PATTERN AND COMMON RISK FACTORS OF MAXILLOFACIAL FRACTURES IN ADULTS

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ABSTRACT

Objective: To determine the pattern and leading factors of maxillofacial trauma in adults.

Materials and Methods: This was descriptive crosssectional study which was carried out at the Department of Oral & Maxillofacial Surgery, Khyber College of Dentistry Peshawar from 02 March, 2018 to 02 November, 2018. A total of 189 patients were selected. The age range was 17-60 years. Fire arm injured patients and those presenting after 24 hours of injury were excluded from this study. The data were analyzed using SPSS 22.0 version. Pvalue ≤ 0.05 was taken as significance.

Results: Amongst 189 patients, 156 (74.64%) were male and 47 (25.53%) were female. RTA was the leading factor with 108 (54.41%) followed by assaults 45 (23.80%) and falls 36 (19.04%).36 (19.04%) patients have pan facial fractures and 32 (16.93%) patients had zygomatic complex fractures while 26 (13.75%) patients had fracture maxilla, 11 (5.82%) patients had fracture mandible, 36 (19.04%) patients had frontal bone fractures. Mandibular Dentoalveolar Fractures were 16 (8.46%) while Maxillary Dentoalveolar Fracture 10 (5.29%), orbito Nasoethmoide Fracture was found to be 22 (11.64%).

Conclusion: This study concluded that road traffic accidents were the leading factor which results in maxillofacial trauma.

Keywords: Maxillofacial Injuries, Fracture Maxilla, Fracture Mandible, Road Traffic Accidents, Assault.

INTRODUCTION

Trauma is a major health care problem in present day society. In spite of the high rates of mortality associated with trauma, it is still not regarded as a major disease.¹ Oral and Maxillofacial (OMF) trauma has become a major Point in focus, owing to its increasing incidence and the multispecialty management, which it dictates. OMF injuries, either with or without associated systemic injuries, account for a large number of hospital admissions, especially through the emergency department²⁴ while the specialty of OMF surgery is most commonly involved in diagnosis and treatment of maxillofacial traumatic injuries, comprehensive management often involves several other specialties.³ A clear understanding of the maxillofacial anatomy and pattern of injuries is required not only to diagnose, but also to assess injury severity following maxillofacial trauma. Injury severity is regarded as an indicator of the nature and intensity of treatment required by the patient, and helps predict treatment outcome when quantified.²³⁵

According to study Perform in Tanzania, Road traffic accidents were the most common risk factor i.e. 57.1%), majority of the victims of the maxillofacial trauma patients were motorcyclists, followed by assaults (16.2%) and falls (14.3%) respectively.⁶

Due to cultural environment, and socioeconomic factors, causes for maxillofacial trauma differ world-
wide. Hence epidemiological studies are used to analyze the incidence and pattern of etiology, frequency and severity of maxillofacial and dental trauma. Maxillofacial trauma fractures are known risk factors for morbidity and mortality worldwide, the rationale of the study is that it will provide local data on the subject matter and will help identify future guidelines for prevention of maxillofacial fractures. The study helps to inform the general masses about the Preventive measures like use of seat belts, helmet wearing in order to prevent such injuries.

The objective of this study was to determine pattern and common leading factors of maxillofacial trauma in adults.

MATERIALS AND METHODS

A descriptive cross-sectional study was carried out in the Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar from 2 March, 2018 to 02 November, 2018. A total of 189 patients of both gender through non-probability consecutive sampling technique were selected using 14.3% proportion of falls with 95% confidence, 5% level of significance, 5% margin of error calculated on WHO formula for Sample Size Determination. Patients age range 17-60 years and those presenting within 24 hours after injury were included in this study. Fire arm injury patients were excluded from the study. Approval of study was taken from the institutional ethical review committee at Khyber College of Dentistry. Data for this study was compiled from the patients visiting the outpatient Department admitted in Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar fulfilling the inclusion criteria. The purpose, procedure, risk and benefits were explained to them and an informed consent was taken from them to participate in the study. They were assured of confidentiality of all data. The data was analyzed using SPSS 22. Descriptive statistics was used to analyze the data quantitative variables like age was calculated by taking mean and standard deviation. Qualitative variables like gender and leading factors of maxillofacial fractures (RTA, falls, Assaults) and patterns of maxillofacial surgery. Confounding variables like age and gender was controlled by stratification. The level of significance was kept at $p \leq 0.05$.

RESULTS

The mean age presentation was $38 \pm 5$ years. 65 (34.39%) patients were recorded in 17-30 age group. 70 (37.03%) patients were recorded in 31-40 age group, 54 (28.57%) patients were recorded in 41-60 years age group as shown in the table 1. The male patients were 156 (74.64%) while the female were 47 (25.53%) as shown in figure 1.

As per frequencies and percentages for leading factors, 45 (23.80%) patients got fractures due to assault, 36 (19.04%) patients got fractures due to falls and 108 (54.41%) patients got fractures due to RTA as shown in table 2.

As per frequencies and percentages for patterns of maxillofacial surgery, 26 (13.75%) patients had fracture maxilla, 11 (5.82%) patients had fracture mandible, 36 (19.04%) patients had frontal bone fractures, 16 (8.46%) patients had Mandibular Dentoalveolar Fractures, 10 (5.29%) Maxillary Dentoalveolar Fracture, 22 (11.64%) Orbito Nasoethmoide Fracture, 36 (19.04%) pan facial fractures and 32 (16.93%) patients had zygomatic complex fractures as shown in table 3.

