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ORIGINAL ARTICLE

Demographic Characteristics and Etiology of Simple Mandibular Angle Fracture: Experience of 30 Cases in Dhaka City

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Abstract

Background: Simple mandibular angle fracture can occur in different group of people due to different etiology. **Objective:** The purpose of the present study was to find out the demographic characteristics and etiology of simple mandibular angle fracture. **Methodology:** This cross-sectional study was conducted in the Department of Oral and Maxillofacial Surgery at Dhaka Dental College & Hospital, Dhaka and Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh from January 2010 to December 2010 for a period of one (01) year. Among all patients admitted/attended to the hospital IPD or OPD with fracture of mandibular angle with or without other associated fracture sites were selected as study subjects. The details of demographics characteristics and etiology of fracture were recorded. **Result:** A total number of 30 patients were recruited for this study. Majority of the respondents 21(70%) were male and rest 09(30%) were female. Mean age of the patients was 29.5±6.795 years. Among the 30 respondents 46.7% had history of Road Traffic Accident, 43.3% due to assault and only 10% for other causes. **Conclusion:** In conclusion the most common etiology of mandibular angle fracture is road traffic accident. Male and younger adult are frequently encounter the mandibular angle fracture. [*Journal of Current and Advance Medical Research 2018;5(2):45-48*]

Keywords: Demographic characteristics; etiology; simple mandibular angle fracture

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Introduction

Mandibular fractures are common facial injuries. It represent close to 25.0% of maxillofacial fractures[1]. In a study, the mandibles were the second most commonly fracture sites followed by the nasal bones but less than the malar and maxillary bones[2]. It is a very serious condition which may occur at any age group with different etiology.

Various fracture sites of the mandible are indicated in different studies. Morris et al[3] reported that the

leading anatomic fractures were most commonly located at the angle (27.0%) followed by the symphysis (21.3%), condyle and subcondyle (18.4%), and body (16.8%). In relation to etiology, mandibular body fractures (MBF) represent 11.0% to 36.0% of all mandible fractures in which personal violence is the principally factor[4].

The mandibular angle is the 2nd most frequent site of mandibular fracture accounts for about 25.0% to 31.0% and it also has the highest rate of complications[5-6]. In this direction, King et al[7] showed that when co-exist two mandible fractures, the body was a third more prevalent area of fracture, after parasymphysis and condylar process. Fridrich et al[8] described that the mandibular angle (28.5%) is the most common site of fractures, followed by the mandibular symphysis (21.4%), while King el al[7] described that parasymphyseal fractures were the most frequent, followed by condyle/head, body, and angle fractures.

The most common causes of a mandibular fracture are interpersonal conflicts or motor vehicle collisions[9]. Aetiological factors include road traffic accident, fall from height, interpersonal violence[10]. In developing countries like Bangladesh road traffic accident is the most common aetiological factor[11]. In contrast, in an evaluation of epidemiological data from two European centers, fractures resulted mainly because of assaults and falls[12]. N this context this present study was undertaken to find out the demographic characteristics and etiology of simple mandibular angle fracture.

Methodology

This prospective observational study was conducted in the Department of Oral and Maxillofacial surgery, Dhaka Dental College & Hospital and Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh from January 2010 to December 2010. Patients attended to OPD or admitted to hospital with fracture of the angle of mandible of adult age group in both sex.

Among all patients admitted/attended to the hospital with fracture of mandibular angle with or without other associated fracture sites, study subjects were recruited on the basis of inclusion and exclusion criteria. Patients with permanent dentition having simple mandibular angle fracture those had given consent to participate in this study were selected for this study. Patients who were refusing to be included in the study were excluded from this study. The details of demographics characteristics ad etiology of fracture were recorded.

Statistical analysis was performed using a statistical software package STATA Data Analysis and Statistical Software, STATA 10. The quantitative data were expressed as mean with standard deviation (SD) and the qualitative data were expressed as frequency and percentage.

Result

This study was carried out in the Department of Oral and Maxillofacial Surgery, Dhaka Dental College & Hospital and Bangabandhu Sheikh Mujib Medical University from January 2010 to December 2010. A total of 30 patients presented with mandibular angle fractures were included in the study. Majority of the respondents 21(70%) were male and rest 09(30%) were female (Table 1).

Table 1: Distribution of the respondents by Gender

Gender	Frequency	Percent
Male	21	70
Female	9	30
Total	**30**	**100.0**

Majority (60%) of the respondents were aged less then 30 years, 12(40%) were between 30 to 50 years of age. Mean age of the patients was 29.5±6.795 years and median 30 years (Table 2).

