

Original Research

Prevalence and Pattern of Maxillofacial Trauma: A Retrospective study

Jayesh Rai¹, H.S.Markam², Rajesh Waskle³, Heeralal Chokotiya⁴, Sandeep Shrivastava⁵

1. Reader Department Of Oral and Maxillofacial Surgery, Mansarovar Dental College, Bhopal M.P.;
2. Assistant professor, Department Of Dentistry, NSCB Medical College Jabalpur M.P.;
3. lecturer, Department Of Oral and Maxillofacial Surgery, Govt. Dental college Indore M.P.;
4. Senior Resident, Department Of Dentistry, NSCB Medical College Jabalpur M.P.;
5. PG Student Department of Orthodontics Mansarovar Dental College, Bhopal M.P.;

ABSTRACT:

Background: Trauma is one of the leading causes of death in the age group under 40 years old. Maxillofacial injuries follow trauma to the face, head, and jaws, and 51% of road traffic accidents (RTAs) lead to maxillofacial injury. Hence; the present study was undertaken for analysing the prevalence and pattern of maxillofacial trauma (MFT). **Materials & methods:** Analysis of 593 patients who reported with history of trauma was enrolled. Complete demographic and clinical profile of all the patients were obtained from data record files. Among these 593 patients of trauma, 138 patients had trauma involving maxillofacial region. The nature of the injury was recorded. Other important associated factors like influence of alcohol, cause of trauma, pattern of injury etc. were also recorded. **Results:** Mean age of the patients was 43.8 years. Road traffic accident was the main etiologic factor for MFT, responsible for 47.10 percent of the patients. Influence of alcohol at the time of trauma was found to be present in 29 patients. Dento-alveolar fractures occurred in 26.09 percent of the patients. Mandibular fractures occurred in 38.41 percent of the patients. **Conclusion:** Driving under the influence of alcohol is a significant risk factor for occurrence of maxillofacial trauma. Also, traumatic involvement of dento-alveolar region and mandible in such cases is a common finding.

Key words: Trauma, Maxillo-facial

Received: 12 January, 2020

Accepted: 22 January, 2020

Corresponding Author: Dr.H.S.Markam, Assistant professor, Department Of Dentistry NSCB Medical College Jabalpur MP

This article may be cited as: Rai J.,Markam HS, Waskle R, Chokotiya H, Shrivastava S. Prevalence and Pattern of Maxillofacial Trauma: A Retrospective study. J Adv Med Dent Scie Res 2020;8(2):193-196.

INTRODUCTION

Trauma is one of the leading causes of death in the age group under 40 years old. Approximately 10 percent of the cases in the ER have been maxillofacial trauma. An epidemiology study claims that the higher prevalence of maxillofacial fractures is on male compared to their female counterparts, with the ratio of 3:1.¹⁻³

Facial injuries are considered as part of the human body injuries and can be defined simply as any injury of the face which includes major and minor injuries of the soft tissues, bones, blood vessels, nerves, and any other tissues of the human face. Maxillofacial injuries follow trauma to the face, head, and jaws, and 51% of

road traffic accidents (RTAs) lead to maxillofacial injury. These fractures in some cases may cause blood loss and airway obstruction and can be fatal. Previous studies also show long-term psychological impacts of MFT.^{4, 5} Management of MFT has developed in an evolutionary manner. Evaluation of injuries of soft tissue and bone must be precise through instrumental diagnostic examinations. Coordinated, periodic, and sequential collection of data concerning demographic patterns of MF injuries may assist health care officials assess address the causes and evaluate effectiveness of previously implemented preventive protocols. Consequently, an understanding of the etiology, severity, temporal distribution, and prevalence of

MFT may dictate priorities to be implemented on the basis of the findings.^{6,7} Hence; the present study was undertaken for analysing the prevalence and pattern of maxillofacial trauma.

MATERIALS & METHODS

This comprises of a retrospective study conducted in the department of dentistry at NSCB Medical College, Jabalpur. It is a main referral, tertiary care centre for all places in and around the area. All maxillofacial fracture patients of any age and either sex presenting to the dental department and emergency casualty from September 2018 till August 2019 were included in the study. The present study was conducted with the aim of analysing the prevalence and pattern of maxillofacial trauma. Analysis of 593 patients who reported with history of trauma was enrolled. Complete demographic and clinical profile of all the patients were obtained from data record files. Among these 593 patients of trauma, 138 patients had trauma involving maxillofacial region. Separate Performa was made for recording the clinical profile of these 138 patients. All the patients were handled with emergency care. The nature of the injury was recorded. Other important associated factors like influence of alcohol, cause of trauma, pattern of injury

etc. were also recorded. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software version 17.0. Chi-square test was used for evaluation of level of significance.

