seen in 28.3% cases. Overall 71.7% prevalence of caries was in occlusal and proximal area. Where, prevalence of proximal and cervical surface caries was higher in maxillary tooth (18.9% and 4.82%) than mandibular tooth (9.3% and 2.6%) respectively.* ***Conclusion:*** *Female are more prevalent to dental caries than male. Occlusoal surface caries is most commonly observed, then, the proximal surface caries are commonly seen. Occlusal surface caries is more common in mandibular tooth than maxillary. Where, proximal and cervical surface caries was higher in maxillary tooth.*

Keywords: *Dental Caries, Prevalence & Distribution, Age & Gender.*

Number of Tables: 2; Number of Figures: 4; Number of References: 29; Number of Correspondences: 5.

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Introduction:

Among all oral disease dental caries is one of the common diseases which cause pain and infection and hamper work productivity in adults[1,2]. Consequence of dental caries is loose of healthy tooth structure which impacts negatively on aesthetics, function, self-esteem and quality of life of the patients[3]. From 1990 to 2010 around 2.4 billion people were affected by dental caries which causes a huge global burden of oral health, and majority of the cases were untreated. This induced a major biological, financial and social burden on individuals,

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health systems and societies. It also reported that the trend of caries is shifting from children to adults with around the age of 70, due to the appearance of root caries[4]. Individual tooth surfaces have vastly different susceptibilities to caries, with the pit and fissure (occlusal) surfaces the most susceptible, and the smooth (labial and lingual) surfaces the least susceptible[5-6]. The most frequent sites of attack are the occlusal surfaces of the first and second permanent molars[4]. In addition, it was reported that neighboring approximal tooth surfaces differ in their caries susceptibility,[7-8] implying that one surface may show obvious radiographic signs of caries, while the neighboring surface does not[9]. With rising life expectancy, people maintain their teeth for longer,[10] it is likely to observe a further increase in untreated caries in this rising population. Ageing, multimorbidity and polypharmacy may enhance caries possibility in the senior adults[11]. Patient's chronic medical conditions, occupational disability and cognitive impairment make dental treatment highly challenging, and unavoidably increase the burden in our health care system[11]. Different age groups and populations exhibit distinct caries prevalence rates, observations of which could provide a useful descriptive measure of caries susceptibility in tooth surfaces[6]. Older adults have considerably more factors that place tooth surfaces at risk for caries than do younger adults, due to the many health conditions faced by this population during the later phases of life, which can last as long as 40 years. During that period, the elderly face a wide spectrum of oral and general health problems[12]. Caries is a preventable disease and different preventive measures are available[13]. In the forecasting prevention programme, clear understanding of the current global caries burden is essential. The World Health Organization (WHO) recommends that clinical oral health surveys should be conducted every five to six years within the same community to provide effective surveillance on disease patterns and trends, but sorry to know that it's not practicing in our Bangladesh[14]. The stakeholders can hence make policies and develop programmes to prevent and control the disease. However, the most recent systematic review of caries status in global population was conducted more than a decade ago, and so far there have been none conducted in older adults[4]. Updated information on caries prevention and control in adults to facilitate policy planning for the coming decade is needed. The aim of this study is to explore updated information of caries status of adult population in north Dhaka City. This paper also compared these results among various gender and age groups.

Materials & Methods:

In this study, patients who were attending the Department of Conservative Dentistry & Endodontics of Dhaka Dental College & Hospital, located in Mirpur-14 and Department of Conservative Dentistry & Endodontics of Sapporo Dental College & Hospital, located in Abdullahpur (North Dhaka City), Bangladesh, were examined between 2017 and 2019. According to the department's patient treatment protocol, the patients were first examined in the Department of Dental Diagnosis. Then, according to their diagnoses, patients were referred to related department for the treatment. After the second examination, the conservative treatment (e.g., caries treatment, restoration replacement, sensitivity treatment, prophylaxis, etc.) to be applied was determined by the assigned Dental Surgeons. Without drying the teeth, examinations were performed with dental mirrors and blunt sickle-shaped explorers under a dental chair light, according to WHO recommendations[15]. The examiner applied standardized and routinely used WHO diagnostic criteria. Firstly, caries teeth were identified, and a diagnosis of caries was made only when there was clear evidence of loss of tooth substance. White or brown spots in enamel, the surfaces of which remained intact and glossy, were not considered to be caries. Caries were recorded as present when a lesion in a pit or on a smooth tooth surface had a detectably softened floor, undermined enamel or softened wall. "Sticky" and discolored fissures were accepted as caries only if there was clear evidence of cavitation beginning below the fissure. On proximal surfaces, caries were recorded when the explorer had entered a lesion[15,16]. Then, the borders of caries were drawn on the related tooth figure chart. In total, 32 master charts were prepared for both side upper and lower jaws teeth. Each charts included five figures: Occlusal, mesio-occlusol, disto-occlusal, proximal and cervical surfaces. Furthermore, the age and gender of the patients were recorded on the chart for each caries tooth. The location of dental caries on the teeth surfaces was recorded as follows: 1, Occlusal; 2, Mesio-occlusal; 3, Disto-occlusal; 4, Proximal; and 5, Cervical for statistical evaluation and comparison. If lesions were involved on more than one surface, each affected surface was recorded separately. In addition, the recorded ages on the chart for each caries tooth were coded in six groups: 1, 25 years of age; 2, 25-34 years of age; 3, 35-44 years of age; 4, 45-54 years of age; 5, 55-64 years of age; and 6, above > 64 years of age.

Differences in caries incidence between surfaces of individual teeth were assessed for statistical significance using the Friedman test and Dunn's Multiple Comparisons test (if P<.05). The Pearson Chi-Square test and Fisher's Exact Test were used to compare differences in caries prevalence of individual tooth surfaces between females and males. We also used the Mann-Whitney U test in order to compare differences in caries rates of individual tooth surfaces between age groups.

Result:

In this study, among 150 patients total 311 caries surfaces were recorded. Figure 1 shows that women had higher incidence 86 (57%) of caries than males 64 (43%) (P 0.5). Figure 2 shows the distribution of caries according to age group. The prevalence of caries experience was highest (26.7%) among individuals of 25-34 years age group. At overall 77 (51.33%) of patients were under 34 years of age, and 73 (48.67%) patients were above 35 years of age. Caries distribution was higher in the maxillary jaw (53.38%) than in the mandibular jaw (46.62%) (figure 3) (P <0.5).

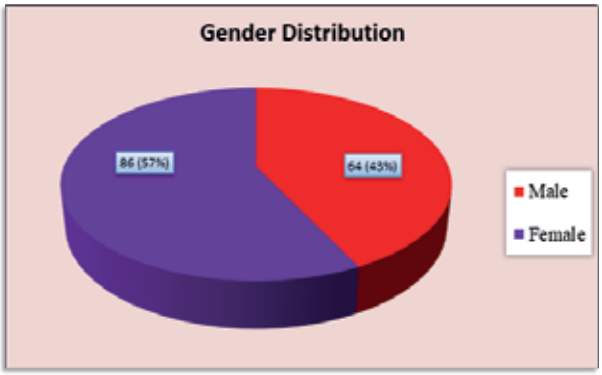

Figure 1: Percentage distribution of gender.

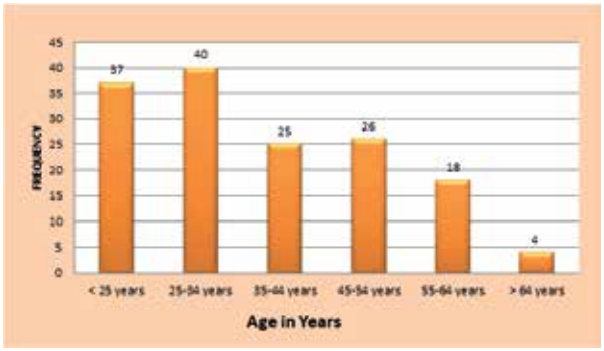

Figure 2: Frequency distribution of age.

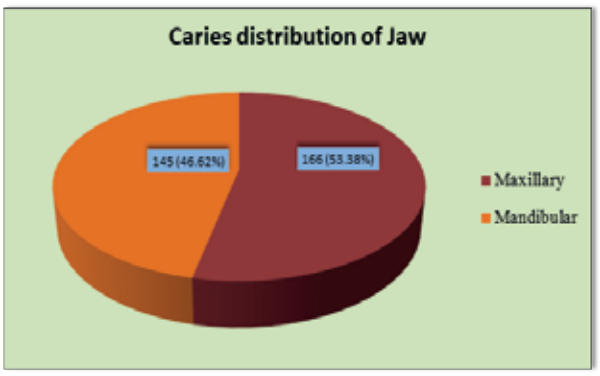

Figure 3: Percentage distribution of caries according to jaw.

Table 1 shows the distribution of caries according to tooth surfaces in female and male patients. When analyzing data aggregated by gender, occlusal, mesio-occlusal and disto-occlusal surfaces sites in women demonstrated significantly higher rates of caries than men (P 0.5). Where, proximal and cervical surface caries is significantly higher in male (P <0.5).

Table I: Number of caries surfaces (percentage in total caries) according to gender.

Gender	Occlusal	Mesio-occlusal	Disto-occlusal	Proximal	Cervical
Male	50 (16.1%)	15 (4.8%)	10 (3.2%)	47 (15.1%)	12 (3.9%)
Female	85 (27.3%)	21 (6.8%)	19 (6.1%)	41 (13.2%)	11 (3.5%)

Among our study patient occlusoal surface caries was most commonly observed (43.4%). Then, the proximal surface caries was seen in 28.3% cases. Overall 71.7% prevalence of caries was in occlusal and proximal area (figure 4).

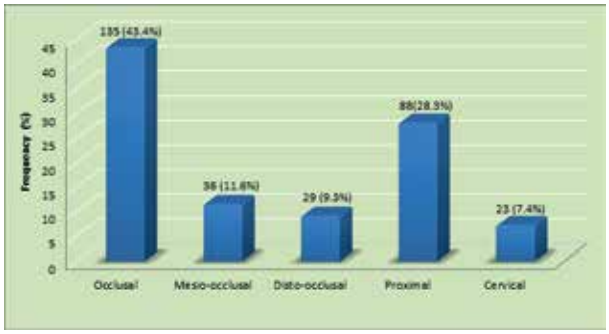

Figure 4: Frequency & percentage distribution of caries according to site.

Table II shows prevalence of caries was most commonly seen in posterior segment (89.1%) of both maxillay (47.4%) and mandibular jaw (41.7%) of overall cases. Occlusal surface caries is more common in mandibular (24.34%) tooth than maxillary (18.9%). Where, prevalence of proximal and cervical surface caries was higher in maxillary tooth (18.9% and 4.82%) than mandibular tooth (9.3% and 2.6%) respectively.

Table II: Number of caries surfaces (percentage in total caries) according to location

Location		Occlusal	Mesio-occlusal	Disto-occlusal	Proximal	Cervical
Maxillary	Anterior	00 (0%)	02 (0.64%)	02 (0.64%)	13 (4.2%)	01 (0.32%)
	Posterior	59 (18.9%)	19 (6.1%)	10 (3.2%)	46 (14.7%)	14 (4.5%)
Mandibular	Anterior	02 (0.64%)	01 (0.32%)	02 (0.64%)	10 (3.2%)	00 (0.0%)
	Posterior	74 (23.7%)	14 (4.5%)	15 (4.8%)	19 (6.1%)	8 (2.6%)

Discussion:

The results of the present study showed that anterior tooth were least like to be caries teeth, while posterior tooth were the most likely to caries in both maxillary and mandibular molars. Caries are also more prevalent in maxillary teeth than in mandibular teeth. The results of our study confirm the findings of Demirci M et al, who evaluate four years incidence of dental caries among Turkish people;[17] and Luen et al, who evaluated the ten-year incidence of dental caries in adult and elderly Chinese patients[18]. In our study, maxillary posterior (47.4%) were slightly more significantly affected than mandibular posterior (41.7%). Demirci M et al, finding is almost similar to us. Manji and Fejerskov reported that the lower molars were the most commonly affected teeth in the entire dentition. But in case of premolar and anterior tooth upper jaw's were affected more frequently than lower jaw[19]. Macek et al investigated the caries susceptibility of permanent teeth in six categories and found that molars were more susceptible than incisors, canines, or premolars, just as the results of the present study indicated[20].

Occlusal surface caries is more common in mandibular (24.34%)

tooth than maxillary (18.9%). Where, prevalence of proximal and cervical surface caries was higher in maxillary tooth (18.9% and 4.82%) than mandibular tooth (9.3% and 2.6%) respectively. Demirci M et al, also describe that occlusal surfaces of premolars exhibited the second highest caries rate. When compared with other teeth, a smaller caries rate was generally observed on all sites, except occlusal surfaces and fissures in molars. Occlusal surfaces in permanent molars seem to have benefited least from the general decline. The cause for this fact could be a blend of complicated surface morphology and difficult access for effective oral hygiene. The result of the present study was in concurrence with a study conducted by Eklund and Ismail. They reported that occlusal caries beat all other types and increased most rapidly and to the highest levels in molars[21]. A study by Li et al found that the caries attack proportion was highest on occlusal surfaces of maxillary and mandibular permanent first molars, followed by second molars. Unlike the primary dentition, high caries rates in the permanent dentition were limited to pit and fissure surfaces of molars[22]. In the present study, it was found that molar teeth had many more caries than incisors, canines, or premolars in both sexes. Occlusal fissure sites in molars showed the highest caries rates in both sexes as well. The finding that more caries teeth were observed in women (57%) than in men (43%) is in agreement with findings of other studies[17,23-24]. According to Mansbridge[25] in general, permanent teeth erupt earlier in women than in men. As they are exposed to the risk of caries for a longer period, it is logical to assume that women's teeth would decay more than the teeth of their male counterparts of the same age. Our study also found that female patients continue to experience excessive caries. And we also found anatomical and behavioral differences between women and men in order to explain this observation[23,25]. Also a lot of factors affect the prevalence of caries on teeth surfaces in both genders, and these include education, income, lifestyle, etc. so, more study is needed to explain these factors. Caries is common in every age group from young to old age adult of our study patient. The prevalence of caries experience was highest (26.7%) among individuals of 25-34 years age group. And almost equally distributed among young patient (51.33%) who were under 34 years of age, and patients who were above 35 years of age (48.67%). Demirci M also reported that age does not affect caries prevalence in teeth surfaces[17] according to his study proximal surfaces of incisors, canines and premolars had the highest caries rates in all age groups, except for patients over the age of 65. On the other hand, occlusal surfaces of molars showed the highest caries rate. In addition, it was observed that molar teeth are more prone to caries than incisors, canines, or premolars in all age groups[26]. In addition has confirmed that mandibular molars are most vulnerable to dental caries in individuals between the ages of 4 and 20, employing a method that considered post-eruptive tooth age[20]. Caries rates of proximal, buccal and palatinal surfaces were very low in all age groups, except for the caries rate of molars found in another study[26].

It should be known that most of the world's populations do not have right of entry to organized dental health care facility. Though, this circumstance makes it possible to study the natural history of dental caries[18]. There may also be differences in the prevalence of teeth surface caries between countries and with respect to geographic location, occupation, income, social class, ethnic group, education, lifestyle, etc. It was observed that a greater number of caries are experienced in younger age groups, and this rate decreases with age. Findingss in the United States show that caries rates in adults are similar to those of children[27-28]. But in Finnish adults, who had a constant proportion of decayed teeth, regardless of whether they were 35 or 65 years of age29. Manji F report that 'generally held view of caries experience being reduced with age' may not result from reduced caries activity, but from the reduced number of remaining teeth[19]. The cohort effect is an important factor (i.e., each age cohort is assumed to have a distinct lifestyle, socio-economic background, etc.) therefore, the rate at which carious lesions develop early in life, as a result of particularly favorable or unfavorable life conditions, will strongly influence caries levels later in life[19]. So cohort effects are importance when interpreting caries data from today's populations, where dramatic changes in caries experience occur even between age groups only separated by a few years[19].

Conclusion:

Female are more prevalent to dental caries than male. Distribution of caries is higher in the posterior mandibular region compare to all other region of dental arch. Caries is common in every age group of patient, from young to old age adult. Occlusoal surface caries is most commonly observed, then, the proximal surface caries are commonly seen. Occlusal surface caries is more common in mandibular tooth than maxillary. Where, proximal and cervical surface caries was higher in maxillary tooth.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Effects of Carbamazepine and Sodium Valproate on Serum Cholesterol in Epileptic Patients

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Abstract

Introduction: *Epilepsy is a common, chronic and non-communicable disorder of the brain. Carbamazepine, increasing serum cholesterol level, causes adverse cardiovascular and cerebrovascular events. Sodium valproate causes weight gain, hyperinsulinemia and insulin resistance leading to metabolic syndrome. These all cause increased morbidity and mortality of epileptic patients in later life.* ***Objectives:*** *to find out the effects of carbamazepine and sodium valproate on serum cholesterol in epileptic patients.* ***Materials and Methods:*** *This cross-sectional study was conducted in the Department of Biochemistry, Dhaka Medical College during the period of July 2017 to June 2018. A total of sixty diagnosed epileptic patients were selected, of them, thirty patients were taking carbamazepine and thirty on sodium valproate. Data were analyzed with the help of SPSS version 22.0. Unpaired Student's t-test and Mann-Whitney U test were done to see the level of significance ($p<0.05$). For correlation, Pearson's correlation coefficient test was done.* ***Results:*** *Mean ± SD of serum total cholesterol in carbamazepine and sodium valproate patients were 218.73 ± 29.70 mg/dl and 190.14 ± 17.10 mg/dl respectively ($p<0.001$).* ***Conclusion:*** *This study reveals that hypercholesterolemia is related to carbamazepine medications.*

Keywords: *Epilepsy, Carbamazepine (CBZ), Sodium valproate (VPA), Serum total cholesterol (TC).*

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Introduction:

Epilepsy is a neurological disorder characterized by recurrent unprovoked seizures which is transient with abnormal, excessive and synchronous neuronal activity in the brain. It is a common and chronic neurologic disorder worldwide. It has been estimated that 80% of 50 million people with epilepsy reside in developing countries[1]. There are at least 1.5 to 2.0 million people with epilepsy in Bangladesh[2]. Epilepsy occurs in men and women with male predominance and can begin at any age, but is most frequently diagnosed in early life or in old age. Up to 5% of the world's population may have a single seizure at some time of their lives, but a diagnosis of epilepsy is reserved for those who have recurring seizures, i.e. at least two unprovoked seizures[3]. Epilepsy cases are reported higher in rural area than in urban area especially in developing countries. Epilepsy is said to be controlled when no

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seizure for more than six months and uncontrolled when one or more seizures over a period of six months during treatment of epilepsy[4]. The effects of antiepileptic drug carbamazepine may be due to induction of cytochrome P450 (CYP) enzymes in the liver. The CYP450 enzyme system is involved in the synthesis and biotransformation of cholesterol. In particular, CYP51A1 plays a key role in cholesterol synthesis. Also carbamazepine stimulates hepatic synthesis of cholesterol and increase the formation and pool size of bile acids, which in turn raise the level of intestinal absorption of cholesterol by facilitating micelle formation. An elevated serum cholesterol level may increase the risk of adverse cardiovascular and cerebrovascular events[3]. Sodium valproate (VPA) interferes with insulin metabolism in the liver, resulting in hyperinsulinemia in the peripheral circulation leading to increased glucose uptake by the cells[5]. As the structure of VPA is similar to a fatty acid derivative, it directly stimulates pancreatic insulin secretion[6]. Due to structural similarity, sodium valproate competes with other long chain fatty acids for carnitine in the beta-oxidation system, suppressing fatty acids oxidation. Also valproate replaces fatty acids from their binding sites with albumin. These all are leading to increased fatty acids (dyslipidemia) in the blood which are taken up by the peripheral tissues by the anabolic actions of insulin leading to increased body weight[7]. Sodium valproate stimulates appetite and causes hyperleptinemia leading to weight gain. All these metabolic changes are in favour of development of insulin resistance and in the long run, metabolic syndrome[8]. Thus, assessing change in serum cholesterol level following antiepileptic drugs may be useful to choose the safest drug and prevention of cardiovascular complications in later life. So, the study was planned to find out and compare the effects of carbamazepine and sodium valproate on serum cholesterol in epileptic patients to select drugs and diets.

Materials and Methods:

This cross-sectional study was carried out in the Department of Biochemistry, Dhaka Medical College, Dhaka, during the period of July 2017 to June 2018. For this study, sixty (60) diagnosed epileptic patients were selected from the Outpatient Department of Neurology, Dhaka Medical College Hospital, Dhaka. Patients were divided into group A (30) taking carbamazepine and group B (30) taking sodium valproate. Diagnosed epileptic male and female patients of age between 18 to 65 years taking antiepileptic drugs for at least 6 months or more were included as the study subjects. Patients taking more than one antiepileptic drugs, antidyslipidaemic or antipsychotic drugs, pregnant women on antiepileptic drugs and patients with malignancy, diabetes mellitus, chronic kidney disease, liver disease, stroke and ischemic heart disease were excluded. Informed written consents were taken from all the patients and ethical approval for the study was taken from the Ethical Review Committee of Dhaka Medical College. Initial evaluation of the patients by history and clinical examination were performed and recorded in the preformed data collection sheet. Baseline parameters such as age, BMI (Body mass index) and blood pressure were measured and recorded. Then with all aseptic precautions blood samples were collected in the labeled test tubes and serum was separated by centrifugation. Serum total cholesterol level was measured by enzymatic methods in the Department of Biochemistry, Dhaka Medical College, Dhaka. All the data were recorded in a pre-designed data collection sheet. Continuous variables were expressed as Mean ± SD and compared between groups of patients by unpaired Student's t-test. Categorical variables were compared using a Chi-square test and were presented as absolute frequencies with percentages. Correlation was done by Pearson's correlation coefficient test. All p values were two-tailed with significance defined as $p < 0.05$ at the level of 95% confidence interval (CI). All analyses were done using the SPSS 22.0 (Statistical Package for Social Science) package for windows.