DISCUSSION

Oral and Maxillofacial (OMF) trauma has become a major Point in focus, owing to its increasing incidence and the multispecialty management, which it dictates. OMF injuries, either with or without associated systemic injuries, account for a large number of hospital admissions, especially through the emergency department While the specialty of OMF surgery is most commonly involved in diagnosis and treatment of maxillofacial traumatic injuries,

Table: 1 Age Wise Distribution

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-30</td>
<td>65</td>
<td>34.39%</td>
</tr>
<tr>
<td>31-40</td>
<td>70</td>
<td>37.03%</td>
</tr>
<tr>
<td>41-60</td>
<td>54</td>
<td>28.57%</td>
</tr>
<tr>
<td>Total</td>
<td>189</td>
<td>100%</td>
</tr>
<tr>
<td>Mean and SD</td>
<td></td>
<td>35+11.53</td>
</tr>
</tbody>
</table>

Table: 2 Leading Factors

<table>
<thead>
<tr>
<th>Leading Factors</th>
<th>Frequencies</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assault</td>
<td>45</td>
<td>23.80%</td>
</tr>
<tr>
<td>Falls</td>
<td>36</td>
<td>19.04%</td>
</tr>
<tr>
<td>RTA</td>
<td>108</td>
<td>57.14%</td>
</tr>
</tbody>
</table>
**Table: 3 Patterns of Maxillofacial Surgery**

<table>
<thead>
<tr>
<th>Patterns of Maxillofacial Surgery</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fracture Maxilla</td>
<td>26</td>
<td>13.75%</td>
</tr>
<tr>
<td>Fracture Mandible</td>
<td>11</td>
<td>05.82%</td>
</tr>
<tr>
<td>Frontal Bone Fracture</td>
<td>36</td>
<td>19.04%</td>
</tr>
<tr>
<td>Mandibular Dentoalveolar Fractures</td>
<td>16</td>
<td>08.46%</td>
</tr>
<tr>
<td>Maxillary Dentoalveolar Fracture</td>
<td>10</td>
<td>05.29%</td>
</tr>
<tr>
<td>Orbital Nasoethmoid Fracture</td>
<td>22</td>
<td>11.64%</td>
</tr>
<tr>
<td>Pan Facial Fractures</td>
<td>36</td>
<td>19.04%</td>
</tr>
<tr>
<td>Zygomatic Complex Fractures</td>
<td>32</td>
<td>16.93%</td>
</tr>
</tbody>
</table>

**Fig 1: Percentage of gender wise distribution**

comprehensive management often involves several other specialties.\(^3\) Injury severity is regarded as an indicator of the nature and intensity of treatment required by the patient, and helps predict treatment outcome when quantified.\(^2,3,5\)

The etiological factors and pattern of maxillofacial injuries have been reported to vary from one geographical area to another depending upon the socioeconomic status, geographic condition and cultural characteristics.\(^9\)

The male predominance in our study agrees with what is reported in literature. Males are at greater risk due to their greater participation in high risk activities which increases their exposure to risk factors such as driving vehicles, sports that involve physical contact, an active social life and drug use, including alcohol.\(^10\)

In agreement with other studies,\(^10-14\) the majorities of patients in the present study were young adult in their third decade (21-30 years). However, this observation in contrast to some studies, where the dominant age groups having a high incidence were 0-10 years and 11-20 years respectively. The possible reasons for the higher frequency of maxillofacial injuries in third decade may be attributed to the fact that people in this period of life are more active regarding sports, fights, violent activities, industry and high speed transportation. The low frequencies in the very young and old age groups are due to the low activities of these age groups.

According to on of the study, Road traffic accidents were the most common risk factor i.e. 57.1%), majority of the victims of the maxillofacial trauma patients were motorcyclists, followed by assaults (16.2%) and falls (14.3%) respectively.\(^6\) In our study, as per frequencies and percentages for leading factors, 45 (23.80%) patients got fractures due to assault, 36 (19.04%) patients got fractures due to falls and 108 (54.41%) patients got fractures due to RTA.

Due to cultural environment, and socioeconomic factors, causes for maxillofacial trauma differ worldwide.\(^7,15,16\) Hence epidemiological studies are used to analyze the incidence and pattern of etiology, frequency and severity of maxillofacial and dental trauma.\(^8,17-19\)

The present study shows that the most common cause of maxillofacial injuries was road traffic accidents, which is consistent with other studies in developing countries, but in contrast to other studies done in developed countries which reported assaults as the most common cause of maxillofacial injuries. These etiological differences reflect differences in socioeconomic factors, national infrastructure development (particularly roadways, traffic regulations and legislation), and other behavioral practices such as alcohol consumption and other criminal activities.

The high number of maxillofacial injuries attributed to RTA in our study is attributed to recklessness and negligence of the driver, often driving under the influence of alcohol or drugs and complete disregard of traffic laws, over speeding, overloading, underage driving and poor conditions of roads and vehicles.

Soft tissue injuries were the most frequently occurring type of injury and mandibular fracture was the most frequent type of bony injury. Similar finding was also reported by other studies. This preponder-
Pattern and common risk factors of maxillofacial fractures

The occurrence of such injuries. accidents are strongly emphasized in order to reduce the local population of Khyber Pukhtunhwa. Therefore, are the leading factors of maxillofacial injuries in our

CONCLUSION

The study concluded that road traffic accidents are the leading factors of maxillofacial injuries in our local population of Khyber Pukhtunhwa. Therefore, suitable measures for the prevention of road traffic accidents are strongly emphasized in order to reduce the occurrence of such injuries.

REFERENCES


