

## EVALUATION OF MAXILLOFACIAL TRAUMATIC INJURIES OF FORENSIC MEDICAL CENTER OF AHWAZ, IRAN, IN 2005

Amir Dibaie<sup>1</sup>, Shahrokh Raissian<sup>2</sup>, Siamak Ghafarzadeh<sup>3</sup>

### ABSTRACT

**Objective:** To review and compare the frequency and etiology of maxillofacial injuries in patients of forensic medical center of Ahwaz in 2006.

**Methodology:** It is a retrospective review of patient's records at Forensic Medical Center of Ahwaz, Iran, in 2006. Age, sex, etiology, type and location of injuries were analyzed. The percentage and means were calculated using Microsoft SPSS soft ware and Chi-square test.

**Results:** In total 272 patients which included 220 male (80.9%) and 52 female (19.1%) with male to female ratio of 4.23:1 were screened. Most fractures were caused by violent assaults (61%), traffic accidents (30.1%) and accidents at work (8.8%) the majority of patients (118 and 43.3%) were in the age group of 21-30 years old.

**Conclusions:** Our results show that the most common causative factor was assaults. The relatively high incidence of injuries resulting from assaults, indicated the necessity to reinforce legislation aimed to prevent assault and thus reduce maxillofacial injuries.

**KEYWORDS:** Maxillofacial, Traumatic injuries, Forensic.

Pak J Med Sci January - March 2009 Vol. 25 No. 1 79-82

### How to cite this article:

Dibaie A, Raissian S, Ghafarzadeh S. Evaluation of maxillofacial traumatic injuries of Forensic Medical Center of Ahwaz, Iran, in 2005. Pak J Med Sci 2009;25(1):79-82.

1. Amir Dibaie, MD,  
Department of Forensic Medicine,  
School of Medicine,  
Ahwaz Jondishapour University of Medical Sciences,  
Ahwaz,  
Iran.
  2. Shahrokh Raissian, DDS,
  3. Siamak Ghafarzadeh, DDS,
- 2,3: Division of Oral and Maxillofacial Surgery,  
School of Dentistry,  
Ahwaz Jondishapour University of Medical Sciences,  
Ahwaz,  
Iran.

### Correspondence

Dr. Amir Dibaie,  
School of Medicine,  
Ahwaz Jondishapour University of Medical Sciences,  
Ahwaz,  
Iran.  
E-mail: drdeebaie@yahoo.com

\* Received for Publication: March 20, 2008

\* Accepted: July 26, 2008

## INTRODUCTION

Maxillofacial injuries are relatively frequent and can be psychologically disturbing for patients and their families due to their aesthetic and functional nature.

Epidemiological studies regarding maxillofacial injuries are helpful in evaluating the quality of patient care and in planning preventive strategies. These studies are also valuable in identifying new frequencies and patterns of these injuries.<sup>1</sup>

Skeletal and soft tissue injuries of the face constitute quite a significant portion of the workload of the oral and maxillofacial surgeons in Iran.<sup>2</sup> Being the most exposed part of the body, the face is particularly vulnerable to such injuries, 20-60% of all those involved in automobile accidents have most level of facial

fractures.<sup>3,4</sup> Surveys of facial injuries have shown that the etiology varies from one country to another and even within the same country depending on the prevailing socioeconomic, cultural and environmental fractures.<sup>5-7</sup>

Earlier studies from Europe and America revealed that road traffic crashes (RTC) were the most frequent cause of facial injuries in developed countries.<sup>8,9</sup> However, traffic accidents remain the most frequent cause in many developing countries.<sup>10,11</sup>

The aim of the present study was therefore, to analyze the characteristics and trends of maxillofacial injuries in Ahwaz, Iran.

## METHODOLOGY

It is a retrospective review of hospital records of all patients who had sustained oral and maxillofacial injuries. A Questionnaire was used for gathering the information like Age, sex, etiology, type and location of injuries which were analyzed using the SPSS for window (Version14; SPSS inc; Chicago, IL) statistical software package. Descriptive statistics and the non-parametric Chi-square test were used to analyze the incidence of injuries. The critical level of significance was set at  $p < 0/05$ .

## RESULTS

*Age and sex distribution:* During one year from 2005 to 2006, 272 patients with maxillofacial traumatic injuries were seen in forensic medical center of Ahwaz, Iran.

There were two hundred twenty (80.9%) males and fifty two (19.1%) females with a male-to- female ratio 4.23:1 (Table-I). Their age ranged from one to 73 years with a mean age of 38 years.