Result:

Mean (± SD) age of patients taking carbamazepine (Group A) was 27.90 ± 7.31 years and that of sodium valproate (Group B) was 28.73 ± 7.02 years showing no statistically significant difference ($p > 0.05$). Also Mean (±SD) BMI, duration of antiepileptic drugs, systolic and diastolic blood pressure showed no statistically significant differences ($p > 0.05$) between the groups as shown in table I. Mean (± SD) total cholesterol of patients taking carbamazepine was 218.73 ± 29.70 mg/dl and that of sodium valproate was 190.14 ± 17.10 mg/dl showing statistically significant difference ($p < 0.001$) between the groups. Duration of carbamazepine showed significant positive correlation ($r = +0.441$ and $p = 0.024$) with serum total cholesterol. Duration of sodium valproate showed non-significant ($p = 0.103$) positive correlation with serum total cholesterol.

Table I: Shows that there were no significant differences in terms of baseline characteristics (age, gender, BMI and BP) between the groups.

Table I: Baseline characteristics of study subjects in groups (N= 60)

	Groups		p-value
	Group A (n= 30)	Group B (n= 30)	
Age (years) (Mean ± SD)	27.90 ± 7.31	28.73 ± 7.02	0.654[a]
Gender			
Male	20 (66.7)	18 (60.0)	0.592[b]
Female	10 (33.3)	12 (40.0)	
BMI (kg/m^2) (Mean ± SD)	24.22 ± 1.77	24.80 ± 1.41	0.167[a]

Table I: Baseline characteristics of study subjects in groups (N= 60)

	Groups		p-value
	Group A (n= 30)	Group B (n= 30)	
Duration of AEDs (months) (Mean ± SD)	25.40 ± 23.14	32.63 ± 23.66	0.180[c]
Systolic BP (mm of Hg) (Mean ± SD)	117.33 ± 7.40	117.67 ± 7.74	0.865[a]
Diastolic BP (mm of Hg) (Mean ± SD)	75.17 ± 5.49	75.67 ± 4.87	0.710[a]

aUnpaired Student's t- test was done to measure the level of significance

bChi- square test was done to measure the level of significance

cMann-Whitney U test was done to measure the level of significance

Values within the parenthesis indicate percentage (%)

Level of significance, $p < 0.05$

Group A= Carbamazepine (CBZ)

Group B= Sodium valproate (VPA)

Table II: Shows total cholesterol was significantly higher in patients taking carbamazepine compared to patients taking sodium valproate.

Table II: Laboratory findings of patients in groups (N= 60)

	Groups		p-value
	Group A (n= 30)	Group B (n= 30)	
Total cholesterol (mg/dl) (Mean ± SD)	218.73 ± 29.70	190.14 ± 17.10	<0.001[s]

Unpaired Student's t-test was done to measure the level of significance.

Level of significance, $p < 0.05$

s= significant

Group A= Carbamazepine (CBZ)

Group B= Sodium valproate (VPA)

Table III: Shows significant positive correlation of duration of carbamazepine with serum total cholesterol and nonsignificant positive correlation of duration of sodium valproate with serum total cholesterol.

Table III: Correlation of duration of antiepileptic drugs with serum total cholesterol in two groups (N= 60)

	Group A (n= 30)		Group B (n= 30)	
	r value	p value	r value	p value
Total cholesterol	+0.441	0.024s	+0.304	0.103

Pearson's correlation coefficient (r) test was done to measure the level of significance.

Level of significance, $p < 0.05$

s= significant

Group A= Carbamazepine (CBZ)

Group B= Sodium valproate (VPA)

Discussion:

In this study, there were no statistically significant differences ($p > 0.05$) in terms of baseline characteristics (age, gender, body mass index and blood pressure) as shown in table I. Mean (±SD) age in carbamazepine (Group A) and sodium valproate (Group B) groups were 27.90 ± 7.31 years and 28.73 ± 7.02 years respectively. Mean ± (SD) BMI in group A was 24.22 ± 1.77 kg/m² and in group B, 24.80 ± 1.41 kg/m². Mean ± (SD) duration of antiepileptic drug in group A, 25.40 ± 23.14 months and in group B, it was 32.63 ± 23.66 months. Mean ± (SD) systolic blood pressure in group A, 117.33 ± 7.40 mmHg and in group B, 117.67 ± 7.74 mmHg. Mean ± (SD) diastolic blood pressure in group A was 75.17 ± 5.49 mmHg and in group B, 75.67 ± 4.87 mmHg. According to the findings from this study, mean ± SD of serum total cholesterol was 218.73 ± 29.70 mg/dl in group A and 192.48 ± 17.69 mg/dl in group B. Mean ± SD of total cholesterol level was significantly higher ($p < 0.001$) in group A patients in comparison to group B patients. The same statistically significant result was obtained in the study done by Mahmood and M ded, 2012[9], where mean ± SD of total cholesterol level in carbamazepine group A was 194.34 ± 44.72 mg/dl ($p < 0.05$). A study done by Nikolas et al., 2004[10], found mean ± SD of serum total cholesterol level in carbamazepine group, 225.8 ± 49.3 mg/dl ($p < 0.001$) and total cholesterol level in sodium valproate group was 183.1 ± 39.8 mg/dl ($p < 0.05$). Pearson's correlation coefficient test was done to observe the relationship of duration of antiepileptic drugs with serum total cholesterol in the patients of both groups. Duration of carbamazepine showed a significant positive correlation with serum total cholesterol (for CBZ, r= +0.441 and p= 0.024) and duration of sodium valproate showed a non-significant positive correlation with serum total cholesterol (for VPA, r= +0.304 and p= 0.103). A significant positive correlation ($p < 0.05$) between duration of carbamazepine and serum total cholesterol was established in a study done by Kumar et al., 2003[11].

Conclusion:

The present study demonstrates that hypercholesterolaemia is related to carbamazepine medication. So, it is advocated that regular screening of serum cholesterol in epileptic patients might help reducing complications of dyslipidaemia.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Effectiveness of an Educational Booklet for the Management of Patients with Chronic Low Back Pain

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Abstract

Introduction: *The aim of the present study was to assess the effectiveness of provision of an educational booklet for the management of patients with chronic low back pain.* ***Materials and Methods:*** *A Randomized controlled clinical trial was conducted from January 2018 to June 2018 among 80 patients attending at Physical Medicine and Rehabilitation outpatient department of the Shaheed Suhrawardy Medical College and Hospital after obtaining requisite consent from the patients. 80 Patients were divided into two groups (Group A and Group B). Group A contains Patients educational booklet group + exercises + analgesics (Case group). Group B contains Physicians advice only group + exercises + analgesics (control group). Data were collected through interviewing and examining of the patients. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to assess the effectiveness of provision of an educational booklet for the management of patients with chronic low back pain. The study was approved by the institutional ethical committee.* ***Results:*** *In a pool of 80 patients, the range of age was 18-55 years in case group and control group. There was no significant difference found in age between case and control group (p value is 0.383). Among the patients of case group 28 (70.0%) were male and 12 (30.0%) were female. Among the patients of control group 17 (42.5%) were male and 23 (57.5%) were female. Visual analogue score (VAS) score of group A patient was 5.4±1.0 and group B was 5.7±1.1 (p=0.143). At the first follow up the mean VAS score of group A was 4.5±1.0 and group B was 4.8±0.9 (p=0.111). At the second follow up the mean VAS score of group A was 3.1±0.9 and group B was 3.5±0.8 (p=0.077). And at the final (third) follow up the mean VAS score of group A was1.9±0.8 and group B was 2.4±0.6 (p=0.002).* ***Conclusion:*** *There was significant improvement of pain of case group than control group. At the end of study we can tell that, educational booklet is effective for the management of patients with chronic low back pain.*

Keywords: *Educational booklet, chronic low back pain.*

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Introduction:

Chronic nonspecific low back pain (i.e, low back pain of at least 12 weeks' duration and without a specific cause) is one of the most common health conditions worldwide[1]. Chronic low back pain is highly associated with disability, emotional changes[2] and work

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absenteeism[3]. Worldwide, 65–80% of the population experience low back pain at some stage of their lives[4]. The majority of low back pain is non-specific and has no clear diagnostic, prognostic or treatment protocols[5]. Chronic low back pain is resistant to treatment, and patients are often referred for multidisciplinary treatment[6]. For patients with chronic back pain there are many therapeutic interventions available, but none seems to be better than the others[7]. Manual therapy, specific exercise training and targeted education all seem to promote therapeutic success through targeting distinct aspects of chronic low back pain[8]. Patient education has been a prominent part of the care of low back pain (LBP) for the past two decades based on the belief that recovery from LBP can be enhanced if those who experience it better understand the nature of their problem(s)[9]. Three book types are in common use, labeled here as 1) traditional biomechanical, 2) evidence based and 3) individualized biomechanical. Historically, the majority of educational booklets have taken a "traditional biomedical" approach, including a basic overview of spinal anatomy, explanations of various (established and unestablished) mechanisms and anatomic sources of pain, many recommending the avoidance of pain, even bed rest, and/or use of exercise for aerobic benefit or to strengthen trunk musculature after pain has subsided[10]. A combination of booklet and individual advice is believed to have many advantages: patients may become more aware of treatment options and make the most of consultation. Usually, they also are able to recall the verbal advice better[11]. It also emphasizes that one should get back to normal activities, including returning to work, as soon as possible[11]. As the booklet is easy to deliver, inexpensive, and innocuous,[12] it has become widely used and is considered to be feasible also in the treatment and promotion of self-care among LBP patients[13].

Materials and Methods:

A Randomized controlled clinical trial was conducted from January 2018 to June 2018 among 80 patients attending at Physical Medicine and Rehabilitation outpatient department of the Shaheed Suhrawardy Medical College and Hospital after obtaining requisite consent from the patients. 80 Patients were divided into two groups (Group A and Group B). Immediately after the selection, the studied patients were randomized by drawing lottery and allocated one of the two groups. Each patient was an equal chance of being allocated to any one of the assigned group. Group A contains Patients educational booklet group + exercises + analgesics (Case group). Group B contains Physicians advice only group + exercises + analgesics (control group). Data were collected through interviewing and examining of the patients. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to assess the effectiveness of provision of an educational booklet for the management of patients with chronic low back pain. The study was approved by the institutional ethical committee. The interviews were held directly in the corridor just outside the Outpatient Department.

Result:

The table shows that the mean±SD age of case group was 35.28±6.10 and control group 35.75±6.68. The range of age was 18-55 years in case group and control group. There was no significant difference found in age between case and control group (p value is 0.383) (Table I).

Table I: Age distribution of the study population (n=80)

Age in years	Group A (n=40)	Group B (n=40)
18-25 years	10 (25.0%)	8 (20.0%)
26-34 years	12 (30.0%)	15 (37.5%)
35 years and above	18 (45.0%)	17 (42.5%)
Mean age	30.7±6.1	31.8±6.9

***P value 0.401**

*chi square test &t test

**Significance=p<0.05

The figure shows that among the patients of case group 28 (70.0%) were male and 12 (30.0%) were female (Figure 1).

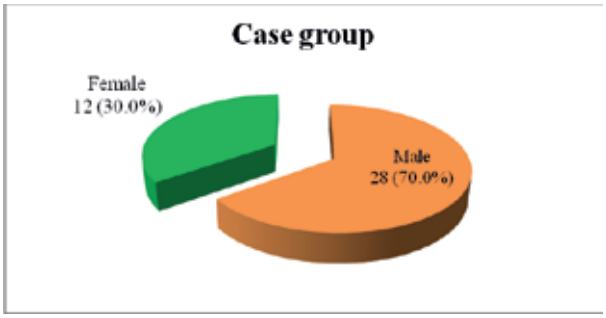

Figure 1: Pie Chart Showing Sex distribution of case group

The figure shows that among the patients of control group 17 (42.5%) were male and 23 (57.5%) were female (Figure 2).

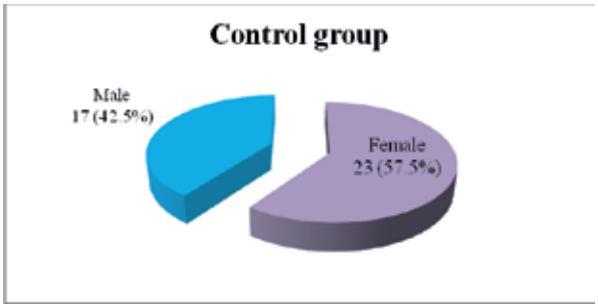

Figure 2: Pie Chart Showing Sex distribution of control group

The table shows that at the baseline visit the mean ODI (Oswestry disability index) score of group A patient was 15.5±2.5 and group B was 15.7±2.4 (p=0.619). At the first follow up the mean ODI score of group A was 14.1±2.0 and group B was 14.4±1.8 (p=0.554). At the second follow up the mean ODI score of group A was 11.0±2.2 and group B was 11.7±2.0 (p=0.148). And at the final (third) follow up the mean ODI score of group A was

7.9±2.1 and group B was 8.8±2.0 (p=0.060). There was no significance difference between case and control group (Table II).

Table II: Oswestry disability index score among the study patients (N=80)

Oswestry disability index score	Group A (Mean±SD)	Group B (Mean±SD)	P value
Baseline	15.5±2.5	15.7±2.4	0.619
1st follow up	14.1±2.0	14.4±1.8	0.554
2nd follow up	11.0±2.2	11.7±2.0	0.148
3rd follow up	7.9±2.1	8.8±2.0	0.060

*t test= Independent Samples t-test

**Significance=p<0.05

The table show that at the baseline visit the mean VAS (**Visual analogue scale**) score of group A patient was 5.4±1.0 and group B was 5.7±1.1 (p=0.143). At the first follow up the mean VAS score of group A was 4.5±1.0 and group B was 4.8±0.9 (p=0.111). At the second follow up the mean VAS score of group A was 3.1±0.9 and group B was 3.5±0.8 (p=0.077). And at the final (third) follow up the mean VAS score of group A was1.9±0.8 and group B was 2.4±0.6 (p=0.002). There was significance difference between case and control group (Table III).

Table III: Visual analogue scale score among the study patients (n=80)

Visual analogue scale score	Group A (Mean±SD)	Group B (Mean±SD)	P value
Baseline	5.4±1.0	5.7±1.1	0.143
1st follow up	4.5±1.0	4.8±0.9	0.111
2nd follow up	3.1±0.9	3.5±0.8	0.077
3rd follow up	1.9±0.8	2.4±0.6	0.002

*t test= Independent Samples t-test

**Significance=p<0.05

Discussion:

As in the result of our study, we can see that the main outcome of the study variables suggest that our educational booklet played a significant role to reduce pain and disability. Educational booklet is one of the important instruments of the patient's health education which guided them always in their daily life. In a comprehensive review of health education methods Gatherer and colleagues[14] commented that 'written instructions appear to be inferior to most other sorts of instruction' They suggested that written material often produced limited change in patients' knowledge or behavior and that effects which had been demonstrated were often short lived. However, most studies of health education leaflets have been on unsolicited material sent to patients. One might expect that written material given to an individual patient by his or her general practitioner would be more effective. There have been four previous controlled trials of health education booklets in general practice. In a trial of a booklet giving instructions about the management of minor illness, Anderson and colleagues[15] showed that the receipt of the booklet was associated with a reduction in consultations for symptoms described in the booklet. There was, however, no detectable increase in knowledge about minor illness among patients receiving the booklet. In the second trial, which was of a booklet for patients with hypertension, receipt of the booklet was associated with a small increase in understanding about hypertension, but not with improved blood pressure control[16]. In the third trial, a booklet on smoking was coupled with a warning about follow up by the general practitioner, and this combination was associated with a significant increase in the proportion of patients who stopped smoking[17]. In the fourth trial, the Back book appeared acceptable to patients, and indeed it was remarkable that more than two thirds of respondents claimed that they still had their booklet one year after they had been given it by their general practitioner. No formal analysis was carried out of the acceptability of the booklet to the doctors, but comments were almost universally favorable. When consultations with the general practitioner for back pain were analyzed, it was found that the booklet had a different effect at different times of the study year. However, the booklet had no effect on absence from work owing to back pain. This suggests that the observed reduction in consultations for back pain in the booklet group may have been in patients whose back pain was relatively less disabling[18]. In the present study between the two outcome measures one was reached and another differences was almost reached the statistical significance at the 5% level. When the sample size of 80 patients was chosen for this study, it was accepted that this would not be sufficient to detect reliably an effect of the booklet. But the results of this study demonstrate that an educational booklet is a useful resource for the patients and also for the general practitioner in his management of patients with back pain. The booklet was valued both by doctors and by patients. Receipt of the booklet was associated with a small reduction in the number of patients consulting with back pain and an increase in patients' knowledge about back pain.

Conclusion:

The educational booklet provided reassurance about the natural history of low back pain coupled with clear instructions on pain management. This information could have enhanced patients' perception of LBP as a symptom that could be managed without professional help, and reduced the demands of some patients for something to be done. A larger study is needed to explore these hypotheses further. In the test of knowledge about LBP, patients in the booklet group scored significantly higher than control group.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Complications of Nd Yag Laser Capsulotomy

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Abstract

Introduction:*Aim and objective is to study the intra and post laser complications of Nd yag laser posterior capsulotomy and to find out the incidence of complications.* ***Materials and Methods:*** *This study was conducted in the department of ophthalmology, Ad-Din Women Medical College 2, Bara moghbazar, Dhaka from July 2018 to June 2022. Our study included 206 patients of 220 eyes with significant PCO. Before laser capsulotomy all patients were assess by routine slit lamp examination, IOP measurement and posterior segment examination done for every patient for exclusion of gross posterior segment pathology. Nd yag laser capsulotomy was carried out under topical anesthesia. These patients were assessed for post laser visual acuity and complications in 1st POD after 7 day and 1 month. Every patients with post laser routine medications and as per need of other related eye problems.* ***Results:*** *Total 220 eyes of 208 patients included in our study ,including 93 male (44.71%) and 115 female (55.29%) table -.Range of age were 21yrs to 87 years (table -1) laser capsulotomy were done one eye in 208 patients and both eyes in 14 patients .The total no of eyes included our study was 220. Range of energy used in our study from 1 to 4.5 mJ. Complications were noted after yag laser capsulotomy In 29 eyes (13.76%) though after taking maximum precaution for avoiding complications including pre laser slit lamp examination, assessment of IOP, proper dilatation of pupil, power setting were minimum as per as possible.* ***Conclusion: The Nd yag laser capsulotomy is an effective, safe procedure for the treatment of opaque posterior capsule which is unique and magical approach for improvement of vision and restoration of effective life style.*** *Every procedure have some adverse effect, Nd yag laser capsulotomy also have some complications .but benefit are tremendous if we can go in proper way.*

Keywords: *PCO, Yag laser, capsulotomy.*

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Introduction:

Posterior capsular opacification is the most common visual impairment after cataract surgery, may be in small incision cataract surgery or modern technique by phacoemulsification. PCO is one of the most late complications of cataract surgery[1] in one study the frequency of PCO after cataract surgery were 1.6% , 12.3% and 26.5% at 1,2 and 3 years respectively [2]. PCO formed due to migration and proliferation of epithelium specially from equatorial region and the remnant of anterior lens capsule fibrosis and formation of posterior capsular opacity which causes gradual impairment of vision and also decreased contrast sensitivity.

Materials and Methods:

It was a prospective study conducted over a period from July 2018 to December 2022 at AD-Din Medical College and Hospital 2, Bara moghbazar ,Dhaka. A total of 206 patients (220eyes) were included in the study. Patients above the age of 15 years, more than 6 months after cataract surgery, significant posterior capsular opacity and uncomplicated cases of both male and female under our study. Extreme age, non-coperative, previous history of retinal detachment surgery, active 0uveitis, glaucoma, dislocated IOL, zonular dialysis and any form of congenital defects were excluded our study. Before laser capsulotomy %detailed history was taken and complete ocular examination were done including visual acuity slit lamp examination, tonometry with Goldman applanation

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tonometer and fundus examination. Study period was Ad-din Medical College Hospital department of ophthalmology from July 2018 to December 2022. The study method included a series of patients in out patient dept of ophthalmology were selected. After proper history was taken regarding cataract surgery of the respective patient. Pre laser detailed slitlamp examination ,measurement of intra-ocular pressure and exclusion of posterior segment were done by funduscopy and some case colour fundus photography. Uncontrolled diabetes mellitus and severe hypertension and patients with oucular inflammation were excluded in our study.

Result:

A total of 206 patients (220 eyes) were included in the study including 93 male (45.15%) 113 female (55.29%). Age range of 21 to 80 years. Age distribution of patients is shown in table –I, table- II shown side of eyes. Table -III shown sex distribution, table -IV shown distribution of Nd yag laser done after cataract surgery, Table V- energy level used in capsulotomy and table shown complications.

Table-I: Age distributions

Age	No	%
21-29	10	4.55%
30-39	08	3.64%
40-50	40	18.18%
51-60	70	31.82%
61-70	58	26.36%
71-80	28	12.73%
81 above	06	2.73%
	220	100%

Table-II: Side of the eyes.

Side		
Re	123	55.91%
LE	97	44.09%
	220	100%

Table –III: Sex distribution.