RESULTS

In the present study, a total of 593 patients who reported with history of trauma were enrolled. Among these 593 patients of trauma, 138 patients had trauma involving maxillofacial region. Mean age of the patients was 43.8 years. 45.65 percent of the patients belonged to the age group of 25 to 50 years. 64.49 percent of the patients were males while the remaining were females. 50 percent of the patients belonged to the middle class. Road traffic accident was the main etiologic factor for MFT, responsible for 47.10 percent of the patients. Fall from height was the etiologic factor in 21.01 percent of the cases. Influence of alcohol at the time of trauma was found to be present in 29 patients. Dento-alveolar fractures occurred in 26.09 percent of the patients. Mandibular fractures occurred in 38.41 percent of the patients. Maxillary fractures occurred in 13.04 percent of the patients. While assessing the correlation of pattern of injury with age, non-significant results were obtained.

Table 1: Demographic profile

Parameter		Number of patients	Percentage
Age group (years)	Less than 25	33	23.91
	25 to 50	63	45.65
	More than 50	42	30.44
Gender	Males	89	64.49
	Females	49	35.51
Socio-economic status	Upper	25	18.11
	Middle	69	50
	Lower	44	31.89

Graph 1: Cause of injury

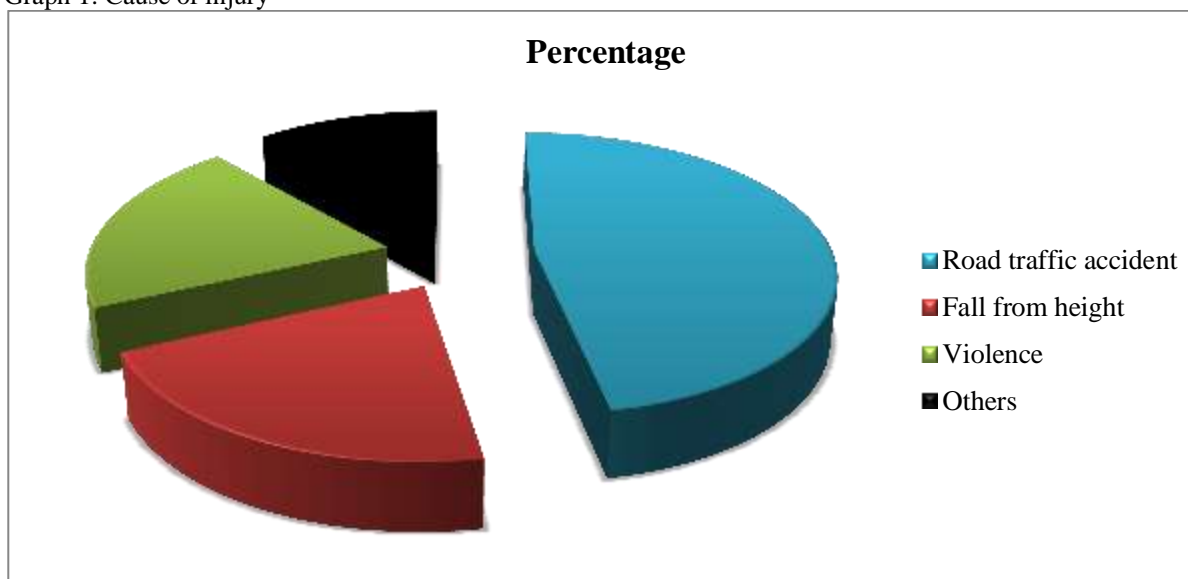
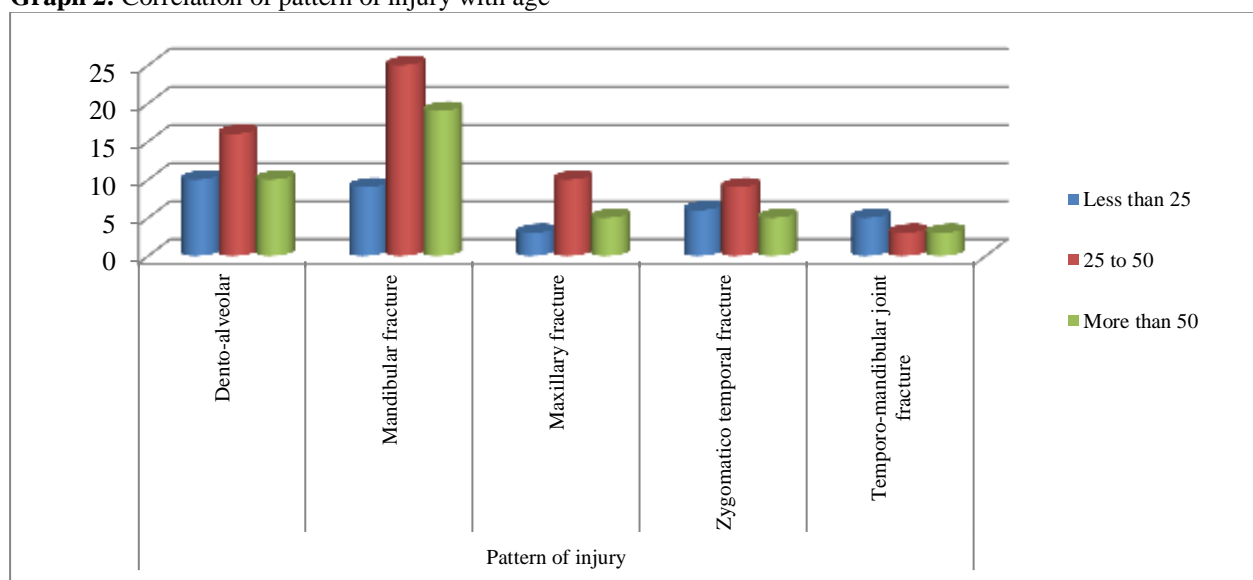


