



Review of Maxillofacial Injuries in Adilabad Dist., India – A Study of 2232 Cases

KEYWORDS

Maxillofacial, Mandibular, Trauma, Road Traffic accidents, Epidemiology.

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ABSTRACT

This study aims to retrospectively analyse the incidence and pattern of maxillofacial injuries in the developing world in a hope to emphasize on authorities the need of improvising infrastructural facilities, medical and other.

This study attempts to delineate predictable patterns of fracture based on patient demographics and mechanism of injury in Adilabad, a Tribal District in Telangana State, India.

Materials & Methods: We reviewed the medical records of patients treated for maxillofacial injuries at Rajiv Gandhi Institute of Medical Sciences, Adilabad between January 2011 to January 2014. Evaluations were done clinically and radiographically, were analysed based on age, sex, mechanism of trauma, drug/alcohol abuse, number and anatomic location.

Results: We reviewed 1116 patients with maxillofacial trauma. 163 (14.6%) had soft tissue injuries, 953 (85.39%) had fractures involving the maxillofacial region. Most patients were in the age group of 21-30 and the male : female ratio was 3.7:1. Road Traffic Accidents (RTA), most commonly motorcycles, accounted for 802 (71.89%) cases.

Conclusions: Injuries occurred most commonly in 21-40 age group with RTA being the major etiological factor. The government and public should take stringent measures to imbibe and follow good traffic sense.

INTRODUCTION:

Many epidemiological studies have been published from different countries about the pattern of maxillofacial injuries, but demographic data are difficult to evaluate because of many variables.¹

World Health Organization (WHO) statistics indicate that 1 million people die and between 15 and 20 million are injured annually in road traffic accident (RTA). It is predicted that by year 2020 RTAs will rank third of all major causes of morbidity and mortality globally, unless technology and knowledge is used for prevention.⁸

In India in spite of the great impact of maxillofacial traumatic injuries on the patient's quality of life, there is inadequate information about the epidemiological characteristic of this problem.⁷

The purpose of the study was to analyse the pattern of maxillofacial injuries in this part of India, and the various factors that influence their distribution.

MATERIALS & METHODS:

A 3 year retrospective study was conducted on 1116 maxillofacial trauma patients treated at Department of Dentistry, Rajiv Gandhi Institute of Medical Sciences, Adilabad from January 2011 to January 2014.

Age, Sex, cause of injury, site of injury, type of injury, associated injury, distribution of fractures were recorded.

RESULTS:

The 1116 patients with maxillofacial trauma were divided into 7 age groups with high incidence in 21-30 age group

(Table 1).

Out of total 1116 patients with maxillofacial fractures, 878 were males (78.60%) as against 238 females (21.40%), giving a male to female ratio of 3.7:1 (Table 2).

The main etiology was RTA (71.89%) particularly in those travelling by motorcycles followed by falls (16.2%), assaults (5.6%) (Table 3). 307 (27.52%) were under the influence of alcohol (Table 4).

Among 1116 patients with maxillofacial trauma, 163 (14.6%) had soft tissue injuries alone and 953 (85.39%) had fractures involving maxillofacial region.

Out of 953, 412 (36.9%) had maxillofacial fractures alone and 541 (48.4%) had a combination of soft tissue injuries and fractures (Table 5).

Among 953 patients with maxillofacial fractures, 158 (11.12%) had dentoalveolar fractures alone and rest 847 (88.8%) had fractures distributed in entire maxillofacial skeleton (Table 6).

We have recorded 1419 fractures in 847 patients. Of 1419 fractures, 556 fractures (39.16%) were isolated fractures and 863 fractures (60.84%) were panfacial trauma. (Table 7).

Of the 556 isolated Fractures, 338 (60.8%) occurred in mandible with highest incidence in parasymphyseal region – 30.2%, followed by angle of mandible –19.9% (Table 8). 218 fractures (39.2%) occurred in middle 1/3rd region with highest incidence in Zygomatico-maxillary region with 36%, followed by Lefort II with 30% (Table 9).

TABLE 1: AGE WISE DISTRIBUTION OF PATIENTS

AGE GROUP (YEARS)	NUMBER OF PATIENTS	PERCENTAGE
0 – 10	52	4.6 %
11 – 20	145	12.98%
21 – 30	467	41.89%
31 – 40	216	19.37%
41 – 50	127	11.33%
51 – 60	68	6.11%
61 years and above	41	3.72%
TOTAL	1116	100%

TABLE 2: GENDER WISE DISTRIBUTION OF PATIENTS

GENDER	NUMBER OF PATIENTS	PERCENTAGE
Male	878	78.6%
Female	238	21.4%
TOTAL	1116	100%

TABLE 3: ETIOLOGY OF FRACTURES

ETIOLOGY	NUMBER OF PATIENTS	PERCENTAGE
Road Traffic Accidents (RTA)	802	71.89%
Fall	181	16.2%
Assault	60	5.6%
Sports	31	2.8%
Miscellaneous	42	3.51%
TOTAL	1116	100%