Sex	No	%
Male	93	45.15%
Female	113	54.85%
Total	206	100%

Table-IV: Time interval between PCO formation and Nd yag laser capsulotomy

Time interval	No of eyes	%
6 month	15	6.82%
01 year	75	34.09%
02 years	60	27.27%
03 years	45	20.45%
04 years	25	11.36%
	220	100%

Table-V: Energy level used for capsulotomy:

Energy level(MJ)	No of eyes	Percentage
1-2	62	28.18%
2.1-2.5	55	25%
2.6—3	39	17.73%
3.1-3.5	38	17.27%
3.6-4.0	16	7.27%
4.1-4.5	10	4.55%
	220	100%

Table-VI: Types of Complications of post yag laser:

Complication	No of patient	Percentage
IOL pitting	10	34.48%
Transient IOP elevation	13	44.83%
Cystoid macular edema	02	6.90%
Uveal reaction	04	13.79%
Total	29	100%

Discussion:

The reported incidence of PCO is 20.7% at 2 years and 28.5% at 5 years after cataract surgery 1. PCO is the most frequent cause of diminished visual acuity after extra-capsular cataract surgery 2. Nd yag laser capsulotomy is the standard treatment of PCO 3. An immediate improvement in visual acuity in 94% of cases treated by capsulotomy in a review by weiblinger et al .4 though reliable ,Nd –yag laser capsulotomy can lead to complication like spike in IOP , lens damage, change in refraction, macular edema, retinal tear and retinal detachment 5,6. Despite the prophylactic treatment, increased IOP was reported in 15 -30% of the patients in several Studies7, 8, 9. Nd yag laser capsulotomy has been found to affect the lens position10. Retinal tears and detachments are established complications of Nd yag Laser capsulotomy. It has been estimated that the risk of retinal detachment is four times higher after laser capsulotomy11 ,12 ,13 .

Nd yag laser capsulotomy is a most common and effective procedure after small incision cataract surgery and phacoemulsification the currently most advanced cataract surgery. Posterior capsular opacification is a major most remote complication of cataract surgery , specially younger age group and children 14,15,16.

In our study 220 cases the time interval between cataract surgery and Nd yag laser capsulotomy were 2.5 years (range from 6 months to 4 years) while it was reported as 2.49 years by Hasan 17 and two year in a national study 18. In our study IOL pitting was 10 (34.48%). IOL Damage (IOl pitting) Hasan KS et al has noted IOL pitting 19.8% in a study of 86 eyes 18 and Haris WS noted 11.7% significant marks on IOL during laser capsulotomy in 342 eyes 19. The Retro –focusing of laser beam can reduce the risk of IOL damage 20.

Transient raised of intraocular pressure:

The second most complication of yag laser capsulotomy in our study was transient raised IOP which were seen in 13 cases (44.83%). The mean raised of IOP were 7 mm Hg above the baseline. The frequency of elevation of IOP after yag laser capsulotomy is highly variable ranging from 0.8mm

Hg (B) to 82mm Hg 18 in different studies 20, 21, 22. However the IOP elevation is usually transient. In another study transient raised of intraocular pressure were 8.69%. In our study, the IOP was well controlled with topical beta blocker in all cases and suspected case we use also tab acetazolamide 250mg 4times daily and with potassium supplement.

Cystoid macular edema:

In our study cystoids macular edema was seen in 02–eyes (6.90%). In other study cysctoid macular edema was 6.90 %. In one study CME were seen in 9.6% 23. In another study CME was seen in 8.0% cases while in another study it was seen in 0.2% cases27.

Anterior uveitis:

It was seen in our study was 04(13.79%). Other study Anterior uveitis was seen in 05 eyes (1.14) 24. In another study it was 1.14%. In one study anterior uveitis was noted in 46.2% cases after yag laser capsulotomy27. In one study conducted by Muhammad et al anterior uveitis was seen in 8.0% cases 25 while in another study it was seen in 0.6% cases after yag laser capsulotomy 26. In our study anterior uveitis was not so severe and responded well to topical steroid therapy.

Retinal detachment, lens dislocation subluxation hyphema and endophthalmitis may happen. These complications were uncommon in other study as well 21, 24, 16, 18. Other complications of yag laser such a corneal endothelial damage 25 vitreous haemorrhage 10 macular hole 26 and macular hemorrhage were not seen in our study27.

Most of these complications are associated with the use of high energy level combined with minimum number of precisely focused shots for achieving the desired effect can reduced the risk of complications 24,28.

Conclusion:

The Nd yag laser capsulotomy is an effective, safe procedure for the treatment of opaque posterior capsule which is unique and magical approach for improvement of vision and restoration of effective life style.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Pattern of Childhood Malignancy in a Tertiary Care Hospital

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Abstract

Introduction: *Cancer is a leading cause of death for children and adolescent worldwide. The cure rates in low middle-income countries are dismal (20%) in comparison to high income countries (80%). This study attempts to provide spectrum of pediatric malignancies from a tertiary care hospital in Bangladesh.* ***Aim:*** *Aim of this study is to evaluate the pattern of Childhood malignancy in a tertiary care hospital like Dhaka Medical College Hospital(DMCH).* ***Materials and Methods:*** *It is a prospective observational study was done in DMCH, over a period of 1 year (March 2014 to February 2015). After fulfilling the inclusion criteria, total 200 children aged 0-15 years were enrolled in this study. For classification of pediatric malignancies the International Classification of Childhood Cancer (ICCC), was followed.* ***Results:*** *Patients were stratified in 4 groups according to the age; 0-3 years, 3-6 years, 6-9 years and 9-12 years. Most of the patients fell in 6–9-year group (29%), followed by 3–6-year group (25%). Majority of cases, 61% were male. The male to female ratio was 1.55:1. Among 200 cases, Leukemia (49%) was the most common malignancy followed by lymphoma, CNS Tumor, Neuroblastoma, Retinoblastoma, Wilms tumor and Malignant bone tumors. Acute lymphoblastic leukemia (ALL) comprises majority (98/200) of leukemia.* ***Conclusion:*** *This study gauges the trend of pediatric malignancies in Bangladesh, which is important in the planning and evaluation of health strategies. In Bangladesh, where there is dearth of high-quality data as we lack a dedicated pediatric cancer registry, such epidemiological studies play a significant part for this small but distinguished group of patients.*

Keywords: *PHO, DMCH, ALL, AML, Neuroblastoma, Retinoblastoma, Lymphoma.*

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Introduction:

Childhood neoplasm comprises a diverse array of malignant tumors arising from disorders of genetic processes involved in control of cellular growth and development[1]. Childhood cancer remains the leading cause of disease-related mortality among children 1 to 14 years of age[2]. Pediatric cancers differ markedly from adult malignancies in both prognosis and distribution by histology and tumor site[3]. Childhood cancer is on rise all over the globe. Its impact on children's lives varies with its incidence, diagnosis, therapy mortality and survival at different places and times[4]. Each year estimated 4, 00,000 children and adolescents of 0-19 years old develop cancer[5]. In high income countries, where comprehensive services are generally accessible, more than 80% of children with

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cancer are cured. In low- and middle income countries (LMICs), less than 30% are cured[6,7]. Only 29% of low-income countries report that cancer medicines are generally available to their populations compared to 96% of high-income countries[8]. About 580,350 are expected to die of cancer in each year (almost 1,600 people per day), and 80% of them live in developing coutries[9]. While cancer rates in general are decreasing in the United States and many western countries, they are increasing in less developed and economically transitioning countries, including eastern European countries, because of adoption of unhealthy western lifestyles such as smoking and physical inactivity and consumption of calorie-dense food[10]. Prevalence of cancer burden varies in different countries in the world. Sri Lanka is our neighboring country. The pattern of cancer prevalence in Sri Lanka is such as Leukaemia-34.6%, lymphoma-19.9%, Brain tumor-9.9%, Adrenal gland tumor- 4.2%, Other and ill-defined site-4.2%, Bonetumors-3.7%, Kidney-3.7%, Eye and adnexa-3.7%, Conn tissue, subcutaneous and other soft tissue-3.1%, Thyroid gland tumor-2.1%[11]. The same finding is noted in India also. Acute Leukemias are the most common type of childhood cancer in India. Incidence of ALL is more common in the age group 1-4 years in both sexes. The frequency of ALL, Neuroblastoma, Wilms's tumor, Retinoblastoma and Hepatoblastoma are predominant in under 5 children. An increased frequency with age is seen in non-Hodgkin's lymphoma, Hodgkin's disease, osteosarcoma and Ewing's sarcoma. The early onset and the embryonal nature of many pediatric tumors suggest a prenatal origin[12]. In Bangladesh, Lymphoma (24.2%), Retinoblastoma (17.4%), and Leukemia (14.3%) were the commonly found childhood cancers among the children attended at NICRH. Other less commonly tumor found tumor were bone tumor (7.2%), Kidney tumor (6.8%), Central nervous system tumor (3.7%), Testicular tumor (3.7%) and Hepatocellular cancer (1.3%)[13]. In Iran, the most common cancer in children from 0-14 years old was Leukemia, Lymphoma and central nervous system tumors[14]. If diagnosed at an early stage and if treatment is available, most childhood cancers are highly curable. However, this advance has been restricted to people living in high-income countries[15]. In our country, cancer is the sixth leading cause of mortality. Bangladesh does not have a childhood cancer registry to help inform planning decisions across the country[16]. Childhood cancer data systems are needed to drive continuous improvements in the quality of care, and to inform policy decisions. Every hospital should have a cancer registry and should implement a standard guideline to ensure appropriate care, better follow up and outcome of the patient[17].

Materials and Methods:

It is a prospective observational study conducted over a period of 1 year (March 2014 to February 2015) in the department of pediatric hematology and oncology (PHO) at a government tertiary health care cancer facility of Bangladesh after obtaining permission from concerned authority. All the children aged 0-15 years admitted at the department of PHO in Dhaka Medical College Hospital (DMCH) which were diagnosed as a case of malignancy by means of peripheral blood smears and Bone marrow studies were included in this study. For classification of pediatric malignancies, the International Classification of Childhood Cancer (ICCC) was followed. Tissue biopsy or lymph node biopsy, CT scan or MRI and other relevant investigations were taken in the study.

The data were entered in an EXCEL sheet and then analyzed. Descriptive statistics for continuous variables and frequency distribution, with their percentages were calculated as required.

Ethical Clearance:

Written informed consent was taken from each patient. Ethical clearance was done from ethical committee of Dhaka Medical College Hospital.

Result:

The data were recorded for 200 patients from age 0-15 years. Patients were stratified in five groups i.e., 0–3-year, 3-6 year, 6-9-year, 9-12 year and 12-15 year (Figure 1). Most of the patients (29%) were placed in 6–9-year group (58/200), followed by 25% (50/200) patients in 3–6-year group. There were 24% (48) and 22% (44/200) patients from age group 1-3years and 9-12 years. The mean and medium age is 10.3 years and 11 years respectably in the present study. Sex wise distribution: majority of cases, 61% (122/200) were male in comparison to 39% (78/200) were female (Figure 2). The male to female ratio is 1.55:1. Among 200 cases, Leukemia (49%) was the most common malignancy followed by Lymphoma, CNS Tumor, Neuroblastoma, Retinoblastoma, Wilm's tumor etc.

Table I shows that mean age was 6.11(±3.31) years, minimum age was 1 year and maximum age was 12 years.

Table I: Age-wise Distribution of Childhood Malignant Patients

Age Group	Frequency	Percent
1-3 years	48	24
3-6 years	50	25
6-9 years	58	29
9-12 years	44	22
12-15 years	00	00
Total	200	100
Mean SD	**6.11 (±3.31)**	**Range 1-12**

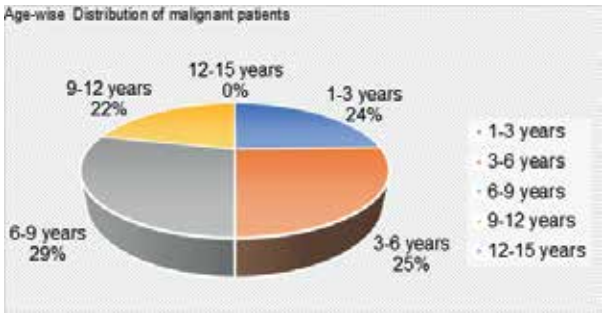

Figure 1: Age-wise Distribution of Malignant Patients

Figure 2 shows majority 61% were male and 39% were female. Male female ratio 1.55:1.

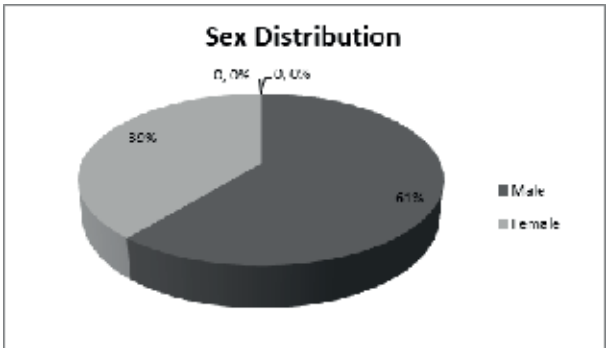

Figure 2: Sex Distribution of Study Population

Table II: Distribution of Various Cancers

Sl. No.	Type of Cancer		Total Patients	Total (%)
01	Leukemia	ALL	98	49
		AML	19	9.5
		CML	01	0.5
02	Lymphoma	Hodgkin Lymphoma	09	4.5
		Non-Hodgkin	20	10
03	CNS Neoplasm		13	6.5
04	Neuroblastoma		11	5.5
05	Retinoblastoma		06	3
06	Renal Tumors (Wilms Tumor)		05	2.5
07	Bone Tumor	Osteosarcoma	04	2.0
		Ewing Sarcoma	03	1.5
08	Soft Tissue Sarcoma	Rhabdomyosarcoma	02	1.0
		Other STS	01	0.5
09	Soft Tissue Sarcoma		01	0.5
10	Soft Tissue Sarcoma		01	0.5

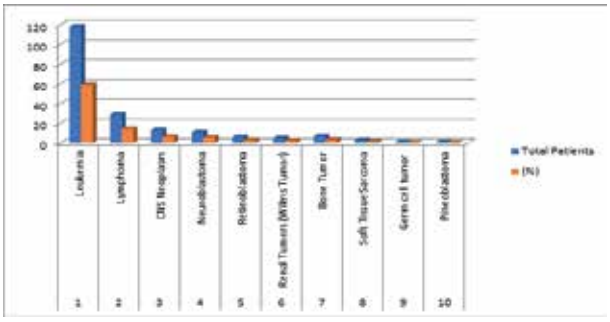

Figure 3: Distribution of Various Cancers

Discussion:

Malignant neoplasm remains the leading cause of disease related mortality (12.8%) among persons 1-14 years of age. To our knowledge Bangladesh has few studies about pediatric cancer profile. In many countries in the world like USA, Australia, Singapore, Switzerland has made profile about childhood cancer and they could increase the relative 5 years survival rate and improve the quality of life. This study will be helpful to decrease the mortality and morbidity rate and improve the quality of life of children having cancer. The prospective observational study was carried out at Department of PHO, in DMCH, Dhaka. In this study common pattern of childhood malignancy were ALL, Non-Hodgkin lymphoma, AML, CNS Neoplasm, Neuroblastoma, Hodgkin lymphoma, Retinoblastoma, Wilms tumor, Germ-cell tumor, and Embryonal Rhabdomyosarcoma which were 98 (49%), 20 (10%), 19 (9.5%), 13 (6.5%), 11(5.5%), 9 (4.4%), 6 (3%), and 05 (2.5%) respectably. A review of Population based cancer registries data on Childhood cancers in India shows, top five childhood malignancy are Leukaemia, Lymphoma, CNS tumor, Retinoblastoma, and Malignant bone tumor among them Leukaemia was the most common followed by Lymphoma[18,19]. Childhood, adolescent and young adult cancer incidence in Japan from 2009–2011 shows that, The five leading childhood cancers were Leukemia, Lymphoma, cancer of the central nervous system (CNS), Neuroblastoma, Malignant germ cell and other Gonadal tumors in 0–14 years[20]. Patterns and Trends of Childhood Malignancy in Sri Lanka shows, an increase in incidence of childhood malignancy from 2.6 (in 1982) to 6.2 (in 1994) was observed. Leukaemia (42%) was the commonest malignancy of which 82. 7% of cases were Acute Lymphoblastic Leukaemia, followed by Lymphomas (12.6%) and Malignant tumors of CNS (9.7%)[21]. In our study, majority of cases, 61% (122/200) were male in comparison to 39% (78/200) were female (Figure 2). The male to female ratio is 1.55:1. It is almost similar to that of Indonesia where male female ratio was 1.5:1. The socio-cultural aspect could explain the male predominance, which includes prioritizing male referral to better health access, while female children tended to be neglected[22]. In this study, most of the patients (29%) were placed in 6–9-year group (58/200), followed by 25% (50/200) patients in 3–6-year group. This was near about same as another population-based registry study, devised by the International Agency for Research on Cancer in collaboration with the International Association of Cancer Registries, found that cancer prevalence were more common in 5-9 years age group[23]. A retrospective study in Nigeria in 2009 showed a relative increase of Leukemia with a relative decrease of BL over a period of 30 years[24]. Two other studies one in Sudan and other in Egypt have shown an increase in the frequency of Leukemia whereby in the Sudan study Leukemia (26%) was second to Lymphoma[25].

Conclusion:

In conclusion common pattern of childhood malignancy were ALL, Non-Hodgkin lymphoma, AML, CNS Tumor, Neuroblastoma, Hodgkin lymphoma, Retinoblastoma, Wilm's tumor, Malignant bone tumor, Embryonal Rhabdomyosarcoma, Germ cell tumor. This study gauges the trend of pediatric malignancies in Bangladesh, which is important in the planning and evaluation of health strategies. In Bangladesh, where there is dearth of high-quality data as we lack a dedicated pediatric cancer registry, such epidemiological studies play a significant part for this small but distinguished group of patients.

Limitation:
The present study is a single institution-based study. Small sample size and lack of follow-up served as a limitation.

Conflict of Interest: None.

Acknowledgement:
I am grateful to Prof. Dr. AKM Amirul Morshed Khosru Head of department of Paediatric Haematology and Oncology, Dhaka medical College Hospital, Dhaka for his endless support. I also like to thanks all the co-authors for their contribution. I also express my profound gratitude to Medicine Today.

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ORIGINAL ARTICLE OPEN ACCESS

The Effect of Atorvastatin Plus Ezetimibe Therapy Versus Atorvastatin Monotherapy On Clinical Outcome in Acute ST-Segment Elevation Myocardial Infaction(STEMI)

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Abstract

Introduction:*An acute ST-elevation myocardial infarction (STEMI) is an event in which transmural myocardial ischemia results in myocardial injury or necrosis. The current 2018 clinical definition of myocardial infarction (MI) requires the confirmation of the myocardial ischemic injury with abnormal cardiac biomarkers. Acute coronary syndrome is the leading cause of death in the world and this is a consequence of unstable plaque due to dyslipidemia, reviewing with elevated LDL cholesterol. Reduction in LDL-c repeated clinical outcomes in patients with the acute coronary syndrome.* ***Objectives:*** *To assess the effect of atorvastatin plus ezetimibe therapy versus atorvastatin monotherapy on clinical outcome in acute ST-Segment Elevation Myocardial Infaction(STEMI).* ***Materials and Methods:*** *A cross-sectional study was performed at dept. of Cardiology, Parkview Medical College, Sylhet, Bangladesh from June to December 2022. A total of 50 patients were evaluated in the study, including 42 patients with acute coronary syndrome with LDL-c levels≥70mg/dL at Can Tho Central General Hospital, we divided randomly into 2 groups: group A: control LDL-c by atorvastatin 40mg and ezetimibe 10mg; group B: control LDL-c by atorvastatin 40mg monotherapy. Then we compared the effect of control LDL-c between two groups after 10 follow-up days.* ***Results:*** *50 patients with acute coronary syndrome: 60.0% male and 40.0% female, the average age was 66.03 ± 12.06 years, 82.0% LDL- c levels ≥7 mg/dL. After 10 days of treatment, the target LDL-c concentration in the group treated with atorvastatin 40mg+ ezetimibe 10mg was 48.1%, in the group treated with atorvastatin 40mg was 29.9% ($p<0.05$).* ***Conclusion:*** *: LDL-c ratio reaches the target in the treatment group by atorvastatin 40mg + ezetimibe 10mg was 48.1% in the treatment group with atorvastatin 40 mg was 29.9% ($p<0.05$). From the results of our study, we recommend the combination therapy of atorvastatin and ezetimibe control LDL-c in patients with acute coronary syndrome better than atorvastatin monotherapy, thus physicians to treat patients with the acute coronary syndrome should combine early atorvastatin with ezetimibe since hospitalization.*

Keywords: *Acute coronary syndrome; LDL-C; Atorvastatin combination with ezetimibe.*

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Introduction:

An acute ST-elevation myocardial infarction (STEMI) is an event in which transmural myocardial ischemia results in myocardial injury or necrosis[1]. The current 2018 clinical definition of myocardial infarction (MI) requires the confirmation of the myocardial ischemic injury with abnormal cardiac biomarkers[2]. It is a clinical syndrome involving myocardial ischemia, EKG changes and chest pain. Acute coronary syndrome (ACS) is defined as acute ST-segment elevation myocardial infarction (MI), non-ST segment

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elevation MI, and unstable angina. Intensive lipid-lowering therapy is important in patients with the acute coronary syndrome (ACS). This is an emergency disease that needs to be diagnosed and treated early with high mortality. The most common cause is dyslipidemia, mainly with elevated LDL-c. Increased LDL-c will disturb the function of endothelial blood vessels, lipid accumulation in the walls of arteries, leading to atherosclerosis, narrowing of the arteries, clogged arteries, resulting in myocardial ischemia, ACS[3,4]. Myocardial infarction in general can be classified[5] from Type 1 to Type 5 MI based on the etiology and pathogenesis. Type 1 MI is due to acute coronary atherothrombotic myocardial injury with plaque rupture. Most patients with ST-segment elevation MI (STEMI) and many with nonST-segment elevation MI (NSTEMI) comprise this category. Type 2 MI is the most common type of MI encountered in clinical settings in which is there is demand-supply mismatch resulting in myocardial ischemia. This demand supply mismatch can be due to multiple reasons including but not limited to presence of a fixed stable coronary obstruction, tachycardia, hypoxia or stress. However, the presence of fixed coronary obstruction is not necessary. However, reaching the LDL-c target is not easy, even with the maximum dose of atorvastatin. The guideline suggests that low-density lipoprotein cholesterol (LDL-c) should be the primary target, so the treatment goal of LDL-c is <70mg/dL for patients with ACS. Statins are usually the first-line therapy. High-intensity statins are preferred, and up-titration to the highest recommended and tolerable dose to reach the target is necessary. Combination therapy with statins and ezetimibe can also be considered. Ezetimibe is one kind of lipidlowering drug known as cholesterol absorption inhibitors that have a different metabolic pathway with statins repeated cardiovascular outcomes in patients with the acute coronary syndrome and does not increase the side effects of atorvastatin[6].