Table 2: Pattern of injury

Pattern of injury	Number of patients	Percentage
Dento-alveolar	36	26.09
Mandibular fracture	53	38.41
Maxillary fracture	18	13.04
Zygomatico temporal fracture	20	14.49
Temporo-mandibular joint fracture	11	7.97

Graph 2: Correlation of pattern of injury with age



DISCUSSION

Maxillofacial fractures (MFF) can be considered as consequential conditions as they may result in mortality, severe morbidity, facial disfigurement, and functional limitations. Early diagnosis of MFF is thus essential not only to detect concomitant injuries and emergent complications, but also to plan the reconstruction of functional areas (e.g., vision, mastication, and olfaction) and to guide physical, psychological, and social rehabilitation. MFF can also cause considerable economic expenses due to direct procedural costs as well as indirect costs that arise from loss of productivity with associated loss of income and an inability to continue with the activities of daily life. Knowledge about the epidemiology of MFF can help practitioners make appropriate clinical decisions and guide the relevant professionals and policy makers develop suitable injury prevention strategies.⁷⁻⁹ Hence; the present study was undertaken for analysing the prevalence and pattern of maxillofacial trauma.

In the present study, a total of 593 patients who reported with history of trauma were enrolled. Among these 593 patients of trauma, 138 patients had trauma involving maxillofacial region. Mean age of the patients was 43.8 years. Dento-alveolar fractures occurred in 26.09 percent of the patients. Mandibular fractures occurred in 38.41 percent of the patients. Maxillary fractures occurred in 13.04 percent of the

patients. While assessing the correlation of pattern of injury with age, non-significant results were obtained. The patterns of the maxillofacial fractures based on involved anatomy parts based on the previous studies stated that the highly affected facial part was mandible. This is due to the characteristics of it for being more mobile and a less bony support than the midfacial parts. The second most affected area was zygoma in the area of one-third of the facial half by the study of Baylan JM et al. This is due to the structure of zygoma which is more prominent than the other facial bones and has multiple articulations with other facial bones making it vulnerable to fractures on impact.⁹⁻¹¹ Al-Hassani A et al described the prevalence and pattern of maxillofacial trauma. A total of 1187 patients with maxillofacial injuries were included and 18.5% of all trauma admissions were related to maxillofacial injuries. Young age and males were predominantly affected. Mechanisms of injury were mainly traffic-related and fall. Orbital injuries were the commonest followed by maxillary injuries. Multivariable regression analysis showed that Injury Severity Score, face AIS and Glasgow Coma Scale were predictors of mortality with age-adjusted odd ratio of 1.15, 2.48 and 0.82; respectively. Maxillofacial trauma requiring admission is not uncommon in our trauma center and mostly it is mild to moderate in severity.¹²