TABLE 4: INFLUENCE OF ALCOHOL

EFFECT OF ALCOHOL	NUMBER OF PATIENTS	PERCENTAGE
Alcoholic	307	27.52%
Non-Alcoholic	809	72.48%
TOTAL	1116	100%

TABLE 5: DISTRIBUTION OF INJURIES

TYPE OF INJURY	NUMBER OF PATIENTS	PERCENTAGE
Isolated Soft Tissue Injury	163	14.6%
Isolated Maxillofacial fractures	412	36.9%
Both Soft tissue injuries and Maxillofacial fractures	541	48.5%
TOTAL	1116	100%

TABLE 6: DISTRIBUTION OF MAXILLOFACIAL FRACTURES

TYPE OF FRACTURE	NUMBER OF PATIENTS	PERCENTAGE
Isolated Dento-alveolar fractures	106	11.12%
Fractures involving middle 1/3 rd region and/or mandible	847	88.88%
TOTAL	953	100%

TABLE 7: DISTRIBUTION OF FRACTURES OF MIDDLE 1/3RD REGION AND/OR MANDIBLE

FRACTURE SITE	NUMBER OF FRACTURES	TOTAL	PERCENTAGE
Isolated Fractures	Middle 1/3 rd Region	556	39.2%
	Mandible		60.8%
Panfacial trauma	863		60.84%

TABLE 8: FRACTURE SITE DISTRIBUTION IN MANDIBLE REGION

SITE OF FRACTURE	NUMBER OF PATIENTS	PERCENTAGE	
Condyle	Unilateral	210	17.4%
	Bilateral	86	7.2%
Coronoid	13	1.1%	
Ramus	13	1.1%	
Angle	239	19.9%	
Body	235	19.6%	
Parasymphysis	363	30.2%	
Symphysis	42	3.5%	
TOTAL	1201	100%	

TABLE 9: FRACTURE SITE DISTRIBUTION IN MIDDLE 1/3RD REGION

SITE OF FRACTURE	NUMBER OF PATIENTS	PERCENTAGE
Lefort I	238	22%
Lefort II	324	30%
Lefort III	97	9%
Zygomatico-Maxillary Complex Region	389	36%
Naso-Ethmoid Region	33	3%
TOTAL	1081	100%

DISCUSSION:

This study is an analysis of maxillofacial injuries over a 3 year period in Adilabad District. Various similar analyses¹⁻⁹ had been reported in the literature to have in-depth insights about various factors in patients with maxillofacial injuries. The results of the present study coincide with previous studies.

In our study, maxillofacial injuries occurred predominantly in 21-30 age group followed by 31-40 age group, very similar to previous studies¹⁻⁹. This is correlated to the highest incidence of Road Traffic Accidents (RTA) accounting for 71.89% with majority of patients belonging to age groups 21-40 giving an indication that these patients are more active in driving.

Though there is a male predominance, the gender distribution shown in our study revealed a male : female of approximately 3.7:1. This shows an increase in female patients when compared to previous studies.^{2,7}

According to this study, 71.89% of injuries occurred because of Road Traffic Accidents (RTA) with more incidence in Two Wheelers, followed by falls (16.2%) and assaults (5.6%). Similar studies have shown that the incidence of motorcycle crashes in other developing countries is about 45-65%.¹

When the maxillofacial region is injured, the mandible is more vulnerable followed by the Zygomatico-Maxillary complex because the mandible is mobile and has less bony support than the maxilla.¹ Most of the victims of RTA by reflex try to avoid their head at the time of accidents thus receiving maximum impact to the mandible.⁸

The fractures involving mandible Mandible is inherently weak at the parasymphysis because of the long roots of the canine and at the angle of mandible region because of the abrupt change in direction between strong body and thin ramus of mandible and also due to presence of third molars.⁸

In our study, 39.2% fractures occurs in middle 1/3rd region with highest incidence in Zygomatico-Maxillary Complex region. This correlates with the study by Subhasraj K et. Al..¹

The increasing no. of RTAs in developing countries like India can be attributed to socioeconomic reasons such as poor traffic sense of the drivers and pedestrians as well as poor road conditions, inadequate reinforcement of road safety regulation and speed limit, reluctance to use helmets, use of illicit drugs could be positive explanations in particular to this part of the country.⁹

Rapid action by the authorities related to transportation and making public aware of importance of following the rules and regulations will go long way in reducing the morbidity and mortality associated with RTA. These statistics highlight the importance of RTA in this part of India.

We welcome more data from other parts of the country to understand better the pattern of maxillofacial injuries, particularly those caused by RTAs.

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