Materials and Methods:

A cross-sectional study was performed at dept. of Cardiology, Parkview Medical College, Sylhet, Bangladesh from June to December 2022. A total of 50 patients were evaluated in the study, including 42 patients with acute coronary syndrome with LDL-c levels≥70mg/dL at Can Tho Central General Hospital, we divided randomly into 2 groups: group A: control LDL-c by atorvastatin 40mg and ezetimibe 10mg; group B: control LDL-c by atorvastatin 40mg monotherapy. Then we compared the effect of control LDL-c between two groups after 10 follow-up days. Patients diagnosed with ACS (ST-segment elevation myocardial infarction (MI), non-ST segment elevation MI and unstable angina) following the 2014 American Heart Association Standards7. Exclusion criteria were patients who had a renal failure with serum creatinine>2mg/dL, abnormal liver enzymes, muscle diseases, active hepatitis, secondary hyperlipidemia, or who refused to participate in the study. Statistical analysis was performed by using SPSS Statistics version 20.0.0 computer software. After making the diagnosis of acute ST-elevation myocardial infarction, intravenous access should be obtained, and cardiac monitoring started. Patients that are hypoxemic or at risk for hypoxemia benefit from oxygen therapy; however, recent studies show possible deleterious effects in normoxic patients [8, 9]. Patients should undergo percutaneous coronary intervention (PCI) within 90 minutes of presentation at a PCI capable hospital or within 120 minutes if transfer to a PCI capable hospital is required [10]. If PCI is not possible within the first 120 minutes of first medical contact, fibrinolytic therapy should be initiated within 30 minutes of patient arrival at the hospital [10]. It is important to rule out conditions that can mimic an acute coronary syndrome like acute aortic dissection or acute pulmonary embolism.

Result:

Table I: Baseline clinical characteristics (n = 50)

Characteristic	Mean ± SD or n (%)
Age (year)	66.03 ± 12.06
Male sex, n (%)	30 (60.0)
BMI mean (Kg/m^2 ± SD)	22.59 ± 3.26
Hypertension	40 (80.0)
Diabetes	11 (22.0)
Lack of physical activity	29 (58.0)
Smoking	23(46.0)
Family history of cardiovascular diseases	2(4.0)

This study included 50 patients diagnosed with ACS. The average age of the patient was 66.03 ± 12.06 years; 60.0 % were male.

Table II: LDL-c levels ≥70mg/dl mg/dL (N=50)

LDL-c levels ≥70 mg/dL	Frequency (n = 50)	Proportion (%)
Yes	41	82.0
No	9	18.0
Total	50	100

Comment: 82.0% patients with ACS had LDL-c levels ≥ 70mg/dl. Target LDL-c levels after treatment in ACS patients.

Table III: Baseline characteristics in the two groups before treatment (n=40)

Characteristics	Group A (n = 21)	Group B (n = 20)	P
Female, n (%)	15 (48.4)	16 (51.6)	0.282
Age, mean	64.67	67.23	0.258
BMI, Kg / m^2	22.37	22.92	0.254
MI with ST-segment elevation n (%)	6(60.0)	4 (40.0)	0.531
LDL-c levels (mmol/L)	3.65	3.30	0.103

Comment: Baseline characteristics of the two groups including sex, age, BMI, percentage of STEMI, and LDL-c levels showed no significant difference (all p-value>0,05).The proportion of patients achieving target LDL-c levels after the treatment therapies.

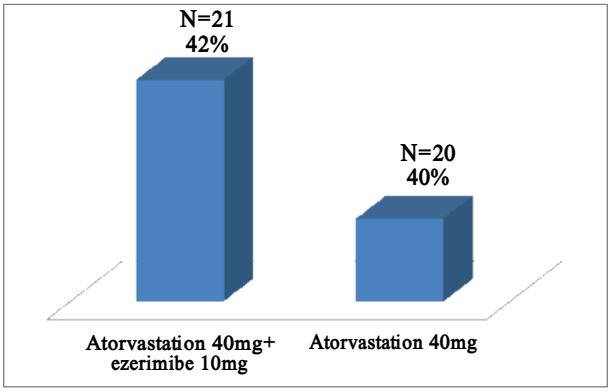

Figure 1: Rate of target LDL-c levels after 10 days of follow-up.

The LDL-c levels results achieved higher post-treatment targets in group A (42%) compared to group B (40%) with p<0.05.

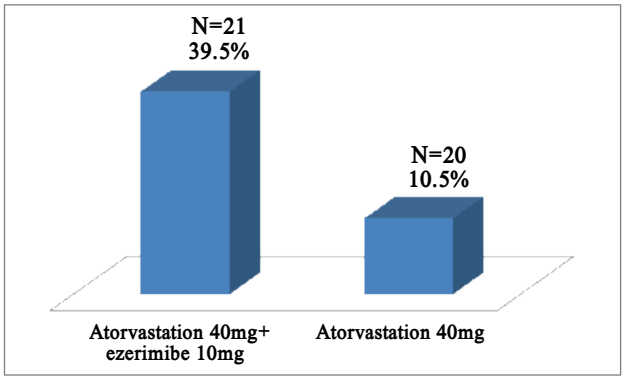

Figure 2: LDL-c levels decreased 50% after 10 days of followup.

The percentage of LDL-c concentration decreased by 50% in the combination treatment in group A (39.5%) which was higher than that in group B (10.5%), with p<0.05.

Table IV: LDL-c levels before and after treatment (N=40)

Group	LDL-c levels (mmol/L)		P
	Before treatment	After treatment	
A (n = 21)	3.65 ± 1.09	1.92 ± 0.58	<0.05
B (n = 20)	3.30 ± 1.09	2.27 ± 0.76	<0.05
Total	3.48 ± 1.10	2.09 ± 0.69	<0.05

Comment: LDL-c levels after treatment in group A (1.92 ± 0.58mmol/L) were lower than group B (2.27 ± 0.76 mmol/L) with p<0.05.

Table V: Mean LDL-c levels reduction before and after treatment (N=40)

Group	LDL-c levels (mmol/L)	
	Before treatment	After treatment
A (n = 21)	3.65±1.09	1.92±0.58
B (n = 20	3.30±1.09	2.27±0.76
p	0.103	<0.05

Comment: Decreasing LDL-c levels from baseline were significantly greater with the recommended usual dose of group A (3.65±1.09 to 1.92 ± 0.58) with p<0.05, group B (3.30 ± 1.09 to 2.27 ± 0.76) with p<0.05.

Table VI: Side effects of medications (N=40)

Symptoms	Group A (n = 21)		Group B (n = 20)	
	(n)	(%)	(n)	(%)
Increase AST	0	0.00	1	5.00
Increase ALT	2	9.5	2	10.0
Increase CK	0	0.00	1	5.00
Muscle symptoms	0	0.00	0	0.00
Digestive disorder	0	0.00	0	0.00

Comment: Nobody had muscle symptoms and digestive disorder. An elevation of creatine kinase (CK) from 5 or more to less than 10 times the upper limit of normal (ULN) occurred in 1 patient (5.0%) treated in group B. Consecutive elevation of ALT to 3 or more times to the ULN was observed in group A in 2 patients (9.5%) and 2 patients (10.0%) in group B. One patient (5.0%) had a consecutive elevation of aspartate aminotransferase (AST) treated in group B.

Discussion:

For an acute thrombotic coronary event to cause ST-segment elevation on a surface ECG, there needs to be a complete and persistent occlusion of blood flow. Coronary athersclerosis and presence of high risk thin cap fibroatheroma (TCFA) can result in sudden onset plaque rupture[11]. This results in changes in vascular endothelium resulting in cascade of platelet adhesion , activation and aggregartion[12] resulting in thrombosis formation. Coronary artery occlusion in animal models shows a "wave-front" of myocardial injury that spreads from the sub-endocardial myocardium to the sub-epicardial myocardium resulting in a transmural infarction that appears as an ST elevation on surface ECG[13]. Myocardial damage occurs as soon as the blood flow is interrupted which makes timely management a necessity. Sudden onset acute ischmemia can result in severe microvascualr dysfunction. The mean age of the patients was 66.03 ± 12.06 years. Male patients accounted for 60.0%. Other studies also showed that the mean age was similar to that of author Nguyen Hoang Tai My which recorded the mean age of patients was 63 ± 11.8 years, male patients accounted for 69.9% [14]; Duong Dinh Chinh studied 764 cases of ACS recorded a mean age of patients was 66.63 ± 12.54 years [15]; The mean age of 14,213 ACS patients was 57.6 ± 9.3 years in Toth PP. et al. study [16]; Andrikopoulos G et al. studied 800 patients with ACS in 37 hospitals in Greece showed that male patients accounted for 78% which was three times higher than female patients [17]. In our study, 82.0% of patients had LDL- e levels ≥70mg/dl. This result is similar to that of the authors Nguyen Ngoc Quang and Dam Trung Hieu who performed cross- sectional descriptive studies on 819 patients with acute MI with an increase in LDL-c, accounting for 66.83%. The rate of atherosclerotic dyslipidemia was 77.46% [14]. In Chau Ngoc

Hoa and Nguyen Vinh Trinh study at Cho Ray Hospital from February 2015 to June 2015, patients who had LDL- c ≥70 mg% at admission was 88.41% [18]. In Jiang J et al. study, 2034 Chinese patien ts who experienced acute coronary syndrome associated with LDL-c disorders were 61.5% [19]. Dyslipidemia is one of the main factors of coronary artery disease. However, this is a reversible risk factor. Therefore, good management of dyslipidemia reduces the incidence of acute coronary artery disease. There was a correlation with the results of the two groups: the percentage of patients achieving LDL-C target in the combination group was higher than the monotherapy group (48.9% and 29.9% respectively, p = 0.019). In terms of the target of 50% reduction of LDL- c concentration, the proportion in the group treated with atorvastatin 40mg in combination with ezetimibe 10mg was two times higher than in the group treated with atorvastatin 40mg 37.0% and 13.0%, respectively (p <0.05). Dai YY et al. studied in 202 patients with acute coronary syndrome with percutaneous coronary intervention and dyslipidemia were divided into 2 groups: a group treated with atorvastatin + ezetimibe and the group treated with atorvastatin alone. After one month, the reduction in LDL-C was significantly higher in the ezetimibe-statin combination group than the 40mg statin group (p <0.001). The proportion of patients achieving LDL-C targets was higher in the ezetimibe-statin combination group (69.1%, p = 0.007) and the statin group 80mg (67.9%, P = 0.047) compared with the statin group 40mg (46.9%) at 1 month after the PCI [20]. Estimated that 55% of cholesterol is absorbed in the digestive tract (heavily influenced by genetic factors). Although the mechanism of cholesterol absorption is unknown, Niemann-Pick C1 Like 1 protein (NPC1L1) has been identified in the intestinal epithelial cells to be shown to play an important role in this mechanism. Statins reduce the synthesis of cholesterol in the liver through inhibition of HMG-CoA reductase. Many studies show that a decrease in cholesterol synthesis in the liver under the effect of statins is offset by an increase in intestinal cholesterol absorption. When high doses of statins will increase intestinal NPC1L1 expression increases the statist's limited LDL-c reduction. Liu Y et al. (2017) studied in 230 ACS patients recorded LDL-c before treatment in the combination group (2.2 ± 0.6mmol/L) higher than the monotherapy group (2.3 ± 0.8mmol/L). After treatment, LDL-c concentration decreased in the combination group was 1.4± 0.5mmol/L and in the monotherapy, group was 1.5 ± 0.6mmol/L and this difference was statistically significant [21]. This result is similar to our research's result that the LDL- c concentration after treatment in the atorvastatin 40mg group combined with ezetimibe 10mg was 1.92 ± 0.58mmol/L lower than the control with group Atorvastatin 40mg was 2.27 ± 0.76mmol/L and this difference was statistically significant with p=0.008. The LDL-c concentration value decreased after treatment in the atorvastatin group 40mg combined with ezetimibe 10mg was 1.72 ± 1.05 mmol/L higher than the group treated with atorvastatin 40mg only 1.03 ± 0.90 mmol/L with p <0.05. Therefore, controlling LDL-c by combining atorvastatin 40mg and ezetimibe 10mg as soon as possible after admission is necessary for the acute coronary syndrome. Nobody had muscle symptoms and digestive disorder. A creatine kinase (CK) elevation 5 or more to less than 10 times the upper limit of normal (ULN) occurred in 1 patient (5.0 %) treated in group B. Consecutive elevation of ALT to 3 or more times to the ULN were observed in group A in 2 patients (9.5%) and 2 patients (10.0%) with group B. One patient (5.0%) had a consecutive elevation of aspartate aminotransferase (AST) treated in group B. IMPROVE-IT research results noted the side effects of the drug include: 2.5% increase in liver enzymes, adverse reactions in the gallbladder 3.1%, myalgia 0.1%, stretch 0.2% [22]. It is possible that our study had (Our study may have) a short follow-up period (10 days) so we have not fully noted the side effects of the drug which needs to follow up with longer time. Prior to performing an ECG and collecting troponins the history and physical provide the only clues that lead to a diagnosis of myocardial infarction. Initial evaluation should include a focused physical examination and a brief history. Patients should be asked about the characteristics of the pain and associated symptoms, risk factors or history of cardiovascular disease, and recent drug use [7]. Risk factors for an ST-elevation myocardial infarction include age, gender, family history of premature coronary artery disease, tobacco use, dyslipidemia, diabetes mellitus, hypertension, abdominal obesity, sedentary lifestyle, a diet low in fruits and vegetables, psychosocial stressors [23]. Cocaine use can cause an ST-elevation myocardial infarction regardless of risk factors [24] . History of known congential abnormalities can be helpful[25].

Conclusions:

LDL-c ratio reaches the target in the treatment group by atorvastatin 40mg + ezetimibe 10mg was 48.1% in the treatment group with atorvastatin 40 mg was 29.9% (p<0.05). From the results of our study, we recommend the combination therapy of atorvastatin and ezetimibe control LDL-c in patients with acute coronary syndrome better than atorvastatin monotherapy, thus physicians to treat patients with the acute coronary syndrome should combine early atorvastatin with ezetimibe since hospitalization.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Disease Characteristics of Chronic Venous Disease in Referral Hospital in Bangladesh

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Abstract

Introduction:*Chronic venous disease (CVD) is widespread, underdiagnosed, and can progress to chronic venous insufficiency and venous ulcer, which can require extensive treatment. This condition negatively impacts patient quality of life and place substantial burdens on healthcare resources. In Bangladesh this problem is increasing with very poor awareness.* ***Materials and Methods:*** *The prospective observational study was carried out in department of vascular surgery of National Institute of Cardiovascular disease. We randomly choose 180 patients with chonic venous disease (CVD) and evaluate their characteristics and prevalence of several types. Data collection started from May 2021 for next 6 months.* ***Results:*** *: The patients of this survey were aged between 24 to 70 years and the Mean±SD age was 43.6±12.2. 78.3% of total study population were male, 33.3% were businessman and 10% were housewife. 66.6% patients were having low socio-economic condition. C2 varicose veins were highly prevalent among the study population (35%) & lowest prevalence of C4b lipodermatosclerosis or atrophie blanche (11.7%) we have seen in the study. (31- 40) & (51-60) these two age group were more prone to have CVD, 28.33% (n51) & 26.67% (n48) (p <0.001*) respectively. Male were predominantly more prevalent to having CVD, 78.33% (n141), (p <0.001).* ***Conclusion:*** *Patients having CVD, invariably presented with the complains of heaviness of leg and unexplained leg swelling and Varicose vein were highly prevalent irrespective of sex. Advanced stages are more common in male patients. In every age group were having different stages of CVD. More awareness can help patients to get proper management and relief from chronic venous disease.*

Keywords: *CVD, leg swelling, varicose veins, oedema, skin discolouration.*

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Introduction:

Patients with chronic venous disease (CVD) seek treatment for a variety of symptoms and signs that may substantially impact their quality of life (QoL). Symptoms include leg pain, discomfort, and heaviness, whereas the clinical signs of CVD are varicose veins (VVs), oedema, skin discolouration, lipodermatosclerosis, and, in severe cases, venous ulceration. Based on the presence of specific clinical signs, which may or may not be symptomatic but are associated with increasing clinical severity, CVD can be classified from C0 (no signs) to C6 (venous ulceration)[1]. This form of venous

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dysfunction may be the result of recanalisation of thrombosed venous segments, pathological dilation of the vein or due to congenital absence of competent valves[2]. CVD is a very common problem with varicose veins affecting more than 25 million adults in the United States and more than 6 million with more advanced venous disease[3]. Estimates from the west show that prevalence of varicose veins varies widely from 2–56% in men and from 1–60% in women and venous ulceration affect approximately 0.3% of the adult population[4]. In Bangladesh, there is no published data regarding the prevalence of CVD. However, unpublished data from the National Institute of cardiovascular diseases (NICVD) suggest that about 50% of all patients undergoing Duplex study for vascular diseases are venous patients and more than 80% of venous consultations are for C4-C6 disease[5]. Prevalence estimates for varicose veins are higher, <1% to 73% in females and 2% to 56% in males[6]. A lower prevalence has been observed in men but some recent surveys have suggested that the occurrence in men may be comparable to that in women[7]. This study was designed to see prevalence of chronic venous disease in NICVD and also to see the relationship to various symptoms of chronic venous disease with age, sex and body mass index of the patient.

Materials and Methods:

The prospective observational study was carried out in department of vascular surgery of National Institute of Cardiovascular disease. We randomly choose 180 patients with chronic venous disease (CVD) and evaluate their characteristics and prevalence of several types. Data collection started from May 2021 for next 6 months in patients who was admitted with CVD like symptoms. Who were aged 18 years and above and willing for treatment and given informed written consent were included this study and patients below 18 years of age were excluded in this study. Data collected with a pre-tested structured questionnaire containing history, clinical, laboratory investigations, pre-operative, post operative complications and post operative follow up findings. Data collected, compiled and tabulated according to key variables. The analysis of different variable done according to standard statistical analysis by using SPSS-19.

Results:

The patients of this survey were aged between 24 to 70 years and the Mean±SD age was 43.6±12.2. 78.3% patient were male and male: female ratio was 3.6:1. around 80% patient were employed that includes service (23.3%), business (33.3%), farming(10%) and garments working(13.3%). 66.7% patients were from low socio-economic background [Table I]. All types of CVD patients were seen in our study [Table II], among them C2 varicose vein was more prevalent (35%). Advanced stage C5 healed venous ulcer also seen highly prevalent (21.7%).

Table-I: Demographic characteristics of the study patients (n=180)

Variables	Number of patients	Percentage (%)
Age group (years)		
20-30	27	15.0
31-40	51	28.3
41-50	42	23.3
51-60	48	26.7
61-70	12	6.7
Mean±SD Range (min-max)	43.6±12.2 24-70	
Sex		
Male	141	78.3
Female	39	21.7
Male : Female ratio	3.6:1	
Occupation		
Service	42	23.3
Business	60	33.3
Garments worker	24	13.3
Retired	12	6.7
Farmer	18	10.0
Housewife	24	13.3
Socioeconomic status		
Low	120	66.7
Middle	48	26.7
High	12	6.7

Table-II: Distribution of the study patients by clinical classification (n=180)

Clinical classification	Number of patients	Percentage (%)
C2 varicose veins	63	35.0
C3 edema	24	13.3
C4b lipodermatosclerosis or atrophie blanche	21	11.7
C5 healed venous ulcer	39	21.7
C6 active venous ulcer	33	18.3
Total	180	100.0

31-40 years age group were most prevalent having CVD with 51 patients, then 41-50 years age group with 42 patients and 51-60 years age group with 48 patients showing diversified distribution of the disease in the several age groups [Table III]. Male were more prevalent having CVD [Table IV] with 78.3% presence. 27.7% male showed C5 healed venous ulcer ($p<0.001$*) whereas C2 varicose veins were most prevalent among female (69.2%) ($p<0.001$*). C5 healed venous ulcer and C6 healed venous ulcer were mostly prevalent among service holder and businessman [Table V]. Association of CVD with socio-economic status results were in Table VI.