In the present study, road traffic accident was the main etiologic factor for MFT, responsible for 47.10 percent of the patients. Fall from height was the etiologic factor in 21.01 percent of the cases. Influence of alcohol at the time of trauma was found to be present in 29 patients. It should be understood that alcohol causes behavioral changes as a result of its psychopharmacological effects, which reduce the ability to make rational decisions. However there were also a few cases where, although the driver had not consumed alcohol, accidents were still caused because of an unexpected disturbance to traffic caused by pedestrians under the influence of alcohol. This quiet commonly occurs when the driver suddenly attempts to stop a speeding vehicle in an attempt to save an intoxicated pedestrian who might have crossed the road.¹³⁻¹⁵ Prasad C et al assessed the prevalence and pattern of maxillofacial trauma in the Department of Dental Surgery, Government Stanley Medical College; Chennai. 153 maxillofacial trauma patient's data from the Department of Dental Surgery was assessed. Road traffic accidents were found to be the major cause (74%) and out of that 67% occurred under the influence of alcohol consumption and 85% cases were grievous. Injuries to teeth were found more common in the younger age group, and injuries to soft tissue were found more common in elderly persons. Influence of alcohol has been found to have a strong association with the severity of injuries ($P < 0.05$). Road traffic accidents are more common with alcohol consumption being the major contributing factor.¹⁵

CONCLUSION

From the above results, the authors concluded driving under the influence of alcohol is a significant risk factor for occurrence of maxillofacial trauma. Also, traumatic involvement of dento-alveolar region and mandible in such cases is a common finding.

REFERENCES

- Sungaram M, Vijayabala S, Udhayakumar RK. Prevalence, pattern, etiology, and management of maxillofacial trauma in developing country: a retrospective study. *J Korean Assoc Oral Maxillofac Surg.* 2016;42:174-81.
- Sharma M, Sathoo A, Singh P. Pattern of maxillofacial trauma-our experience. *Int J Oral Health Med Res.* 2015;2(4):34-8.
- Udeabor SE, Akinbami BO, Yarhere KS, Obiechina AE. Maxillofacial fractures: etiology, pattern of presentation, and treatment in University of port Harcourt Teaching Hospital, Port Harcourt, Nigeria. *J Dental Surg.* 2014;1-5.
- Alves LS, Sousa MJ, Gomes E Retrospective analysis of 186 cases of maxillofacial trauma from road traffic accidents. *Rev Port Estomatol Med Dent Cir Maxilofac* 2013;54:179-184.
- Greenspan L, McLellan BA, Greig H. Abbreviated injury scale and injury severity score: a scoring chart. *J Trauma* 1985;25:60-64.
- Ozkaya O, Turgut G, Kayali MU, Ugurlu K, Kuran I, Bas L. A retrospective study on the epidemiology and treatment of maxillofacial fractures. *Ulus Travma Acil Cerrahi Derg* 2009;15:262-266.
- Santos AAR, Moura MEB, Nunes BMVT, Leal CFS, Teles JBM. Profile of motorcycle accident victims treated at a public hospital emergency department. *Cad Saúde Publica* 2008;24:1927-1938.
- Chrcanovic BR, Freire-Maia B, Souza LN, Vasco de Oliveira Araújo VO, Abreu MHNG. Facial fractures: a 1-year retrospective study in a hospital in Belo Horizonte. *Braz Oral Res* 2004;18:322-328
- Zamboni RA, Wagner JC, Volkweis MR, Gerhardt EL, Buchmann EM, Bavaresco CS. Epidemiological study of facial fractures at the Oral and Maxillofacial Surgery Service, Santa Casa de Misericórdia Hospital Complex, Porto Alegre-RS Brazil. *J Brazilian Coll Surg.* 2017;44(5):491-7.
- Arangio P, Vellone V, Torre U, Calavati V, Capriotti M, Cascone P. Maxillofacial fractures in the province of Latina, Lazio, Italy: review of 400 injuries and 83 cases. *J Craniomaxillofac Surg.* 2014;42(5):583-7.
- Baylan JM, Jupiter D, Parker WL, Czerwinski M. Management of zygomatic fractures: A National Survey. *J Craniofac Surg.* 2016;27(6):1571-5.
- Al-Hassani A et al. Prevalence and patterns of maxillofacial trauma: a retrospective descriptive study. *Eur J Trauma Emerg Surg.* 2019 Jun 21. doi: 10.1007/s00068-019-01174-6. Online ahead of print.
- Buchman J, Colquhoun A, Friedlander L. Maxillofacial injuries at Waikato Hospital, New Zealand; 1089 to 2000. *N Z Med J* 2005;118:12-7.
- Shah A, Shah AA, Salam A. Maxillofacial fractures-analysis of demographic distribution in Ugandan tertiary hospital; a six month prospective study. *Clinics* 2009;64:843-8.
- Prasad C, Narayanan M B, Parimala V, