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Original Research Article

Demographic profile of facial fractures in the Punjab population: a pilot study

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ABSTRACT

Background: Trauma units of tertiary care centers of the north Indian state of Punjab are occupied with young individuals with a passion for driving on full acceleration. There is therefore a high rate of road traffic accidents with and fractures of the facial skeleton are frequently noted .This is noted more so in the male gender.
Methods: A retrospective study of the records of 61 subjects admitted under Otolaryngology and Maxillofacial trauma units, during a period of 2 years (August 2013-August 2015) at Dayanand Medical College and hospital were analysed.
Results: Males outnumbered the females in the ratio of 5:1. Maximum, 54% were seen in the age group 21-30 years and minimum at the extremes of age. The commonest cause of fracture was road-side accidents which was observed in 72% of patients. In 15% these were due to assaults, in 8% due to falls and only in 3.2% due to sports injury.
Conclusions: Facial fractures are recorded more in middle aged males with vehicular trauma being the main aetiology.

Keywords: Age, Facial trauma, Gender, Roadside trauma

INTRODUCTION

The individual's face bears the brunt of impact in head on trauma, vehicular or otherwise. Associated viscerocranial, cervico-thoraco-lumbar or fracture of the limbs maybe there, depending on the force transmitted to one's bony skeletal elements.

The maxillofacial fractures are consequent to diverse type of injuries. Depending upon the geographical region, the predominant aetiological factors are vehicular accidents or direct assault.[1,2] The remaining injuries can be attributed to industrial and sports related accidents or to gunshot injuries.

The face is the most affected area (83%) and most injuries are unarmed and non penetrating ones (more than 70%)

The Greene et al 1997 series of 678 patients, documented 46% with multiple fractures.[3]

Mandibular fractures were seen to be most common, i.e. affecting 57%. While 38% had mid-face fractures, 12% zygomaticomaxillary complex fractures, 9% orbital blow-out, 7% nasal and 5% isolated Le Fort in that order. Amongst the mandibular, approximately 20% of the facial traumatic injuries were pan-facial involving the upper, middle and lower face.

Aim of the study

To study the profile of maxillofacial and nasolabial trauma and incidence.

METHODS

A retrospective study of the records of 61 subjects admitted under Otolaryngology and Maxillofacial trauma units, during a period of 2 years (August 2013-August 2015) at Dayanand Medical College and hospital were analyzed.

Inclusion criteria

Facial fractures isolated or associated with other fractures and subjects with radiographic/imaging evidence of fractures.

Exclusion criteria

Patients dead on arrival and nasal concussions.

Statistics

All statistical calculations were done using Statistical Package of Social Sciences (SPSS) 17 Version statistical program for Microsoft windows (SPSS Inc. released 2008. SPSS statistic for windows, version 17.0, Chicago). Ethical approval of the study was taken from the Institutional Ethics Committee.

RESULTS

The following observations were recorded.

The males outnumbered the females in the ratio of 5:1. The maximum number of patients (54%) were seen in the age group 21-30 years and minimum in the extremes of age (Table 1).

Table 1: Age and sex distribution (N=61).

Age group	No. of cases		Total	Percentage
	Male	Female		
1-10	2	-	2	3.2%
11-20	6	1	7	11.4%
21-30	26	7	33	54.09%
31-40	6	2	8	13.11%
41-50	7	-	7	11.47%
51-60	2	-	2	3.27%
>60	2	-	2	3.2
Total	51 (83.6%)	10 (16.3%)	61	

The commonest cause of fractures was road-side accidents, which was observed in 72% of patients. In 15% these were due to assaults, in 8% due to falls and only in 3.2% due to sport injury (Table 2).

Table 2: Type of trauma (n=61).