Table-III: Association of clinical classification of CVD with age group (n=180)

Age group (years)		Clinical classification					p-value
		C2 varicose veins	C3 edema	C4b lipodermato-sclerosis or atrophie blanche	C5 healed venous ulcer	C6 active venous ulcer	
20-30	27	24(88.9%)	3(11.1%)	0(0.0%	0(0.0%	0(0.0%	<0.001*
31-40	51	21(41.2%)	0(0.0%)	6(11.8%)	9(17.6%)	15(29.4%)	
41-50	42	12(28.6%)	9(21.4%)	3(7.1%)	3(7.1%)	15(35.7%)	
51-60	48	6(12.5%)	12(25.0%)	0(0.0%)	27(56.3%)	3(6.3%)	
61-70	12	0(0.0%)	0(0.0%)	12(100.0%)	0(0.0%)	0(0.0%)	
Total	180	63(35.0%)	24(13.3%)	21(11.7%)	39(21.7%)	33(18.3%)	

p-value obtained by Chi-square test, *significant

Table-IV: Association of clinical classification of CVD with sex (n=180)

Sex		Clinical classification					p-value
		C2 varicose veins	C3 edema	C4b lipodermatos-clerosis or atrophie blanche	C5 healed venous ulcer	C6 active venous ulcer	
Male	141	36(25.5%)	12(8.5%)	21(14.9%)	39(27.7%)	33(23.4%)	0.001*
Female	39	27(69.2%)	12(30.8%)	0(0.0%)	0(0.0%)	0(0.0%)	
Total	180	63(35.0%)	24(13.3%)	21(11.7%)	39(21.7%)	33(18.3%)	

p-value obtained by Chi-square test, *significant

Table-V: Association of clinical classification of CVD with occupation (n=180)

Occupation		Clinical classification					p-value
		C2 varicose veins	C3 edema	C4b lipodermato-sclerosis or atrophie blanche	C5 healed venous ulcer	C6 active venous ulcer	
Service	42	18(42.9%)	3(7.1%)	9(21.4%)	0(0.0%	12(28.6%)	<0.001*
Business	60	18(30.0%)	9(15.0%)	0(0.0%)	12(20.0%)	21(35.0%)	
Garments worker	24	12(50.0%)	3(12.5%)	0(0.0%)	9(37.5%)	0(0.0%)	
Retired	12	0(0.0%)	0(0.0%)	12(100.0%)	0(0.0%)	0(0.0%)	
Farmer	18	0(0.0%)	0(0.0%)	0(0.0%)	18(100.0%)	0(0.0%)	
House wife	18	15(62.5%)	9(37.5%)	0(0.0%)	0(0.0%)	0(0.0%)	
Total	180	63(35.0%)	24(13.3%)	21(11.7%)	39(21.7%)	33(18.3%)	

p-value obtained by Chi-square test, *significant

Table-VI: Association of clinical classification of CVD with socioeconomic status (n=180)

Socioeco-nomic status		Clinical classification					p-value
		C2 varicose veins	C3 edema	C4b lipodermatos-clerosis or atrophie blanche	C5 healed venous ulcer	C6 active venous ulcer	
Low	120	45(37.5%)	15(12.5%)	9(7.5%)	27(22.5%)	24(20.0%)	0.001*
Middle	48	18(37.5%)	9(18.8%)	0(0.0%)	12(25.0%)	9(18.8%)	
High	12	0(0.0%)	0(0.0%)	12(100.0%)	0(0.0%)	0(0.0%)	
Total	180	63(35.0%)	24(13.3%)	21(11.7%)	39(21.7%)	33(18.3%)	

p-value obtained by Chi-square test, *significant

Discussion:

In our body, venous system is an important and one of the largest organs of the body, and venous disease is a burden for the society and a cause of much disability[8]. The prevalence of CVD increases with age and it is more common in women than men[9]. However, estimates of CVD prevalence vary widely from study to study (15–80%) due to differences in study design and target population [10–15], A study conducted in 3000 primary care patients in Pakistan, which reported a CVD prevalence of 34.8% [16]. This study also reported a higher prevalence of CVD in men (36.4%) than in women (33.0%) and of C3 (36.7%) than symptomatic C0 (C0S) (14.6%), C1 (13.8%) and C2 (15.8%). Compared with other studies, the sample population of this study was younger (mean age 39 years) and consisted mostly of males (52.6%)[16]. Our study showed consistent result with the Pakistani one, showing high prevalence in male than female. Vein Consult was an international study that recruited 91,545 patients from 20 countries in Europe, Latin America, Middle East and South East Asia, while the study conducted by Vuylsteke and colleagues included 6009 patients from Belgium and Luxembourg[17] had a similar mean age (50.6 and 53.4 years, respectively) with which our result remain consistency with similar age group.

Conclusion:

Chronic venous disease is not uncommon in Bangladesh. Patients often faces heaviness of leg and unexplained leg swelling and engorged vein but rarely seek support from healthcare professionals at the first place. In our study we found there is no distinct age group was there with high prevalence rather CVD can be happened every group. Moreover, male are having more CVD than female> advance stages comes with increasing age and also without proper follow up by the physicians. A well-designed awareness activity can be implemented nationally in order to increase awareness so that patients get to know the disease characteristics and seek support from health care professional.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Pattern, Severity and Outcome of Injuries Sustained in Road Traffic Accidents: A Tertiary Care Hospital-Based Study

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Abstract

Introduction:*Road Expansion and motorization, in the country has been accompanied by a rise in road accidents leading to road traffic injuries (RTIs). Today RTIs are one of the leading causes of deaths, disabilities, and hospitalizations with severe socioeconomic costs across the world. The aim of the study is to determine the pattern, severity and outcome of injuries amongst road traffic accident victims.* ***Materials and Methods:*** *An observational study was carried out at casualty department of Cumilla Medical College Hospital, from April 2020 to September 2020. Total 192 patients following RTIs were included in this study. After history taking, clinical examination and collection of investigation reports, data was analyzed by using SPSS-23.* ***Results:*** *Out of 192 patients, 33.3% of the patients belonged to age group 21-30 years, 71.4% were male. More than two third (67.2%) patients accident took place in high way and 62 (32.8%) in other areas. According to pattern of victims 111(57.8%) patients was found in pedestrian of victims, 48(25.0%) in driver and 33(17.2%) in passenger. In injury severity score, 98(51.0%) patients were found minor injuries followed by 57(29.7%) moderate, 22(11.5%) serious and 15(7.8%) severe injuries. Ninety (46.9%) patients were found transfer for definitive care followed by 52(27.1%) discharge after Rx, 30(15.6%) wound infection, 18(9.4%) referred to higher center and 2(1.0%) death.* ***Conclusion:*** *The present study shows that fatal accidents mainly affected the young adults in productive age groups and pedestrians. Highways were most commonly affected location. Most of the accidents caused by motorized vehicles*

Keywords: *Road Traffic Accidents, road traffic injuries, Pattern, severity and outcome of road traffic injuries.*

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Introduction:

RTAs are causing more than 1.2 million deaths annually[1]. The developing countries account for 85% of the deaths as a result of RTA[2]. RTAs are the eighth leading cause of death with similar impact as other communicable and non-communicable diseases[3]. Bangladesh has had a gradual shift from infectious disease to non-communicable disease and injuries in the past couple of years[4-10]. The World Health Organization estimated that it kills over 21,000 people in the country annually[11]. The WHO has predicted that traffic fatalities will be the sixth leading cause of death worldwide and the second leading cause of "disability-adjusted life years lost (DALYs)" in developing countries by the year 2020[12]. One DALY is roughly equivalent to one healthy year of life lost[13]. RTIs death rates are more than twice in low and middle-income countries (LMICs) compared to high income countries[14-18]. The reason is rapid urbanization and motorization[1]. According to the Road Safety Global Report (2015), Bangladesh lacks best practice legislations for all five road safety risk factors, including speeding, helmet use, drink driving, seatbelt use, and child restraint use, which make the situation even worse[1, 19]. Head is the most commonly affected site among the RTIs victims[20,21] which is then followed by upper limbs and lower limbs[20]. Skull fractures, subdural hemorrhages, frontal bone fracture, liver lacerations and rib fractures are common injuries[22]. Lacerations, abrasions and bruises are the most common forms of external injuries. Fractures, chest injury, abdominal injury are the internal types of injuries[20]. In the developing world, inadequate trauma management and

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underdeveloped emergency system amplifies the magnitude of the problem because there are no well-established response teams in most places[23]. In this scenario, a severe road traffic injury patient's outcome becomes catastrophic. So appropriate information regarding burden, pattern and severity of RTIs patients are necessary for proper and integrated trauma management planning. The purpose of the study is to assess the burden of RTIs in terms of injuries and to explore the pattern, severity and outcome after management. The study results may help in the assessment of present trauma management protocol and encourage its modification for reducing RTI fatality and disability.

Materials and Methods:

This observational study was conducted between April 2020 to September 2020 at casualty department of Cumilla Medical College Hospital, Cumilla (CuMCH). Sample were collected by Consecutive purposive sampling method. Patients irrespective of their age and sex attending at Casualty Department of CuMCH following RTAs were selected for study. Exclusion criteria were – Brought in dead cases, patients not willingly participate in this study procedure, referred patient before interview. Data was collected in pre-organized data collection sheet from patients fulfilling inclusion exclusion criteria. Total 192 patients with RTI attending at Casualty dept of CuMCH during study period were included in this study. Detailed history and thorough clinical evaluation were done as per ATLS protocol on arrival at casualty department. After stabilization of vital sign of the patient, the following data was collected: Socio-demographic data including age and sex, pattern of trauma including types and site of Injury, clinical examination involving vital signs, GCS, investigations including routine and imaging studies like X-ray, CT scan etc. Then an ISS was performed according to the Guidelines in the AIS 2005 edition.

Treatment: Conservative or an operative intervention Performed.

Outcome of the patient: Discharge after treatment, transfer for definitive care, referred to higher center, died or wound infection. All the information were recorded in a pretested questionnaire. History taking, clinical examination and investigations by interview using structured questionnaires were done after taking informed written consent. Statistical analyses were carried out by using the Statistical Package for Social Sciences version 23.0 for Windows. The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages. Clearance was taken from ethical clearance committee of CuMCH prior to the study. Confidentiality of the data was strictly maintained.

Result:

Demographic characteristics of our study population shows that one third (33.3%) of the patients belonged to age 21-30 years, 137(71.4%) were male, 63(32.8%) patients completed primary education, 131 (68.2%) has monthly income of 5,000-25,000 taka, 70(36.5%) were day laborer (Table I). Considering place of accident more than two third (67.2%) patients accident took place in high way and 62(32.8%) in other area (Table II). According to pattern of victims, there were 111(57.8%) patients in pedestrian of victims, 48(25.0%) in driver and 33(17.2%) in passenger (Table III). Table IV shows that 102(53.1%) patients were found external injury followed by 48(25.0%) head & neck, 41(21.4%) lower limb, 36(18.8%) upper limb, 31(16.1%) face, 9(4.7%) thorax, 7(3.6%) pelvis & spine and 6 (3.1%) abdomen injuries. External injuries were found in 102 patients among them 25(24.5%) had laceration injuries, 22(21.6%) had abrasion, 15(14.7%) had bruise, 5(4.9%) had crush and 35(34.3%) had multiple injuries (Table V). Internal injuries were found in 97 patients among them 43(44.3%) had fractures, 26(26.8%) had head, 14(14.4%) had visceral, 11(11.3%) had dislocation and 3(3.1%) had multiple injuries (Table VI). Head injuries were found in 26 patients among them 14(53.8%) had skull fractures, 9(34.6%) had brain injuries, 2(7.7%) had intracranial hemorrhages and 1(3.8%) had multiple injuries (Table VII). In abbreviated injury score, 102(53.13%) patients was found minor injuries followed by 51(26.57%) moderate, 17(8.86%) serious, 11(5.72%) severe, 5(2.60%) critical and 6(3.12%) are virtually unsurvivable (Table VIII). Table IX shows that 90(46.9%) patients were found transfer for definitive care followed by 52(27.1%) discharge after Rx, 30(15.6%) wound infection, 18(9.4%) referred to higher center and 2(1.0%) death.

Table I: Distribution of the study patients by demographic characteristics (n=192)

Demographic characteristics	Number of patients	Percentage
Age (year)		
≤10	12	6.3
11-20	36	18.8
21-30	64	33.3
31-40	39	20.3
41-50	24	12.5
51-60	11	5.7
>60	6	3.1
Sex		
Male	137	71.4
Female	55	28.6
Educational status		
Illiterate	38	19.8
Primary	63	32.8
SSC	54	28.1
HSC	23	12.0
Graduate	14	7.3
Monthly income (Taka)		
<5,000	3	1.6
5,000-25,000	131	68.2
>25,000	58	30.2
Occupational status		
Day laborer	70	36.5
Service holder	48	25.0

Demographic characteristics	Number of patients	Percentage
Occupational status		
Business	29	15.1
Student	26	13.5
Unemployed	19	9.9

Table II: Distribution of the study patients according to place of accident (n=192)

Place of accident	Number of patients	Percentage
High way	129	67.2
Other area	63	32.8

Table III: Distribution of the study patients according to pattern of victims (n=192)

Pattern of victims	Number of patients	Percentage
Driver	48	25.0
Passenger	33	17.2
Pedestrian	111	57.8

Table IV: Distribution of the study patients according to site of injury (n=192)

Site of injury	Number of patients	Percentage
Head & neck	48	25.0
Lower limb	41	21.4
Upper limb	36	18.8
Face	31	16.1
Thorax	9	4.7
Pelvis & spine	7	3.6
Abdomen	6	3.1
External	102	53.1

Table V: Distribution of the study patients according to pattern of external injury (n=102)

Pattern of external injury	Number of patients	Percentage
Laceration	25	24.5
Abrasion	22	21.6
Bruise	15	14.7
Crush	5	4.9
Multiple	35	34.3

Table VI: Distribution of the study patients according to pattern of internal injury (n=97)

Pattern of internal injury	Number of patients	Percentage
Fracture	43	44.3
Head injury	26	26.8
Visceral injury	14	14.4
Dislocation	11	11.3
Multiple	3	3.1

Table VII: Distribution of the study patients according to pattern of head injury (n=26)

Pattern of head injury	Number of patients	Percentage
Skull fractures	14	53.8
Brain injury	9	34.6
Intracranial hemorrhage	2	7.7
Multiple	1	3.8

Table VIII: Distribution of the study patients according to abbreviated injury score (n=192)

Abbreviated injury score	Number of patients	Percentage
Minor	102	53.13
Moderate	51	26.57
Serious	17	8.86
Severe	11	5.72
Critical	5	2.60
Virtually unsurvivable	6	3.12

Table IX: Distribution of the study patients according to outcome (n=192)

Outcome	Number of patients	Percentage
Transfer for definitive care	90	46.9
Discharge after Rx	52	27.1
Wound infection	30	15.6
Referred to higher center	18	9.4
Death	2	1.0

Discussion:

In this study observed that one third (33.3%) of the patients belonged to age 21-30 years, 137(71.4%) were male, 63(32.8%) patients completed primary education, 131(68.2%) patients come from 5,000-25,000-taka monthly income and 70(36.5%) patients were day laborer. Singh et al.[20] reported male victims 258 (74.35%) were more commonly involved than females 89 (25.65%) and majority of victims 141 (40.63%) were in age group of 20–30 years. However, other studies observed that the peak age of male victims was in the 4th decade, with the mean at 33 years[27,28]. Baset et al.[11] also observed fatal RTI cases, gender and age were not significantly associated with an increased risk of death due to an RTI. Education level was not seen to be associated with non-fatal RTI risk. Highest incidence (30.38 %) of RTA was observed among the age group 21 to 30 yrs. Solanki and Hemlata[24] the maximum 321(80.25%) cases were from the age group of 15 to 45 years. Majority of RTA cases were male 324(81.00%), while 76(19.00%) females, indicating 4:1, male female ratio. In this study showed that more than two third (67.2%) patients accident took place in high way and 62(32.8%) in other area. Singh et al.[20] reported maximum number of accidents took place on national highway (69.50%). This can be explained on the fact that national highway-24 is the busiest roads with vehicles travelling at high speeds, the roads being less wide multiple intersections and divider cuts are present at every kilometer for changing the side[11,12]. Rahman et al.[13] also reported most accidents

took place on highways 650 (79.95%).

In this study showed that 111(57.8%) patients were found in pedestrian of victims, 48(25.0%) in driver and 33(17.2%) in passenger. Baset et al.[11] reported transport workers had the highest rates for both RTI mortality (46.1/100,000; 95% CI 23.3–90.9). Rahman et al.[13] reported commonest victims were pedestrians 564 (69.37%). In this study observed that 102(53.1%) patients were found external injury followed by 48(25.0%) head & neck, 41(21.4%) lower limb, 36(18.8%) upper limb, 31(16.1%) face, 9(4.7%) thorax, 7(3.6%) pelvis & spine and 6 (3.1%) abdomen injuries. Singh et al.[20] reported extremities 499 (53.54%) and the maxillofacial injuries 180 (19.31%) were the most common body region injured. Head/neck was also more common and accounts for 175(18.78%) cases. The upper limb 216 (26.93%), lower limb 210 (26.18%), and head/neck 167 (20.32%) were the most common affected areas to suffer with external injuries seen in the victims. Similar results were also observed by others researchers[27,29]. Common sites for injuries were the lower and upper limbs and face[29,30]. Neeraj et al.[21] reported head injury was found 59.3% followed by fracture of upper limb 21.3%, fracture of lower limb 13.7%, chest injuries 4.4% and others injuries 3.3%. In this study observed external injuries was found 102 patients among them 25(24.5%) had laceration injuries, 22(21.6%) had abrasion, 15(14.7%) had bruise, 5(4.9%) had crush and 35(34.3%) had multiple injuries. Singh et al.[20] reported the most common pattern of injury was lacerations observed in 307 (38.28%), abrasions 306 (38.15%), followed by bruises 154 (19.20%). Rahman et al.[13] reported the cases 100% victims had multiple abrasion and bruise, laceration was present in 654 (80.44%) and intra cranial injury 527 (64.82%). Das and Gogoi also observed abrasion (72.8%) the most common external injury[25]. In current study internal injuries were found in 97 patients among them 43(44.3%) had fracture injuries, 26(26.8%) had head, 14(14.4%) had visceral, 11(11.3%) had dislocation and 3(3.1%) had multiple injuries. Das and Gogoi[25] study reported fracture (71.79%) was found to be the most common internal injury. The highest number of fractures was in upper limbs followed by lower limbs and facial bones[27]. In contrast, result of other study showed that the commonest injury was fracture of bones particularly of the head and face and closely followed by the lower extremity[31]. In this study, head injuries were found in 26 patients among them 14(53.8%) had skull fractures, 9(34.6%) had brain injuries, 2(7.7%) had intracranial hemorrhage and 1(3.8%) had multiple injury. Das and Gogoi[25] observed injury to brain was found in 16.84% of the patients. Farooqui et al.[26] reported skull injuries was found 59(29.64%) and brain was 78 (38.61%). In present study observed, in injury severity score, 98(51.0%) patients were found minor injuries followed by 57(29.7%) moderate, 22(11.5%) serious and 15(7.8%) severe injuries. Baset et al.[11] also reported the RTI injury severity index showed that 50% of RTI cases had low severity. Almost 20% of cases had been severely injured in a road traffic crash. The highest proportion of high injury severity was found among passengers (37.7%), followed by pedestrians (22.4%). In present study showed that 90(46.9%) patients were found transfer for definitive care followed by 52(27.1%) discharge after Rx, 30(15.6%) wound infection, 18(9.4%) referred to higher center and 2(1.0%) death. Alonge et al.[19] reported the overall injury mortality rate was 38 deaths per 100 000 population per year. Baset et al.[11] also observed most RTI mortality, however, occurred among pedestrians (35%). Auto-rickshaw, pickup van, jeep, microbus, bus, bicycle, and motorcycle were the main modes of transportation that an individual was using prior to death resulting from RTI. Hyder et al.[17] reported children and adolescents represented an average of 13% of all RTI deaths. Farooqui et al.[26] observed that the majority of the RTA victims (n=46, 46.93 percent) died due to head injury. Poly trauma and haemorrhagic shock were the reasons in 34 (34.69 percent) and 14 (14.28 percent) individuals respectively.

Conclusion

The present study shows that fatal accidents mainly affected the young adults in productive age groups and pedestrians. Highways were most commonly affected location. Most of the accidents caused by motorized vehicles. Safe road practice and use of protective wears should be launched. Moreover, healthcare services should be mobilized in such a way that a victim is attended within 30 min of accident to reduce the burden of mortality.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Functional Outcome of Distal Tibial Fractures Fixed with Distal Tibial Locking Plate using MIPPO Technique

Nripen Kumar Kundu*[1], Anwar Ahmed Miajee[2], Sathi Dastider[3]

Abstract

Introduction: *Because of the extensive list of potential consequences, treating extra-articular distal tibia fractures is a daunting task for an orthopedic surgeon. This study was designed to evaluate the clinical and functional outcomes of minimally invasive plating for the treatment of distal tibial fractures.* ***Materials and Methods:*** *This prospective study was conducted at the Department of Orthopedic Surgery, Popular Medical College and Hospital, Dhaka during June 2021 to May 2022. A total of 20 patients with distal tibial fracture were selected for surgery and treated with minimally invasive plating. Afterwards, the patients' clinical and radiological outcomes were recorded. The ankle-hindfoot score developed by the American Orthopedic Foot and Ankle Society (AOFAS) was used to assess the functional outcomes.* ***Results:*** *In 15 of the 20 cases, radiological union took place between 18 and 22 weeks (mean 20.5 weeks); however, in 5 cases, union was delayed and required almost 26 weeks to establish. Four of the 20 cases experienced a superficial infection, while the remaining patients showed no further complications. According to the AOFAS score, our research showed that, out of 20 patients, 9 had excellent outcomes, 8 had good results, and 3 had acceptable results.* ***Conclusion:*** *Treatment of distal tibia fractures with locking plates by MIPPO technique is an effective method of therapy to achieve union and excellent functional results since it aids in the early restoration of ankle movement while reducing ankle stiffness.*

Keywords: *American Orthopedic Foot and Ankle Society (AOFAS) ankle hindfoot score, Distal tibial fracture, Distal tibial locking plate, minimally invasive percutaneous plate osteosynthesis (MIPPO).*

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Introduction:

Road traffic accidents, fall from height, and other powerful traumas commonly result in distal tibial fractures. These fractures are frequently unstable and comminuted. Nevertheless, they may be linked to serious closed or open soft tissue damage. Therefore, treating complicated distal tibia fractures is difficult to accomplish[1]. Distal tibia fractures are common and account for 10%–13% of all tibial fractures, according to research[2]. Distal tibial fractures were typically treated with open reduction and internal fixation using a compression plate. However, the high frequency of complications with this technique, including post-operative infection, inadequate wound healing, and non-union, are frequently viewed as an important concern to the surgeon[3,4]. The management of distal tibia fractures with minimally invasive methods like using locking plate with MIPPO (Minimally invasive percutaneous plate osteosynthesis) technique has been documented in recent years which is a reliable method for preservation of osseous and soft tissue vascularity[5,6]. Management of distal tibial fractures might be difficult because of the insignificant metaphyseal blood flow in the distal region of the tibia. Because of this, the use of locking compression plates for fracture fixation has become more popular. This procedure seeks to protect bone biology, lessen iatrogenic soft tissue damage, and compromise bone vascularity[7,8]. Therefore, this prospective study represent the surgical management of distal tibial fractures using MIPPO and assess its functional result in terms of fracture and soft tissue recovery, incidence of infection, and other complications.

Materials and Methods:

This prospective study was conducted from June 2021 to May 2022, which consisted of 20 cases of distal tibial fractures admitted in the

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Department of Orthopedic surgery at the Popular Medical College and Hospital, Dhaka. Each patient gave informed written consent prior to participating in the clinical research study and the study was approved by the Ethical Review Committee of Popular Medical College & Hospital. In this study, patients who met the following criteria were included: age of more than 18 years; valid informed consent; presence of a distal fragment of at least 3 cm in length; injury duration of less than 2 weeks; and intact neurological and vascular status of the affected limb. Patients with open fractures, pathological fractures, associated other injuries, neurovascular injuries, intra-articular extension, pathological fractures, immune-compromised patients, or those who refused to give consent were not allowed to participate in this study.

Preoperative Management:

After receiving the patients at Emergency Room; the name, age, sex, occupation, and address were recorded as general information. Then, information about the manner of injury, family history and previous medical conditions were also noted. The patients' physical condition, including their blood pressure, pulse, and respiratory rate was assessed. Following the traumatized patient's stabilization, analgesics, antibiotics, intravenous fluids, and tetanus prophylaxis were given in accordance with protocol. Standard antero-posterior, and lateral, and radiographic images of the affected limb were taken and the leg was immobilized with a posterior splint until the operation and routine preoperative tests were completed. Following the pre-anaesthestic check-up, the patient was taken in for surgery. All cases were categorized as category A in accordance with the AO classification.

Surgical Procedure:

Under general or spinal anesthesia, all patients were operated in supine position. Preoperative antibiotics were administered right away once the patient was draped and prepared. Close reduction was attempted using traction and manipulation. The attempt at close reduction using traction and manipulation was done and then validated by C-arm guidance. The proper plate size was chosen for fixation once satisfactory reduction and alignment were accomplished. The fracture site was exposed using the usual medial approach, in the occasion when an adequate reduction could not be accomplished and open reduction and internal fixation were performed in accordance with standard protocols. The great saphenous vein was meticulously safeguarded throughout the oblique incision that was made at the medial malleolus' tip for plate fixation. The extra-periosteal channel for the plate was made using percutaneous elevators. C-arm imaging was used to confirm that the plate made it to the fracture site. A towel roll under the fracture site was placed to prevent displacement of the distal fragment before fixing the plates with screws. A Kirschner wire that was introduced via a fixation bolt was used to secure the plate to the tibial surface. In order to accomplish compression osteosynthesis, nonlocking screws were first placed; afterwards locking screws were then placed once an appropriate reduction had been achieved. The fracture is stabilized with at least three locking screws on either side. Following the removal of the initial K-wires, all screws were tightened once more before being closed. Nonabsorbable sutures were used to close the wound in layers after the surgery. For two weeks, a good dressing over the incision and a plaster slab below the knee were used.

Figure 1A and B: (A) Preoperative radiograph of a 44-year-old male patient showing fracture of both leg bones, distal and ;(B) postoperative radiograph of same patient with fracture fixed with distal tibial locking plate

Postoperative Management:

In order to establish that the fracture portions had been properly reduced and fixed, a postoperative X-ray was carried out. Depending on the patient's health and degree of fixation, ankle mobilization began as soon as possible. The use of antibiotics was continued until the wound had completely healed. The patient underwent routine follow-up in the outpatient department, radiographs were obtained at intervals of four weeks up to 6 months to assess healing and alignment and functional outcome was assessed using the ankle-hindfoot scoring system [American Orthopedic Foot and Ankle Society (AOFAS) score]. Following surgery, six weeks of non-weight-bearing movement was carried out followed by training with some weight bearing.

Data Analysis:

The study's data were all entered into Microsoft Excel (version 2013). Following the export of the data into SPSS version 20, statistical analysis was performed. Continuous data are given as means with their standard deviation, and categorical variables were described in terms of frequencies and percentages.

Results and observations:

Twenty patients with distal tibial end fractures, with a mean age

of 35.61± 5.42 years ranging in age from 19 to 70 years, were included in the current study. Among 20 patients, 17 (85%) were men and 3 (15%) were women, indicating there was a greater likelihood of these injuries in men. Table 1 displays the age and gender distribution of patients. The most frequent cause of injury in this study was road traffic accident. Out of 20 patients, 14 patients (70%) experienced trauma due to road traffic accident, 4 (20%) due to physical assault and 2 (10%) due to fall.

Table-I: Distribution of patients according to age and gender

Characteristics	No. of affected patients
Sex	
Female	03 (15%)
Male	17 (85%)
Total	20
Age (in years)	
19-29	05 (25%)
30-39	09 (45%)
40-49	04 (20%)
50-70	02 (10%)
Total	20
Mean Age (yrs)	35.61± 5.42

Table-II: Summary of Injury Patterns of Study Population (n=20)

Injury Mode	No. of affected patients
Road traffic accident	14 (70%)
Physical assault	04 (20%)
Fall from height/vehicles	02 (10%)
Total	20

In this study, every patient obtained union of the bones. The findings showed that the majority of fracture unions occurred between 16 and 23 weeks. Three (15%) fractures healed within 16 weeks, 12 (60%) fractures healed within 20, and five (25%) instances recovered before 30 weeks. There were no instances of nonunion (Table III).

Table-III: Distribution of subjects according to time by bony union

Time	No. of patients	Percentage
By 16 weeks	03	15%
By 20 weeks	12	60%
By 30 weeks	05	25%
Non union	00	00%
Total		20

Using the Ankle-Hindfoot Scale (AOFAS), patients were evaluated for their functional outcome: nine patients received excellent ratings, eight received good ratings, and three received fair ratings and overall mean AOFAS score was 86.85 in our study.

Table-IV: Functional outcome of study subjects according to Ankle-Hindfoot Scale (AOFAS score)

AOFAS Score	Outcome	No. of patients
>89%	Excellent	09 (45%)
80-89	Good	08 (4%)
70-79	Fair	03 (15%)
<69	Poor	00 (0%)
Total		20

In this study of all patients, 5 (25%) experienced delayed union and 4(20%) patients experienced superficial infection which was managed by broad spectrum antibiotics. Other patients report any other complications besides these. In the present research, 2 patients experienced postoperative ankle stiffness that gradually subsided and by 25–26 weeks, functional range of ankle motions was obtained with the aid of physiotherapy. While radiological union occurred between 16 and 20 weeks in 15 of the 20 cases, it took 23 weeks to establish union in 5 cases.

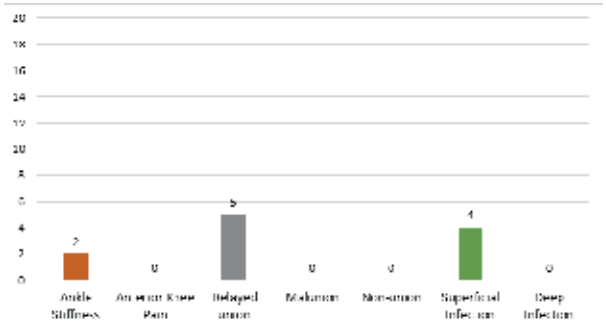

Figure 2: Complications in the study population (n=20).

Discussion:

Due to the distal tibia's unique form, lack of soft tissue coverage, and typically inadequate blood flow, treating distal tibia fractures is a challenging task for orthopedic surgeons. Extensive soft tissue dissection is required for open reduction and internal fixation, which has a higher risk of complications such as infection, delayed union, and nonunion. Without extensive dissection and surgical stress to the bone and surrounding soft tissues, MIPPO permits reliable fracture bridging osteosynthesis. In addition, it offers a number of benefits over the traditional open plating method, including a lower infection rate and improved fracture healing. In comparison to similar studies by Mauffry et al.[9] and Bahari et al.[10] where the average patient age was 35 years and 46 years, respectively, the average patient age in our study was 35.61±5.42 years. In our study, 85% of the patients were male and 15% were female, compared to 66% male and 34% female participants in Mauffry et al.'s study [9] and 65% male and 35% female participants in Guo et al.'s study [6].

Depending on radiological union, 15 patients in our study (75%) achieved full extent mobility by 23 weeks; however 5 patients (25%) gained such by 25–28 weeks after physical therapy. This result was consistent with the study of Illur et al. [11] in which 80% of patients achieved complete mobility by 24 weeks, whereas 20% of patients did so between 26 and 28 weeks. In our study, the average time for

fracture union was 20.5 weeks. Fracture unification following MIPPO in distal tibial fracture was reported to take an average of 23 weeks by Redfern et al. [12], 17.6 weeks by Guo et al. [6], and 22.4 weeks by Bahari et al. [10]. In the present research, the mean AOFAS score was used to assess functional outcome and the average was 86.85, whereas the mean AOFAS score obtained in the studies by Guo et al. was 83.9 [6] and Collinge et al. was 85 [13]. In our investigation, all fractures resolved together and no abnormalities were seen. However, 2 (10%) of the patients experienced ankle stiffness, and 4 (20%) experienced superficial infections that required appropriate management. However, lower infection rates were reported by Bahari et al. [10] (7.14%) and Guo et al. (14.6%)[6].

Conclusion:

The MIPPO approach with a locking plate is efficient and safe in attaining union and an outstanding functional outcome in distal tibial fractures. However, infection can further be prevented by carefully handling soft tissues during surgery and cutting down on time. However, the study's limitations are its small sample size and lack of a control group. In bigger, multi-centered randomized controlled studies, the effectiveness of plating via the MIPPO technique in treating distal tibial fractures should be further evaluated

Conflict of Interest: None.

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Corneal Clarity after Phacoemulsification: Nuclear Management by Stop and Chop Method

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Abstract

Introduction: *Restoration of effective vision is the principal aim of all modalities of cataract surgery including phacoemulsification. In this method, nuclear part of the cataractous lens is emulsified by ultrasonic power. Energy level of ultrasonic power and turbulence of fluid in the anterior chamber play an important role in corneal endothelial cell loss which inturn influences post-operative corneal clarity. Endothelial cell loss can be minimized by modification of nuclear management method. The common nuclear division techniques of phacoemulsification are stop and chop, divide and conquer and phaco chop.* ***Purpose:*** *To show post-operative corneal clarity after phacoemulsification by stop and chop technique of nuclear divisions.* ***Materials and Methods:*** *This prospective observational study was conducted at selected outdoor patients from January, 2023 to June, 2023 over 33 patients of age related cataract selected for phacoemulsification surgery. Patients were selected based on specific selection criteria. Selected patient underwent detail, ocular and systemic examinations as well as relevant investigations which included assessment of corneal endothelial cell count and central corneal thickness. Phacoemulsification were done in all patients by a single expert surgeon where technique of nuclear management by stop and chop were chosen randomly. Patients were followed up on 1 week, 4 week and 12 week after surgery. Corneal endothelial cell count and central corneal thickness were assessed in each visit. All the relevant data were presented by appropriate tables.* ***Results:*** *The mean age of the study subjects were 60.96 with standard deviation 1.75 years out of which 14 were males and 17 were females. Pre-operative value of mean endothelial cell count was 2620±70.20/mm^2. Mean value of endothelial count was 2420±68.90/ mm^2, 2345±66.64/ mm^2, 2310±66.04/ mm^2 respectively after 1 week , 4 weeks and 12 weeks after surgery. Mean value of central corneal thickness was 545±40.50 micrometer, 535±40.02 micrometer, 532±39.85 micrometer respectively after 1 week, 4 weeks and 12 weeks after surgery.* ***Conclusion:*** *Quantitative assessment of endothelial cell count and central corneal thickness shows that at end of the study there was no significant difference in mean endothelial cell count and mean central corneal thickness .*

Keywords: *Corneal clarity, phacoemulsification, stop and chop.*

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Introduction:

In phacoemulsification nucleus is ultrasonically divided andaspirated through an incision which is less than 3 mm in diameter[1,2]. Phacoemulsification is gradually adopted by a wide range of surgeons and its acceptance is increasing day by day. It is now a procedure of choice for about 50% of surgeon by 1999, 79% of surgeons by 1992[3] and is almost universal nowadays. Many procedures have been described for the management of lens nucleus. They are of 2 broad categories. Sculpting techniques in which phacoemulsification is done by sculpting the nucleus in order to decrease its size and to create trenches along which nucleus may be divided. The pieces of divided nucleus are then made into small pieces and emulsified[5]. In chopping techniques , a chopper i.e2nd instrument is introduced and drawn across the nucleus to make the nucleus into smaller fragments. These smaller fragments can be separated by main mass of the nucleus and emulsified[6,7]. In stop and chop technique, described by Dr. Paul Koch [8], a central trench is first sculpted and the nucleus is divided into 2 halves or 2 hemi nuclei. The surgeon next 'stops' sculpting and commences 'chopping'.This method is a variation of the Nagahara chop that provides space within the capsular bag for nuclear handling as well as helps in removal of first nuclear piece.

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After division of the nucleus, the fractured nucleus is rotated through 90 degree,engaging the phacotip into the heminuclei using short burst of ultrasound and increasing vacuum gripped heminuclei is drawn centrally. The chopper is drawn toward the phacotip after passing out to the lens periphery and separating the two instruments liberates fragment from the theheminuclei which is emulsified easily. This process is repeatedly done until the first heminucleiis totally gone and the remaining part of the nucleus is removed in a same manner. There are few reports available on loss of endothelial cell count in different nuclear disassembly techniques with ambiguous result. Therefore, we conducted these studies in 33 patients subjecting them to nuclear managements by stop and chop and the rate of corneal endothelial cell loss and central corneal thickness were assessed.

Materials and Methods:

This prospective observational study was conducted at selected outdoor patients from January, 2023 to June, 2023 over 33 patients of age related cataract selected for phacoemulsification surgery. An analysis was done in 33 patients undergoing phacoemulsification at Shaheed Mansur Ali Medical College, Uttara and Mirpur Eye Hospital, Mirpur on corneal endothelial cell loss and central corneal thicknes. These 33 patients were randomly selected who were operated by a single surgeon. In these study, operation was on these patients by stop and chop technique. Patients were selected based on some inclusion criterias like nuclear grade 1-3, healthy cornea,full pupil dilatation, good red reflex, easy surgical access,average axial length (22-25),lack of other ocular comorbidities. Brown and black cataract, preoperative endothelial count less than 1000 per sq.mm were excluded from this study. Each patient underwent preoperative evaluation including best corrected visual acuity (BCVA), details slit lamp examination, nuclear sclerosis grading, fundoscopy, intraocular pressure (IOP) by Goldman applanation tonometry (GAT) and regurgitation test to check the patency of nasolacrimal duct. Using TOPCON SP 3000P specular microscope specular microscopy was done pre operatively in each patient and corneal endothelial cell count and corneal thickness was recorded. After getting written informed consent patient underwent phacoemulsification by this technique under peribulbaranaesthesia. All patients were followed up on post-operative day, 1 week, 4th week and 12th weeks. On every visit, best corrected visual acuity (BCVA) was tested and complete slit lamp examination was done. Specular microscopy was done to determine the endothelial cell count and central corneal thickness (CCT) at 1st, 4th and 12th weeks of follow-up. At the end of these study, the data was compiled and tabulated.

Results:

The mean age group of patient was 60.96 with standard deviation 1.75 years. Out of 33 patients, 14 were male and 17 were female patients. Most common type was nuclear cataract followed by posterior sub capsular cataract. Regarding the corneal thickness, both groups showed a significant increase in corneal thickness. A maximum increase in corneal thickness was reached at first POD and decreased gradually to reach the preoperative value by 3rd month. A decrease in endothelial cell count 11.58% in stop and chop method were recorded at 12th week after operation. Before operation, visual acuity was recorded in each patients with the help of Snellen's chart. First uncorrected visual acuity was recorded and best corrected visual acuity was done with auto refraction and recorded. Specular microscopy was done and mean endothelial cell density was calculated before operation, 1st week, 4th week and 12th week after operation. As shown in table 1, no significant difference was present in mean endothelial cell density preoperatively and 1st, 4th and 12th week postoperatively. Central corneal thickness (CCT) was calculated preoperatively and at 1st, 4th and 12th week postoperatively. A maximum corneal thickness was reached at 1st postoperative visit and decreased gradually to reach the preoperative values by 12th week. However, as shown in table 2 no significant difference was found. All patients underwent refractions at 12th week after operation.

Table I: Mean endothelial cell density

Preoperative	1st week post operatively	4th week post operatively	12th week post operatively
2620 ± 70.20 /mm^2	2420 ± 68.90/ sq.mm % loss from preoperative to 1st week : 7.63%	2345± 66.64/ sq. mm % loss from 1st week to 4th week : 3.09%	2310 ± 66.04/sq. mm % loss from 4th week to 12th week : 1.49%

Table II : Corneal pachymetry

Preoperative	1st week	4th week	12th week
530 ± 40.90 micrometer	545 ± 40.50 micrometer	535 ± 40.02 micrometer	532 ± 39.85 micrometer

Table III: Preoperative visual status

Visual acuity	
>6/18	0
6/24	5
6/36	6
6/60	4
5/60	7
4/60	8
3/60	2
2/60	0
1/60	1
<1/60	0

Table IV: BCVA at 12th postoperative week

6/6	4
6/9	6
6/12	8

6/18	6
6/24	7
6/36	2
6/60 or less	0

Discussion:

Cataract extraction by phacoemulsification was introduced in 1968 in New York by Charles Kelman[9]. In phacoemulsification, many methods have been described for removal of the lens nucleus which can be divided into sculpting method and chopping method. In sculpting method, divide and conquer is safe and technically simple to perform because there is lot of room within the capsular bag to handle the nucleus. Stop and chop method is a variation of chopping method that provides room in capsular bag for manipulation for nucleus and helps in removal of first nuclear fragments. In this technique, which was first described by Dr. Paul Koch, a central groove is first sculpted and the nucleus is divided into 2 halves or hemi nuclei. The surgeon then stops sculpting and commences chopping to make each half into smaller manageable pieces. We conducted this study on 33 patients . And phacoemulsification was done by stop and chop method. All patients were followed up 1st, 4th and 12th weeks after operation to see the central corneal thickness (CCT) and endothelial cell count and statistical studies were done. In our study, the meanage group of patient was 60.96 with standard deviation 1.75years. Visual acuity of all patients were evaluated pre operatively and after 12th week postoperatively. Mean endothelial cell density was determined by specular microscopy pre operatively as well as 1th, 4th and 12th week after surgery. The preoperative mean endothelial cell density was 2620 ± 70.20 / mm^2. These values have a similarity with Brightbill findings who shown that mean endothelial cell count in late adulthood is around 2500 cell /mm^2 and Indians have slightly lower counts[10]. At 1st postoperative week, endothelial cell loss was 7.63%. At 4th postoperative week, there was further decrease in endothelial cell loss 3.09%. At 12th postoperative week, there was further decrease in endothelial cell loss 1.49%. This findings were similar to a study which was done by Shao-wei and coworkers who found an average endothelial cell loss of 9.74% in 107 patients of phacoemulsification at 1st postoperative week[11]. All patients underwent central corneal thickness preoperatively and postoperatively at 1st, 4th and 12th week. Mean preoperative values were 530 ± 40.90 micrometer . After 1st, 4th and 12th postoperative week, the central corneal thickness was 545 ± 40.50 micrometer, 535 ± 40.02 micrometer, 532 ± 39.85 micrometerrespectively.The similarity of results is supported by a study done by Srinivisan et al. who found that there was initial loss of endothelial cell count, increase in central corneal thickness and these values subsequently become normal after 12th weeks of surgery[12].

Conclusion:

The technique of nuclear management by stop and chop is highly effective. The endothelial cell loss and central corneal thickness changes are not significantly affected in this method done by the surgeons who gained experiences in different techniques of nuclear management in phacoemulsification.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Comparative Study on Serum Calcium in Pre-Eclampsia and Non Pregnant Women

Susmita Nargis[1], Heera lal Roy[*2]

Abstract

Introduction: *There are many Hypertensive disorders in pregnancy like preeclampsia, eclampsia etc. Pre-eclampsia is the most common medical complication of pregnancy associated with increased maternal and infant mortality and morbidity. Some studies have implicated that low serum calcium levels may have a role in pre-eclampsia but other studies failed to find relation between low levels of these trace elements and pre-eclampsia.* ***Objectives:*** *To evaluate serum calcium in pre-eclampsia & non pregnant women.* ***Materials and Methods:*** *This cross sectional study was carried out in among 31 pre-eclampsia patients, aged 20 to 40 years, and gestational age ranges from 20 to 40 weeks and 31 age matched normotensive non-pregnant women having no proteinuria. Serum calcium was measured by Colorimetric method.* ***Results:*** *The mean serum calcium level was 5.91 (±2.12) mg/dl in pre–eclampsia and was 5.72 (±2.46) mg/dl in normal women.* ***Conclusion:*** *The mean serum calcium level did not differ significantly between the subjects of pre–eclampsia and normal women (t=0; p<.05). The means of both data sets are equal so we can conclude that there is no significant difference between them.*

Keywords: *Pre-eclampsia , Calcium , BMI.*

Number of Tables: 03; Number of References: 18; Number of Correspondences:04.

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Introduction:

Preeclampsia is one of the commonest causes of maternal mortality and morbidity[1]. The incidence of preeclampsia in developing countries is estimated to be 4–18%[2]. Thus, 16% of all maternal death in developed countries and 9% of maternal deaths in Asia and Africa are said to be due to hypertensive disorders in pregnancy[3]. A worldwide perinatal and neonatal mortality rate of 10% is associated with preeclampsia[4]. Current evidence suggests that the endothelial dysfunction seen in preeclampsia may persist years after the episode, and therefore preeclamptic women may be at high risk of cardiovascular diseases later in life[5].Though the etiology of preeclampsia remains unclear, many theories suggest abnormal placental implantation and abnormal trophoblastic invasion as possible causes[6]. The molecular basis of this condition is unresolved in study[7]. It has been postulated that fluctuations in maternal serum ions may be the precipitating cause of elevated blood pressures in preeclampsia[8,9]. Dietary deficiency of different minerals has been shown to have a harmful effect on the pregnant mother and growing fetus and possibly complicate preeclampsia[10]. Evidence supporting routine calcium supplementation for all pregnant women has not been substantiated by research, though most studies have reported reduced calcium levels in pregnancy and worse levels in preeclampsia[11]. However, other studies have also reported a nonsignificant change in the serum calcium levels of preeclamptic women compared to non pregnant women[12].