Table-I: Age distribution of patients with maxillofacial injuries.

Age group	No. (%)
0-10	4(1.47)
11-20	53(19.48)
21-30	118(43.38)
31-40	44(16.17)
41-50	29(10.66)
51-60	16(5.88)
>60	8(2.94)

The majority of patients one hundred eighteen and (43.38%) were in the age group of 21-30 years. Only eight patients (2.94%) were over 61 years (Table-I). More males were affected than females in all age groups.

*Etiology:* Most fractures were caused by violent assaults (61%), traffic accidents (30.1%) and accidents at work (8.8%), which the most common causative factor was violent assaults (Table-II). Traffic accidents were the second most common cause of injuries.

*Sites of injuries:* The prevalent anatomic regions of maxilla-ofacial traumatic injuries were nasal bone fracture 75 patients (27.5%), dental trauma 61 patients (22.4%), Orbital injuries 34 patients (12.5%) and mandible 24 patients (8.8%). The nasal bone fracture (27.5%) was the most frequent involved anatomic region (Table-III).

## DISCUSSION

Injuries of the maxillofacial area are relatively frequent and can be psychologically disturbing for patients and their families due to their aesthetic and functional nature. Epidemiological studies requiring maxillofacial injuries are helpful in evaluating the quality of patient care and in planning preventive strategies.

Table-II: Etiology and sex distribution of patient's with maxillofacial traumatic injuries.

Type	Male (%)	Female (%)	Total (%)
Interpersonal violence	138(62.7)	28(53.8)	166(61)
Road traffic accident	58(26.4)	24(46.2)	82(30.1)
Work-related accidents	24(10.9)	0(0)	24(8.8)
Sports	0(0)	0(0)	0(0)
Total	220(100)	52(100)	272(100)

Table-III: Site distribution of patients with maxillofacial injuries.

<i>Injuries site</i>	<i>Frequency (%)</i>
Mandible fractures	24(8.8)
Maxillary fractures	16(5.9)
Nasal fractures	75(27.5)
Zygomatic fractures	7(2.6)
Dental fractures	61(22.4)
Orbital fractures	4(1.5)
Orbital trauma to soft tissue	34(12.5)
Facial nerve injuries	8(2.9)
Trigeminal nerve injuries	4(1.5)
Lacrimal system injuries	2(0.7)
Nasal trauma to soft - tissue	6(2.2)
Lip injuries	6(2.2)
Injury to ears	8(2.9)
Palpebral injuries	17(6.3)
Total	272(100)

In this study more males were involved in maxillofacial injuries than Female which is in agreement with previous reports.<sup>12-16</sup> However, a tendency towards an equal male - to- female ratio was observed between earlier and later studies in most centers across the country. This can be attributed to a changing work force. Women, who are used to stay at home, now, work in outdoor and high risks occupation, thus becoming exposed to injuries.<sup>16,17</sup>

The peak age of incidence of maxillofacial injuries of 21-30 years in Ahwaz is not different from reports from other part the world.<sup>12,13,18</sup> The possible explanation for this is that people in this age group take part in dangerous exercises and sports, drive motor vehicles carelessly, and are most likely to be involved in interpersonal violence.<sup>19</sup>

Assaults (61%) was the most common cause of maxillofacial injuries in Ahwaz and other common causes were traffic accidents (30.1%) and accident at work (8.8%).

Increase in number of assaults related maxillofacial injures could be attributed to the poor socioeconomic conditions of the city leading to stress and propensity to crime.

While RTC have been gradually falling in the developed countries, they continue to rise with horrifying speed in the low and middle - income (LMIC) countries of Africa and Asia.<sup>20</sup> The World Health Organization (WHO) has estimated that nearly 25% of all injury fatalities world wide are a result of road traffic crashes, with 90% of the fatalities occurring in LIMIC.<sup>20</sup> The reductions in RTC in developed countries are largely attributed to a wide range of road safety measures such as seat belt use, traffic calming measures and traffic law enforcement. Therefore, there is an urgent need to implement to what the developed nations have done to reduce and prevent road traffic crashes.

The finding of this study, compared with similar studies reported in the literature, support the view that the causes and incidence of maxillofacial injuries vary from one country to another depending on the prevailing socioeconomic, cultural and environmental factors.<sup>5,6</sup> The result of this study shows that the most common causative factor was assaults. This succession of etiologic factor is in accordance with the data from most undeveloped countries.