Table 2: Distribution of the respondents by age

Age Group	Value
<30 Years	18(60.0%)
30 to 50 Years	12(40.0%)
Total	**30(100.0%)**
Mean±SD (Range)	29.5±6.795 (17 to 43)

Data were expressed as mean ± SD and Range

Among the 30 respondents 46.7% had history of Road Traffic Accident, 43.3% due to assault and only 10% for other cases (Table 3).

Table 3: Distribution of the respondents according to Etiology

Causes mandibular angle fracture	Frequency	Percent
Road Traffic Accident	14	46.7
Assault	13	43.3
Others	3	10.0
Total	**30**	**100.0**

Discussion

Maxillofacial trauma is one of the leading causes of admission of patients in the emergency department of most hospitals around the world. Mandibular fracture is one of the most common trauma injuries[9]. It is of great interest because of its high incidence, high rate of morbidity, disfigurement and the loss of function involved, and significant monetary cost represented by the need for hospitalization and treatment. Moreover, the possible concomitant fractures of other body parts should also be taken into consideration[13].

Angle fractures occur in a triangular region between the anterior border of the masseter and the postero-superior insertion of the masseter[7]. These fractures are distal to the third molar. Mandible fractures are also described by the relationship between the direction of the fracture line and the effect of muscle distraction on fracture fragments. Mandible fractures are favorable when muscles tend to draw bony fragments together and unfavorable when bony fragments are displaced by muscle forces[8]. Vertically unfavorable fractures allow distraction of fracture segments in a horizontal direction. These fractures tend to occur in the body or symphysis-parasymphysis area. Horizontally unfavorable fractures allow displacement of segments in the vertical plane.

Angle fractures are often unfavorable because of the actions of the masseter, temporalis, and medial pterygoid muscles, which distract the proximal segment superomedially. Recent evidence evaluating the favorability of angle fractures shows that there is no need to apply different treatment modalities to mandibular fractures regardless of whether the factures are favorable[13].

This prospective study was carried out in the Department of Oral and Maxillofacial Surgery, Dhaka Dental College & Hospital and Bangabandhu Shiekh Mujib Medical University from January 2010 to December 2010 with a sample size of 30 patients presented with non-comminuted simple mandibular angle fractures with or without displacement. A total of 30 patients presented with mandibular angle fractures were included in the study. Majority of the respondents 70.0% were male and rest 30.0% were female. Most of the patients were male in each groups. Findings are almost similar with other studies in the country. In Bangladesh, a case series of 125 patients with mandibular fracture has been reported 77.6% male and 22.4% female patients and peak incidence was in between the ages of 20 to 29 years[10]. In another study in Bangladesh in a case series of 38 patients with mandibular angle fracture reported 63.13% male 38.84% female patients and most of the patients were aged less than 30 years[14]. Masculine gender was the most affected by mandibular fractures[15-16]. In another study Marinho et al[17] have shown 84.8% male subjects with mandibular fractures, which is consistent with the present study.

Majority (60%) of the respondents were aged less than 30 years, 12(40%) were between 30 to 50 years of age. Mean age of the patients was 29.5±6.795 years and median 30 years. Most of the patients were aged less than 30 years. The age range of 20 to 30 years old was the most affected by mandibular fractures[18-19]. However, Bormann et al[20] prevailed with individuals with mandibular fractures between 16 and 25 years; Yamamoto et al[21] presented subjects with an average age of 51.3 years old, for patients with mandibular fractures from falls from own height and 31.9 years old for patients suffering falls from high falls. In our survey, 69(47.6%) male subjects were affected by mandibular fractures in the age group of 21 to 30 years old, and seven female patients (26.9%) aged 31 to 40 years old, presenting a resemblance to the literature that shows the 2nd and 3rd decade of life as the hardest hit by mandibular fractures.

In this study among the 30 respondents 46.7% had history of Road Traffic Accident, 43.3% due to assault and only 10% for other cases. According to Iizuka and Lindqvist[22] and Sojat et al[15] mandibular fractures taken into account were caused by physical attacks, but for Divares et al[23] traffic accidents was the main cause of mandibular fractures, mainly accidents involving cars and motorcycles, which was confirmed by the studies of Bormann et al[20]. However, the etiology of trauma, in general, is strongly influenced by socio-economic and cultural factors[16]. Motorcycle accidents among traffic accidents were the main causes of mandibular fractures, but car accidents contributed to a higher incidence of jaw fractures[17].

The present study had the following limitations. These should be kept in mind while deciding on the implications of the findings of the study. Relatively small sample size was main limitation.

Conclusions

In conclusion the most common etiology of mandibular angle fracture is road traffic accident. Male and younger adult are frequently encounter the mandibular angle fracture. Further rigorously

conducted multicenter countrywide study should be conducted with larger sample sizes which is highly recommended.

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