Materials and Methods:

This cross-sectional study was carried out in the Department of Biochemistry, Sylhet MAG Osmani Medical College in collaboration with the Department of Obstetrics and Gynaecology, Sylhet MAG Osmani Medical College Hospital during the period from January 2016 to December 2016. 31 pre-eclamptic patients, aged 20 to 40 years, and gestational age ranges from 20 to 40weeks and 31 age matched normotensive non pregnant women having no proteinuria were included in group-A and Group-B respectively.Study population was selected by consecutive and convenient sampling and sample size was calculated by Guilford and Frucher's formula. Pregnant subjects were primi & having essential hypertension, systemic or endocrine disorders, malabsorption syndrome, and patients on calcium supplementation were excluded. Detailed history about present pregnancy regarding pre-eclampsia and exclusion criteria were asked. Data were collected

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from the selected subjects on variables of interest using a semi-structured questionnaire by interview, observation, clinical examination, investigation and from the history. Blood pressure was measured in supine position or sitting position. Urine was tested for gross proteinuria (heat coagulation test). The pre-eclamptic patients were diagnosed by the presence of persistent hypertension (more than 140/90 mm of Hg).

Result:

The mean age was 28.45 (±7.54) years in pre–eclampsia and 31.03 (±8.9) years in normotensive non-pregnant women; difference was not significant (t=0, p<.05) (Table I), the means of both data sets are equal so we can conclude that there is no significant difference between them. The mean serum calcium level was 5.91 (±2.12) mg/dl in pre–eclampsia and was 5.72 (±2.46) mg/dl in normal women. The mean serum calcium level did not differ significantly between the subjects of pre–eclampsia and normal women (t=0; p<.05). (Table II), the means of both data sets are equal so we can conclude that there is no significant difference between them. The mean body mass index was 26.45 (±2.17) Kg/M^2 in pre-eclampsia and 19.26 (±7.9) mg/M^2 in normotensive non-pregnant women. (Table III), the mean body mass index in pre-eclampsia was significantly higher compared to normotensive non-pregnant women (t=6.601; p<0.001).

Table I: Age of the respondents

Age of pre-eclampsia women	Number	Percentage %	Age of Non-pregnant women	Number	Percentage %
20-24	14	45.16	20-24	13	42
25-29	6	19.35	25-29	3	10
30-34	4	12.90	30-34	2	6
35-39	2	6.45	35-39	3	10
≥40	5	16.12	≥40	10	32
Total	31	100	Total	31	100
Mean age 28.45 (±7.54)			Mean age 31.03 (±8.9)		

Table II: Serum Ca+ level of the respondents

Serum Ca+ of pre-eclampsia women mg/dl	Number	Percentage %	Serum Ca+ of Non-pregnant women mg/dl	Number	Percentage %
2-3.9	6	19.35	2-3.9	9	29
4-5.9	10	32.25	4-5.9	9	29
6-7.9	10	32.25	6-7.9	7	23
8-9.9	4	12.90	8-9.9	4	13
≥10	1	3.22	≥10	2	6
Total	31	100	Total	31	100
Mean 5.91 (±2.12)			Mean 5.72 (±2.46)		

Table III: BMI of the respondents

BMI of pre-eclampsia women Kg/M^2	Number	Percentage %	BMI Non-pregnant women Kg/M^2	Number	Percentage %
>18	0	0	>18	4	13
18-20	0	0	18-20	7	22
21-23	4	13	21-23	14	45
24-26	8	26	24-26	4	13
27-29	19	61	27-29	2	7
Total	31	100	Total	31	100
Mean BMI 26.45 (±2.17)			Mean BMI 19.26 (±7.9)		

Discussion:

Serum concentrations of various macrominerals are altered during pregnancy with changes in the mother's physiology and the requirements of growing fetus. Changes on serum level of Calcium (Ca) during pregnancy were estimated. In addition, it has been reported that reduction in serum level of Ca during pregnancy might be possible contributors in etiology of pre-eclampsia (PE), and supplementation of these minerals to diet may be of value to prevent PE[13]. The mean age was 28.45 (±7.54) years in pre–eclampsia and 31.03 (±8.9) years in normotensive non-pregnant women (Table I), the means of both data sets are equal so we can conclude that there is no significant difference between them. This result was consistent with the study of Golmohammad lou et al, [12] that the mean age of the pre-eclampsia women was 25.70 ± 1.20 years. Another result of the mean age of the pre-eclampsia mother was 25.20 ± 4.85 years also supported this result[14]. In this study, mean serum calcium level was 5.91 (±2.12) mg/dl in pre–eclampsia and was 5.72 (±2.46) mg/dl in normal women. The mean serum calcium level did not differ significantly between the subjects of pre–eclampsia and normal women (t=0; p<.05).This result was supported by different studies [15-17] that there was no significant difference between the plasma calcium of the patients and controls. This is in contrast with several studies [14,18] suggesting hypocalcemia as a possible cause for preeclampsia. All these study reported significantly lower calcium levels in preeclampsia patients than normal. The mean body mass index was 26.45 (±2.17) Kg/M^2 in pre-eclampsia and 19.26(±7.9) mg/M^2 in normotensive non-pregnant women. The mean body mass index in pre-eclampsia was significantly higher compared to normotensive non-pregnant women (t=6.601; p<0.001). Several other studies did not show significant difference of body mass index between the two groups (p>0.05) [13]. But Akhtar et al found that the mean body mass index of the subjects with pre–eclampsia was 25.30 (SEM 0.36) Kg/M^2 and normal women was 23.48 (SEM 0.28) Kg/M^2 [14]. There was a significant difference of body mass index between the two groups (p<0.001).

Conclusion:
Macro minerals are very essential during pregnancy. This study showed that serum calcium level did not differ significantly between pre-eclamptic and non pregnant women. It may be concluded that serum calcium have no association in occurrence of pre-eclampsia. However further multicentre study involving large sample needed should be carried out to find the association between pre-eclampsia and serum calcium.

Ethical clearance: Taken from Sylhet M.A.G Osmani Medical college ethical committee.

Conflict of Interest: None.

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ORIGINAL ARTICLE OPEN ACCESS

Evaluation of the Factors Affecting of Epistaxis: A Study in a Tertiary Care Hospital, Dhaka.

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Abstract

Introduction: *Epistaxis refers to the occurrence of bleeding from the nose or nasal cavity. It is widely recognized as one of the most common emergencies encountered in medical settings, particularly in the ear, nose, and throat departments, as well as in accident and emergency departments across the globe. The management of epistaxis depends on the severity of the bleeding and may involve various interventions, including conservative measures like nasal packing, cauterization techniques, or, in more severe cases, surgical interventions.* ***Objectives:*** *The primary goal of this study was to investigate the various causes of epistaxis.* ***Materials and Methods:*** *This cross-sectional observational study was conducted at the Department of Otolaryngology and Head-Neck Surgery (ENT) in City Medical College & Hospital from May 2021 to April 2023. The study involved 220 patients who presented with epistaxis complaints at the ENT Outpatient Department or Emergency unit of hospital. Diagnosis of the cases was based on their medical history, clinical examination, radiological and laboratory investigations.* ***Results:*** *220 patients were studied during the period. The mean age ± standard deviation was determined to be 36.67 ± 18.06 years. The age range spanned from 1 to 85 years. Patients less than 25 years old were 124 (56.36%) and more than 25 years old were 96 (43.74%). Males (139) predominated in both indoor and outdoor patients with a male-to-female ratio of 1.7:1. The nasal cavity most involved was left 103 (47%) compared to right 85 (38.6%). Bilateral involvement was seen in 32 (14.4%) cases. Higher incidence was also noticed during winters 93 (42.1%), followed by summer 63 (28.7%), then autumn 38 (17.2%), and least in spring 26 (11.9%). The circadian rhythm was also noted where we found epistaxis to be more during night 82 (37.6%), followed by evening 78 (35.3%), and finally morning 60 (27.1%). Previous history of hypertension (HTN) is seen in 26.3% of cases (58). The history of taking medications with hemorrhagic risk currently or stopped within the last 10 days was 3.5% (8). We also found a relationship between the age group (<25 years, > 25 years) and the type of treatment.* ***Conclusion:*** *Epistaxis, or nosebleeds, can be caused by various factors such as trauma, inflammation, tumors, blood disorders, cardiovascular issues, and foreign bodies. Younger individuals are more prone to traumatic causes, while older individuals may experience more severe nosebleeds. Hypertension is a significant contributor, emphasizing the importance of blood pressure management. Understanding these diverse causes is crucial for effective treatment and prevention of potential complications.*

Keywords: *Epistaxis, modality of treatment, site of bleeding, LAMA.*

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Introduction:

The word "Epistaxis" is derived from the Greek term

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"Epistazein" which means "to bleed from the nose". It is a feature of multiple local and systemic disorders. It is estimated that about 60% of the population experiences epistaxis at some point in their lives[1]. Though a common presentation and one of the major E.N.T. emergencies, it may prove to be life-threatening if not managed properly. The causes of epistaxis may be focal, local, or systemic. Focal causes pertain to etiologic located focally in the nose. They include trauma to the nose, foreign bodies, rhinoliths, nasal myiasis, chronic granulomatous conditions, and various benign and malignant tumors of the nasal cavity. Epistaxis is one of the most common and most difficult emergencies presenting in 7-14% of the general population each year[2,3]. Although its lifetime incidence is about 60%, only 6% require formal medical intervention they can be serious and even life-threatening[4]. Most patients who develop epistaxis do not seek medical attention because bleeding is minor and usually stops quickly. However, at other times it could be a full-blown life-threatening major hemorrhage. Approximately 60% of the general population will experience an episode of epistaxis in their lifetime, with causes ranging from idiopathic to cancerous lesions[5, 6]. Seventy percent of epistaxis cases occur spontaneously[5]. Approximately, 6% of patients presenting with epistaxis ultimately require medical or surgical intervention, and less than 0.2% require hospitalization due to epistaxis[5, 6]. Most epistaxis (approximately 90%) arises from the Little area along the caudal septum. Blood supply to this area is from the Kiesselbach plexus, which is composed of second-order branches of the internal and external carotid artery systems. Hemorrhage here, commonly referred to as anterior epistaxis, often can be managed conservatively[5]. Epistaxis originating from more posterior aspects of the nasal cavity is referred to as posterior epistaxis. Posterior epistaxis accounts for only 5% to 10% of cases[7].

Materials and Methods:

This study was a cross-sectional observational study conducted at the Department of ENT-HNS City Medical College & Hospital from May 2021 to April 2023. All the Patients of epistaxis who were admitted or attended the Department of Otolaryngology and Head and Neck Surgery, City Medical College & Hospital, Gazipur, Dhaka during the study period constituted the study population. A purposive sampling technique was used for collecting samples. A total number of 220 patients with epistaxis were included consecutively in this study. After obtaining informed consent from the subject, data was collected. All Patients of epistaxis who will be admitted or attended in the Department of Otolaryngology and Head and Neck Surgery City Medical College & Hospital, Gazipur, Dhaka. Patients who are physically or mentally retarded. Patients were unwilling to comply with the study protocol. Standard, predetermined data collection sheet. Data were processed and analyzed using the computer software SPSS (Statistical Package for Social Sciences).

Initial clinical examination: Vitals (mainly BP), Presence of nasal Packing, Bleeding Characteristics- Not copious (<250 ml), Copious bleeding (>250 ml), Discontinuous bleeding <6 hrs, Discontinuous bleeding >6 hrs. Initial treatment initial maneuvers- head forward, blowing of the nose, suction of clot, use of vasoconstrictor.

Study procedure: This study obtained clearance from the institutional review committee of the hospital. Patients were provided with verbal information by the attending specialist on call and were given written materials explaining the study. Following patient resuscitation, a comprehensive process was carried out, including detailed history taking, thorough general examination, systemic examination, and specific examination of the nose, throat, and ears, with a focus on identifying the bleeding site. Relevant blood tests and radiological investigations were conducted and the data was collected using a structured form designed for this purpose.

Statistical analysis: Statistical analysis was performed using SPSS 21.0. Initially, the variables were summarized as descriptive data. Subsequently, an exploratory analysis was conducted to identify potential risk factors that may influence the occurrence of epistaxis failures. During this process, variables related to patients' previous medical history, history of epistaxis, bleeding characteristics, and the progression and final outcome of the condition were compiled and assessed for independence using the chi-square test.

Result:

Table-I: Characteristics of the study population (n=220)

Age in years	Frequency	Percentages
5-15	72	32.73
16-25	52	23.64
26-35	28	12.73
36-45	22	10.00
46-55	20	9.09
56-65	16	7.27
≥65	10	4.55

The table above represents the distribution of 220 participants in a study investigating the factors influencing the etiology of epistaxis and its treatment. The highest frequency was observed in the 5-15 age group, accounting for 32.73% of the sample, followed by the 16-25 age group with 23.64%. As age increased, the number of participants gradually decreased, with the older age groups, including 56-65 and ≥65, having lower frequencies of 7.27% and 4.55%, respectively.

Table-II: Demographic characteristics of the study population and their clinical profiles.

Patient included	Frequency (n= 220)	Percentage (%)
Age		
<25 years	124	56.36
>25 years	96	43.74

Patient included	Frequency (n= 220)	Percentage (%)
Gender		
Male	139	63.00
Female	81	37.00
Site of involvement		
Left	103	47.00
Right	85	38.6
Bilateral	32	14.4
Circadian rhythm		
Morning	60	27.1
Evening	78	35.3
Night	82	37.6
Season		
Summer	63	28.7
Autumn	38	17.2
Winter	93	42.1
Spring	26	11.9
Previous history		
HTN	58	26.3
Medications with a hemorrhagic risk currently or stopped within the last 10 days	8	3.5
Epistaxis in Prev. 6 months	5	2.05

Table II summarizes the demographic characteristics and clinical profiles of the study population investigating factors related to epistaxis. The study included 220 patients, with a majority (56.36%) being under 25 years old. The gender distribution was 63.00% male and 37.00% female. Epistaxis was predominantly reported on the left side (47.00%), followed by the right side (38.6%) and bilateral involvement (14.4%). The incidents occurred during various times of the day, with 27.1% in the morning, 35.3% in the evening, and 37.6% at night. In terms of seasons, winter had the highest frequency (42.1%), followed by summer (28.7%), autumn (17.2%), and spring (11.9%). A history of hypertension (HTN) was observed in 26.3% of patients. Only a small percentage (3.5%) had medications with hemorrhagic risk or recently stopped such medications. Previous epistaxis occurrences within the last six months were reported by 2.05% of participants.

Table III: Causes of epistaxis of population

Causes	Frequency (n=220)	Percentage
Idopatic	68	30.91
Trauma (injury + surgery	44	20
Inflammatory diseases (chronic rhinosinusitis)	35	15.91
Foreign bodies (living / nonliving)	31	14.09
Tumors(benign/malignant)	19	8.63
Blood dyscrasia (including liver diseases)	15	6.81
Cardiovascular related (Hypertension +atherosclerosis)	8	3.63

Table-III presents the causes of epistaxis within a population. The data reveals that idiopathic cases, with no identifiable cause, account for the highest frequency at 68 cases (30.91%). Trauma, including injury and surgery, follows closely with 44 cases (20%), while inflammatory diseases contribute to 35 cases (15.91%). Foreign bodies are responsible for 31 cases (14.09%), and tumors, both benign and malignant, contribute to 19 cases (8.63%). Blood dyscrasia, including liver diseases, accounts for 15 cases (6.81%), while cardiovascular-related factors, such as hypertension and atherosclerosis, are associated with the lowest frequency at 8 cases (3.63%).

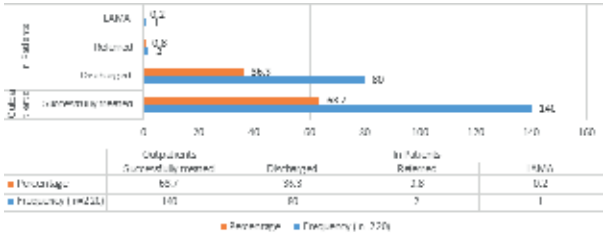

Fig: 1: Outcome of the study

In the study 83 (37.3%) patients were admitted whereas 140 (62.6%) were treated on an outpatient basis. Among the outpatients, there was a 100 % success rate and sent home the same day. Among the admitted patients, 80 (97.2%) were discharged after successful treatment whereas 3 (2.8%) cases were not. One patient with a biopsy report of squamous cell carcinoma from the nasal mass was referred to a cancer hospital for chemo-radiotherapy. Four were referred to other departments. Three were referred to the internal medicine department for pleural effusion, cardiac failure with corpulmonary, and alcoholic liver disease. 1 patient Left against medical advice (LAMA) during the admission. (Fig: 1).

Table-IV: Statistical significance of the study

	Treatment		P-Value
Age group	Non-Surgical	Surgical	
Less than 25	144	23	0.101
More than or equal to 25	40	13	
Hypertension			
Yes	47	0	0.101
No	137	0	

Table IV presents the statistical significance of the study, examining the relationship between treatment, age group, and hypertension. For the age group "Less than 25," there were 144 cases treated non-surgically and 23 cases treated surgically, resulting in a p-value of 0.101, indicating no significant difference. Among individuals with hypertension, 47 cases were treated non-surgically and none surgically, yielding a highly significant p-value of 0.001.

Discussion:

220 patients taken in the study were the patients that came to the department of ENT of City Medical College & Hospital with epistaxis during the study period. More

patients were <25 years, > 25 years. The low age incidence in our study may be due to the fact that the majority of our patients who had traumatic epistaxis 33% tended to be younger than those with atraumatic epistaxis. Young people are the most active in the population and so vulnerable to trauma from nose picking especially among children and also fights, and road traffic accidents causing epistaxis. The assumption that older individuals, who have lost the elastic and contractile properties of their arteries, are prone to more severe nosebleeds than younger individuals and require hospitalization and aggressive management[8,9]; is confirmed in our sample of patients. Aged <25 were 124 (56.36%), and >25 were 95 (43.74%) were divided so to Fork a difference between the elderly and younger generation. For this project, we have used 25 years of age and older as the general definition of an older person depending on the setting, the region, and the country[10]. Male predominance like in our study has been reported in the literature[11]. Unilateral involvement with left-sided predominance is seen in the study by Urvasi R et. al.[12]. 86% have anterior bleeding in a study by Iseh. KR[13] Klossek[14] and Hussain G[15] all lead to the same pattern throughout the world favoring anterior bleeding. An increased incidence of epistaxis in winter was seen in our study which is in agreement with Wormald PJ, Varshney S, Petruson B, Purkey MR[11, 16] and it may be attributed to high wind velocity and dryness which favor crust formation in the nasal cavity. Epistaxis seen more in the night followed by evening and finally by morning in our study does not correspond completely with the study by Roberto Manfredini et al.[17]. Trauma in our study population varied from minor self-inflicted Injuries such as digital trauma to severe degrees of maxillofacial trauma due to accidents. The nose being the most prominent part of the face is most susceptible to craniofacial injury. Most of the patients were victims of RTA and had nasal bone fractures along with other maxillofacial injuries. This is also in accordance with a study by Urvasi Razdan et al.[12] where trauma was the most common case for outdoor patients. HTN (hypertension) is one of the major causes of epistaxis (27.3%) and we also identified an association between blood pressure levels and the presence of enlarged blood vessels in the nasal mucosa (seen during rhinoscopy or endoscopy). It may be possible that the enlarged aspect of the vessel may represent some degree of degeneration of the blood vessel walls, making them prone to bleeding as suggested by Neto JFL[8]. In India was recorded HTN as the second most common cause of epistaxis followed by idiopathic causes and also a study by Charles R in Bristol General Hospital[18]. So this study also emphasizes regular blood pressure checks and compliance with antihypertensive medications. Inflammatory causes like rhino sinusitis or different causes of rhinitis as a cause of epistaxis were seen in 12.9% of causes. After the acute bleeding episode was stopped, required medications were also prescribed for rhino sinusitis or other inflammatory processes[19]. Foreign bodies accounted for (18 cases) 8.2 % of total patients were also causes of unilateral epistaxis especially in children. The foreign bodies that were found were of different kinds both living and nonliving.

Limitation of the study:

The present study was limited in some aspects like the unavailability of chemo-radiotherapy in the same site of treatment. It is also a single institute-based analysis; the corresponding author is the investigator of the study, so some biases cannot be ruled out.

Conclusions:

In our setting, trauma, whether self-inflicted, iatrogenic, or due to accidents, remains the primary cause of epistaxis. The majority of cases were managed in the outpatient department using non-surgical methods, while some required admission for surgical intervention.

Conflict of Interest: None.