Increase in number of assaults related maxillofacial injuries could be attributed to the poor socioeconomic conditions of Ahwaz, leading to stress and propensity to crime. As such there is a need to reinforce legislation aimed to prevent assault and thus reduce maxillo-facial injuries among young people.

Traffic accidents were the second most common cause of injuries. These findings should also alert the authorities, particularly the government and the road safety commission to the need for the provision of good roads, enforcement of existing traffic law and general improvement of socioeconomic condition of the population.

**Limitations of the study:** The sample size in this retrospective study is too small. More studies particularly prospective studies are needed to further confirm these findings.

## REFERENCES

1. Qudah A, Bataineh B. Maxillofacial Fractures in Jordanians. *J Cranio- axillofacial Surg* 2005;33:103-6.
2. Ansari MH. Maxillofacial fractures in Hamedan province, Iran: a retrospective Study (1987-2001). *J Cranio-maxillofacial Surg* 2004;32:28-34.
3. Kilbert JK. Head injury in automobile accidents. *Automobile injury Research Report* 1965;VJ-1823-R17.
4. Nahum AM, Siegel AW, Brooks S. The reduction of collision injuries I. past, present, and future. In *Proc 14<sup>th</sup> Stapp car Conference* New York: Society of Automobile Engineers 1970;1-43.
5. Olasoji HO. Changing picture of facial fractures in northern Nigeria. *Br J Oral Maxillofac Surg* 2002;40:140-3.
6. Magennis P, Shepherd J. Trends in facial injuries: Increasing violence more than compensation for decreasing road trauma. *BMJ* 1998;316:325-32.
7. Fasola AO, Obiechina AE. Fractures of the mandible in children. *East Afr Med J* 2001;78:61-3.
8. King RE, Scianna JM, Petruzzelli GJ. Mandible fracture patterns: A suburban trauma center experience. *Am J Otolaryngol* 2004;25:301-7.
9. Laski R, Ziccardi VB, Border HL, Janal M. Facial trauma: A recurrent disease. The potential role of disease prevention. *J Oral Maxillofacial Surg* 2004;62:685-8.
10. Telfer MR, Jones GM. Trends in the etiology of Maxillofacial fracture in united Kingdom (1977 - 1987). *Br J Oral Maxillofacial Surg* 1991;29:250-5.
11. Fasola AO, Arotiba JT. An audit of Maxillofacial fractures in Ibadan, Nigeria. *Afr J Med Sci* 2001;30:183-6.
12. Khan AA. A retrospective study of injuries to the Maxillofacial skeleton in Harare, Zimbabwe, *Br J Oral Maxillofacial Surg* 1988;26:345-439 .
13. Ansari MH. Maxillofacial fractures in Hamedan province, Iran: A retrospective Study (1987 - 2001) *J Cranio- maxillofacial Surg* 2004;32:28-34.
14. Al Ahmed HE, Jaber MA. The pattern of Maxillofacial fractures in Sharjeh, United Arab Emirates: A review of 230 cases. *Oral Surg Oral Med Pathol Oral Radio Endod* 2004;98:166-70.
15. Erol B, Gorgon B. Maxillofacial fractures: Analysis of demographic distribution and treatment in 2901 patients (25 year experience). *J Cranio - Maxillofacial Surg* 2004;32:308-13.
16. Fasola AO, Arotiba JT. An audit of Maxillofacial fractures in Nigeria - *J Oral Maxillofacial Surg* 2003;61:1140- 3.
17. K Adebayo ET, Ajike OS. Analysis of the pattern of Maxillofacial fractures in Kaduna, Nigeria. *Br J Oral Maxillofacial Surg* 2003;41:398-401.
18. Beek GI, Merckx CA. Changes in the pattern of fractures of the Maxillofacial skeleton. *Int J Oral Maxillofacial Surg* 1999;28:424-8.
19. Oji C. Jaw fractures in Enugu 1985-1995 *Br J Oral Maxillofacial Surg* 1999;37:106-9.
20. Kobusingye OC. Why poor countries cannot afford to ignore road safety. *African J Trauma* 2004;2:6-10.

## Send your comments on the published manuscripts

Readers are most welcome to comment on the manuscripts published in this issue. Their communications will be published in the Correspondence Section of the Journal and they won't be sent for peer review. While sending your comments, do remember to mention the title of the original manuscript and your contact details including e-mail.

Send your communications by e-mail on [pjms@pjms.com.pk](mailto:pjms@pjms.com.pk) or [pulse@pulsepakistan.com](mailto:pulse@pulsepakistan.com)