Aetiology	Total	Male	Female	Percentage
RSA	44	37 (60.6%)	7 (11.4%)	72.13%
Assault	9	7 (11.4%)	2 (3.2%)	14.75%
Falls	5	4 (6.5%)	1 (1.6%)	8.19%
Sports	2	2 (3.2%)	-	3.2%
Others	1	1 (1.6)	-	1.6%
Total	61	51	10	

DISCUSSION

In our series of 61 subjects of facial fractures, patients (54.09%) were in predominantly in the age group of 21-30 years. Children less than 10 years and senior citizens above 60 years constituted only 3.2% Similar findings have been reported by authors Gupta et al and Bhoyar et al, the commonest age group for facial fractures as 20-30 years.[4,5] The high incidence in the 3rd decade was also observed by Kapoor et al.[6] This can be explained on the basis of increased outdoor activity in this age group.

The incidence of facial fractures in males was found to be five times as high as in females (M:F=5.2:1). Though studies have reported a similar male to female ratio, most authors have reported lower ratio ranging from 2.3:1 to 3.7:1 as shown in Table 3.[7]

Table 3: Comparative analysis of male female ratio with other studies.

Author	Male:Female ratio
Edgerton (1952)[8]	2.5:1
Gywn et al (1971)[9]	2.5:1
Mayell (1973)[10]	3.5:1
O'Donoghue et al (1979)[7]	5:1
Murray (1980)[11]	3.2:1
Fortunato et al (1982)[12]	2.3:1
Voss (1970)[13]	3.7:1
Voss (1980)[13]	3.2:1
Gupta et al (1985)[4]	3.7:1
Present series (2013)	5.2:1

Punjab being a state where land disputes are very common and since these are mainly male dominated, the males are more commonly seen involved. The lower incidence in females is related to their less outdoor activity and less physical assaults among them (their assaults are more verbal). Most of the activities associated with trauma like driving, assaults and sports are male dominated in our society.

Etiological aspects are of concern to everyone engaged in the field of trauma. Road traffic accidents were the leading cause in our series being responsible for 72.13% cases.

Table 4: Comparison of various etiological factors in other studies.

Author	RSA	Fights	Sports	Falls	Assault
Schultz (1979) (Facial#)[14]	65%	-			
Finkle et al (1984)[15]	36%	-	20.4	-	28%
Bhoyar and Mishra (1986)[16]	46.6%	-	10.6	16%	24%
Schultz (1989)[17] Facial	54%	-	11%	-	-
Yong (1998)[18]	47.8%	-	-	28.3%	-
Tay et al (1999)[19]	48.6%	-	-	7.6%	16.2%
Present series (facial) (2013)	72.13%	-	3.2	8.19%	14.75%

Road traffic accidents were the single commonest cause of facial fractures in our series. This was more than previously reported. This is a reflection of the rashness of our drivers and the bad narrow roads. In view of this, strict measures need to be taken to prevent these accidents. This includes strict observance of traffic rules, the use of laminated windscreen, the use of seat belts in motor cars and full face helmets by two wheelers, as suggested by exhaustive studies the world over.[20-22]

In our study, assaults were responsible for 14.75% of the cases followed by falls and sports with 8.19% and 3.2% respectively. A single case in our study was because of fall of a wall on a patient. Another case was of a bullet injury which resulted in mandibular fracture. The second highest cause of these fractures was assaults being seen in 14.75% of our patients. However, this is somewhat lower than reported by others.[7,13] But it does point to the increasing violence in the society in which we live today.

Almost one third (34.4%) of our patients were under the influence of alcohol at the time of sustaining facial trauma. Similar figures of 28-49% are reported by Voss study.[13] Though higher figures of 50% and 70% have been reported by others.[8,10] Whereas another study reported that 28.2% of male victims were intoxicated at the scene compared with 1.5% females.[1]

CONCLUSION

Facial fractures are recorded more in middle aged males with vehicular trauma being the main aetiology. Stringent rules need to be implemented, to check traffic violations, speeding, overtaking, usage of laminated windscreens, seat belts by four wheelers and full face helmets by two wheelers.

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