Acknowledgement:

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REVIEW ARTICLE OPEN ACCESS

The Mystery of Tomato Flu in India

Taniqsha Bambani*[1], Ashfaque Hossain[2]

Abstract

Introduction: *While the globe fights against monkeypox and the coronavirus, a new virus known as "Tomato flu" threatens. This virus's recognized target is children. In May 2022, the virus was found for the first time in Kerala, India. Due to its principal symptom, tomato-shaped blisters all over the body, the ailment was given the term "Tomato Flu." Recent reports described it as type of hand, foot and mouth disease (HFMD). It is easily diagnosed by a history and physical examination. It is an infectious condition, but there are still a lot of unanswered questions. To shed light on this topic, we decided to collect and summarize the information on this novel viral pathogen.* ***Materials and Methods:*** *To accomplish this, we undertook a thorough literature assessment of the Tomato Flu research that has already been done. We analyzed data from various sources such as medical journals, government reports and news articles to gain a better understanding of this emerging disease. In addition, we conducted interviews with healthcare professionals who have treated patients with Tomato Flu to gain insights into their experiences.* ***Results:*** *Survey of literature showed that Tomato Flu is a self-limiting disease. Children under the age of 5 and immunocompromised individuals are more susceptible to this disease. There is no diagnostic test for the disease, differential diagnosis involves typical symptoms and the absence of other known viral agents. There is no treatment, supportive care brings relief.* ***Conclusion:*** *Overall, this review provides a better understanding of Tomato Flu and its potential impact on public health. By shedding light on this emerging virus, we hope to contribute to ongoing efforts to prevent and treat of this infectious disease.*

Keywords: *Tomato flu, HFMD, infectious disease.*

Number of Figures: 02; Number of References: 38; Number of Correspondences: 02.

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Introduction:

While the world continues to fight against monkeypox and Coronavirus, a new virus known as "Tomato flu" looms large. Children are reported especially susceptible to contract this virus. Twenty-six children under the age of ten have the "Tomato Flu," so far, while 82 toddlers under the age of five have had it [1,2]. The virus was discovered for the first time in Kerala, India, in May 2022. The condition was nicknamed "Tomato Flu" since its primary symptom is tomato-shaped blisters throughout the body[3]. The illness initially manifests as a reddish tiny blister that grows to mimic the shape of a tomato, thus the names "Tomato flu" and "Tomato fever [4]". Although adults may function as carriers and spread the virus when handling children, the illness primarily impacts youngsters. According to Dr. Amar S Fettle, an epidemiologist and the state nodal officer for Kerala, tomato flu is categorized as "Hand, Foot, and Mouth disease" (HFMD), a common viral illness[5]. Viruses from the enterovirus genus, including polioviruses, coxsackie viruses, echoviruses, and other enteroviruses, are responsible for HFMD. The most common cause of HFMD is coxsackie virus A16. Only a moderate version of the illness is caused by coxsackie virus A16 infection in HFMD[6, 7]. Through contact with an infected individual, tomato flu can be transmitted from one person to another. Similar to cold, it spreads from person to person by touching the patient's secretions, including feces such as while changing a baby's diaper at a daycare center[8]. Aside from fatigue, vomiting, diarrhea, fever, dehydration, joint swelling, body pains, and rashes on the hands and feet that gradually get worse, tomato flu can also cause joint swelling and body pains[9]. None of the children who had tomato flu were hospitalized, and it was noted that they all recovered spontaneously[10]. The main signs and symptoms of tomato flu in children are high fever, rashes, and excruciating joint pain, which are also characteristics of chikungunya. For the diagnosis of Tomato Flu, molecular and serological test for dengue, chikungunya, zika, varicella-zoster, and herpes in children with these symptoms, is performed[11]. Once these viral illnesses are ruled out, tomato virus infection is established. There are similarities

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between the treatment for tomato flu and that for chikungunya, dengue, and hand, foot, and mouth disease, including the use of a hot water sponge to alleviate itching and rashes. It is necessary to use paracetamol as supportive therapy for fever, body aches, and other symptoms.

Materials and Methods:

The terms "tomato flu," "hand foot and mouth disease," "rashes," "coxsackie virus A16," and "HFMD" were used in a comprehensive search of the electronic databases of PubMed, Embase, LitCovid, MedRxiv, BioRxiv, Google Scholar, EBSCO MEDLINE, CINAHL, and Scopus to find studies published between January 2021 and December 2022. When applying statistical analysis to pool incidence in children under the age of five associated with tomato flu or hand, foot, and mouth disease, the random effect model proved to be extremely helpful.

Epidemiology:

In Kerala, cases of tomato fever have traditionally been noted since 2007[12]. During the period, there were several cases of infection in the Kottayam and Pathinamtita district areas of Mudakayam, Varzur, and Kanirapally, which were also affected by the Chikungunya virus[13]. Of the surveyed households, 52.8% of the residents had Chikungunya clinically, with 73.4% of the affected being in the adult age group. The most common symptoms were swelling of the joints (69.9%), followed by headache (64.1%) and itching (50.3%), with the knee joint being the most commonly affected (52%)[14]. The unusual viral infection was widespread and was not considered to be life-threatening. According to estimates, 82 young children under the age of five have apparently been impacted thus far. There is no specific treatment to treat tomato flu because it is a self-limiting illness. Twenty six children in the state of Odisha, ranging in age from 1 to 9 years, were found to have the ailment, according to the Regional Medical Research Centre in Bhubaneswar[14]. Bathinda had also reported four to six cases, and due to the similarity of the symptoms, physicians suspected tomato flu[15]. As a preventative move, Anganwadi institutions (Odisha state Government's Department of Women & Child Development & Mission Shakti) have been closed, and officials have begun small-scale awareness campaigns to disseminate the news[16].

Clinical Features:

Although the symptoms of the tomato flu virus resemble those of COVID-19 (both are initially characterized by fever, exhaustion, and body-aches, and some COVID-19 patients also report skin rashes), the virus is unrelated to SARS-CoV-2. It is speculated that tomato flu may not actually be a viral illness in children, but rather a complication of dengue or chikungunya fever[17]. It is also speculated that the virus may possibly represent a novel strain of the viral hand, foot, and mouth disease, a prevalent infectious illness that mostly affects children and people with impaired immune systems. In certain case studies, immune-competent individuals have also been seen to have the condition1[16,18]. Although, the main signs and symptoms of tomato flu in children are high fever, rashes, and excruciating joint pain, which are also characteristics of chikungunya[18,19], the blisters, which appear all over the body mimic those that young people who have the monkeypox virus experience[20,21]. In addition to rashes which irritates the skin, additional signs and symptoms, similar to dengue and other viral illnesses, includes tiredness, nausea, vomiting, diarrhoea, fever, dehydration, swelling of the joints, and body pains[22,23] (Figure-1). When these viral diseases are ruled out in children with similar symptoms, the presence of tomato virus issuspected[16,23,24]. Although the symptoms of tomato flu and chikungunya or dengue are similar, there is no evidence to support this association at present[25]. There are no significant illnesses brought on by tomato flu. Complications from the illness are uncommon[4].

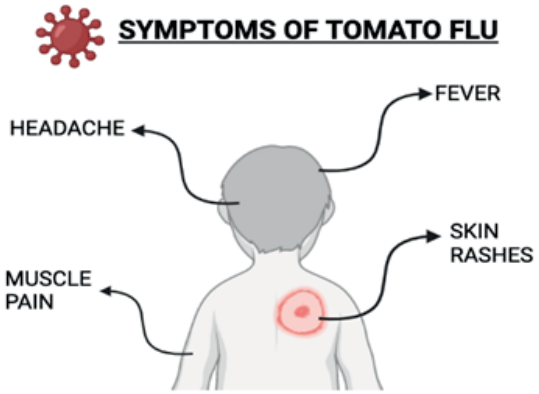

Figure 1: Symptoms of Tomato Flu

Latest UK Tomato Flu case

One week after returning from a one-month family vacation to Kerala in May 2022, a 13-month-old child and her elder 5-year-old brother both got rashes on their hands and legs. The local media in Kerala was covering a strange sickness among youngsters known as "tomato fever" during the time of their visit. The boy played with kids who had recently recovered from the "tomato flu," and did not have any interaction with ill kids. Both kids got vesicular rashes a week after they got back to the UK, although that in the girl's was more noticeable. Fever and any other systemic signs were absent in both children. The boy's lesions had already begun to heal when, two days later, the daughter experienced a severe oral lesion that caused considerable salivating. Both kids went to the pediatric emergency room, where virus swabs were tested using PCR. A test for enterovirus (EV) was performed on both kids. A national reference laboratory also examined the girl's samples for monkeypox because of the rash's fleshy vesicular look (Porton Down, Salisbury, UK). While the monkeypox PCR was negative for the female, the EV PCR was positive for both kids. Another national reference lab (UKHSA-Colindale, London, UK), which had Coxsackie A16, carried out EV typing by sequencing. By Day

6 in the boy's case and Day 16 in the infant's case, the lesions had almost completely healed and left no visible scars[25].

Tomato Flu and Covid-19:

It is reported that the tomato flu virus in Covid-19 exhibits similar symptoms. For instance, both viruses can cause symptoms including fever, coughing, and shortness of breath, which are early warning signs. Rashes on the skin have been mentioned by a few Covid-19 patients[26]. The virus that causes tomato fever, however, is not related to SARS-CoV-2. It's possible that dengue or chikungunya fever complications exist in the children and tomato flu aren't truly viral infections at all[17, 20].

Tomato Flu with Relation with Monkeypox:

The main symptoms include a high fever, body pains, joint swelling, exhaustion, rashes, and blisters. Fever, bodily pains, weariness, and perhaps enlarging lymph nodes are some of the early indications of monkeypox. In tomato flu patients, hands, feet, face, mouth, or even genitalia, the virus may cause rash that leaves behind red lumps on the skin[21, 22]. The negative consequences of monkeypox on people are similar to those of chickenpox and smallpox since it is caused by the same virus. By having intimate contact with an infected person or animal, such as a rat, a monkey, or a squirrel, one can catch the infectious disease, monkeypox. However, there is no information available regarding the virus that causes tomato flu. Despite the lack of a diagnostic test, we can suspect tomato flu based on the symptoms and the absence of any other viral diseases[28, 37].

Prevention:

When an unknown virus suddenly breaks out, prevention is essential. An outbreak's effects can be readily managed if everyone properly adheres to preventative measures. Compliance with preventive measures is dubious, nevertheless, as Tomato flu frequently strikes children under the age of five. Their guardians must use caution when there are illness outbreaks[26]. The tomato flu spreads by direct touch. Due to a lack of hygiene maintenance and a propensity for putting their hands in their mouths, it can cause widespread among school-age youngsters. Children can become carriers because the infectious agents can stay in their bodies for several weeks after the sickness has subsided. Without displaying any symptoms of the illness, adults can also spread the virus when they come into contact with youngsters[27]. In the case of an unexpected illness epidemic, prevention is always the best approach to control it[27]. To stop the virus from spreading to other children or adults, isolation should be used for 5-7 days after the beginning of symptoms. The most effective method of prevention is maintaining good hygiene, sanitizing the immediate area, and keeping the sick kid from sharing toys, clothes, food, or other objects with other children who are not ill. The most effective and economical methods for protecting the population from viral infections, particularly in children, the elderly ,immunocompromised individuals, and those with underlying medical conditions, are drug maintaining personal hygiene, drug repurposing and immunization[28] (Figure-2). Encourage children to exercise excellent hygiene by educating them to routinely wash their hands and cover their mouths and noses when they cough or sneeze. Separating and regularly sanitize items such as clothes, bedding, and utensils is also an effective measure to control infection. Other effective measures include avoiding infected people, eating healthily to maintain and improve immunity, and the most important of all, getting enough exercise, sleep and relaxing time[29].

Figure-2: various preventive and safety measures

Treatment:

There are now no particular medications available to treat the tomato flu virus because it is an uncommon viral illness that has recently emerged[30]. The blisters due to flu should not be scratched, according to health professionals. Additionally, people with this illness need to stay hydrated and practice good sanitation and hygiene. One must also avoid direct contact with those who are ill in order to prevent the transmission of this disease[31]. It is a self-limiting infectious disease; the signs and symptoms of tomato flu disappear within a few days. Due to the disease's rarity, no treatments are available that target it specifically. The doctors treat the child's symptoms in accordance with his or her needs. To reduce symptoms, physicians prescribe antipyretics and painkillers[24]. Seclusion, relaxation, lots of drinks, and a hot water sponge are recommended to soothe itching and rashes. To better comprehend the need for prospective remedies, further study and inquiry is required[32, 33].

Tomato Flu Identification:

Typical symptoms and absence of know viral agents (using molecular and serological test), such as dengue, chikungunya, Zika virus, varicella-zoster virus, and herpes, presenting similar symptoms are considered as indicate of tomato flu viral infection. Once the diagnosis has been determined, symptomatic therapy must be given because there is no cure for tomato flu. The Lancet Journal warns that failure to contain and stop the spread of the pediatric tomato flu pandemic to adults might have disastrous consequences[1,34,35].

Recent Discussion:

Recently, exceptionally large tomato-like rashes that are not typical of HFMD, especially in children have drawn the attention of scientists. The disease received this interesting because the rash, which is characteristics of this disease resembles tomato. Because of the similarity of the symptoms associated with tomato flu resembles those of other viral diseases, there is an unurgent need to characterize the virus and develop appropriate diagnostic tests[36,37]. However, it is important to note that since early May 2022, there have only been a few hundred confirmed cases of tomato flu, indicating that the outbreak is probably under control[35,38].

Conclusion:

At the period of rising anxiety about the nationwide monkey pox outbreak, instances of tomato flu were discovered. The term tomato flu came in the picture cause of the blisters present on hands, buttock and foot resembles tomato. Few studies suggested that it as a variant as HFMD. Overall, prompt preventative steps are crucial for controlling the sickness and preventing new outbreaks. These involve practicing proper sanitation and hygiene as well as requiring five to seven days of seclusion following an infection. The best approach would be to continue to preventive measures as there is no effective treatment for this novel disease.

Conflict of Interest: None.

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CASE REPORT OPEN ACCESS

Aesthetic Management of an Unerupted Maxillary Central Incisor with a Closed Eruption Surgical Technique: A Case Report

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Abstract

Introduction: *Treatment of impacted teeth requires a combination of orthodontics and surgery.* ***Case report:*** *Reported case is of a 12-year-old-girl with an unerupted maxillary central incisor obstructed by an odomtome.* ***Discussion:*** *Surgical exposure was done and traction with closed eruption technique was used.* ***Result:*** *The tooth was aligned in the dental arch with accepted aesthetic and functional satisfaction of the patient.*

Keywords: *Impacted tooth, surgical exposure, fixed orthodontics.*

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Introduction

Missing or unerupted maxillary incisors were considered to be the most unattractive deviant occlusal trait in one American study and it can have a major impact on dental and facial aesthetics[1]. So this may have an effect on self-esteem and general social interaction and it is important to detect and manage the problem as early as possible[2]. The frequency of maxillary central incisor impaction has been found in the range of 0.03–1.96 %[3]. The patient of current case report was treated by surgical exposure of upper right central incisor and immediately (standard edgewise fixed Appliance/ bondable button) was fitted and then orthodontically brought into the dental arch with proper alignment.

Case Report:

A 12 year-old girl came for treatment with the complain of failure of eruption of a front tooth in her upper jaw as her chief complaint. On clinical examination- The maxillary right central incisor is missing from the arch, Anterior cross bite presented with reverse over jet & over bite about 2 mm, Upper midline to facial midline was shifted off to the right side by 1.5 mm. which is not coincident with lower midline. Otherwise all the intraoral & extraoral findings were normal. On the assessment of dental panoramic view, Occlusal view & periapical view, reported missing incisor was present within the alveolus and it is obstructed by presence of a calcified odontome like structure on its path of eruption. Rest of the cephalometric parameters were within normal range.

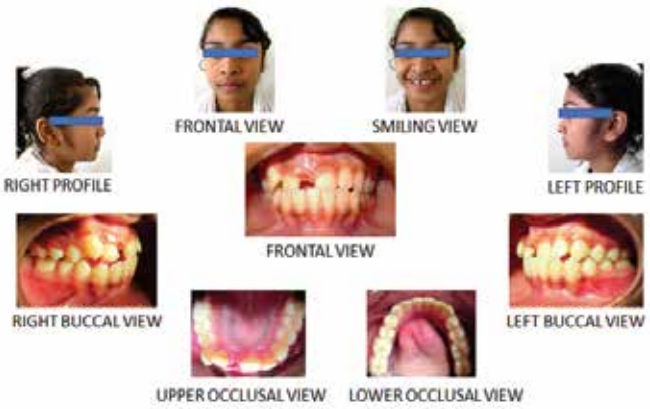

Figure -1 : Initial Extraoral & Intraoral Photographs

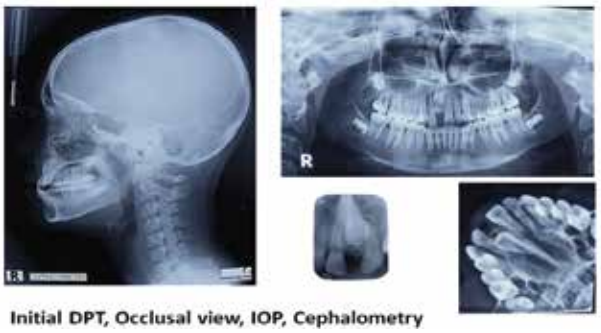

Figure -2 : Radiological images of patient

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This is a case of Class-I malocclusion with Anterior cross bite and Impacted maxillary right central incisor and there is buccaly placed maxillary right canine. Where Molar Relation is Class- I, Canine Relation is Class- I and Incisor Relation is Class- III. Our Treatment objective for this case is firstly Levelling and alignment of upper and lower arch, welcome preparation. Secondly Surgical exposure of the maxillary right central incisor with removal of the odontome. Then Attachment to the exposed incisor & orthodontic traction then align it to normal occlusion. And finally, Reassessment of the case and regular follow-up. This patient was treated in following four phases:

1. Levelling and alignment,
2. Surgical exposure,
3. Attachment to the tooth and
4. Orthodontic mechanics to bring the tooth into the arch.

Figure – 3: Initial Alignment & Leveling done

Figure – 4 :Space gained by Open coil spring

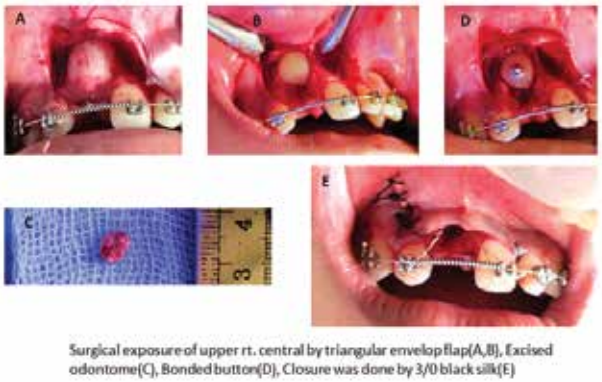

Figure – 5 : Steps of surgical procedure

One year after the initial treatment, the patient was consulted again with pre-treatment and post-treatment records. A class-1 incisor relation was achieved with optimal over-bite and over-jet relationship. The post treatment panoramic radiography revealed a complete eruption of upper right central incisor. The roots of the tooth were fairly parallel, supporting tissues appeared healthy both clinically and radiologically.

Figure – 6 : Extra oral and Intra Oral View of patient – Before and After treatment

Discussion:

The incidence of unerupted maxillary central incisor has been reported as 0.13% in the 5–12 year-old age group[5]. In a referred population to regional hospitals the prevalence has been estimated as 2.6%[6]. Unerupted maxillary incisors can be associated with hereditary and environmental factors. However, the relevant importance of these different factors is unknown. For example, the presence of supernumerary teeth does not necessarily mean that the incisor will be prevented from eruption[7]. Often the position of the impacted incisor (ie distance from alveolar crest, rotation, angulation and inclination) determines the surgical procedure used. One study of 30 patients suggested that the closed technique resulted in a more aesthetically pleasing gingiva than the apically repositioned flap. However, there was no significant difference between the techniques regarding periodontal attachment. In contrast, superior results have been reported in terms of gingival, periodontal and pulp status using the closed eruption technique in comparison with the apically repositioned flap[8]. The timing of intervention has been suggested as being important, with several studies suggesting that the younger the age, the quicker the tooth erupts[9]. However, other studies have suggested that age of intervention has no effect. To some extent the differences can be explained by the small mean time difference of about three months in eruption, inadequate sample sizes and unmatched age groups. We first determined whether the impacted tooth could be successfully aligned in its proper position on the basis of its position and orientation, the amount of root formation, and the degree of root dilaceration[10] . It is important to plan when and how the impacted tooth will be moved to its proper position, as well as the positions of adjacent teeth and the intermaxillary relationships. In this patient, there was insufficient space for the maxillary right canine; the lateral incisors had drifted into the unoccupied space, and the right molar had moved mesially. Extraction of the first premolar and the

deciduous canine made the orthodontic correction easier by eliminating the possibility of other complications. This is in accordance with the studies of Jacobs[11] and Stivaros and Mandall,[12] who showed that preventing or intercepting a palatally displaced canine by extracting the deciduous canine is best carried out as early as the displacement is detected, typically around 10 years of age. Usually, prevention or interception will prevent the impaction of a palatally displaced canine and might help to prevent resorption of the adjacent incisor root. Movement of an impacted central incisor could be impossible because of ankylosis and external root resorption[13,14]. Furthermore, even successfully treated patients can have irregular root formation11 or an unesthetic gingival margin after alignment[9]. However, these complications did not occur in this patient. Although the closed-eruption technique usually provides the most esthetically pleasing result, we did not use this surgical technique[15,16]. The horizontal position of the impacted maxillary central incisor meant that direct removal of the oral mucosa was the only way to expose the tooth and attach the wire. This procedure, although more direct, has the disadvantage of producing a nonkeratinized vestibular gingival margin[9]. This was corrected with an apically positioned flap during the traction to provide adequate width of the attached gingiva and result in a more esthetic gingival margin. Because of the relatively high prevalence of gingival defects in some studies, adjunctive postorthodontic periodontal surgery might be required in many patients treated with this method to achieve an esthetic gingival margin contour over the central incisors and provide the teeth with an adequate zone of attached gingiva[16].

Conclusion:

Unerupted maxillary incisors should be identified early and managed accordingly based on a comprehensive clinical examination and radiographic investigation. Depending on the position and prognosis of the tooth, appropriate treatment plan with multidisciplinary involvement should be carried out. Successful treatment outcome depends on early detection and multidisciplinary approach.

Conflict of Interest: None.

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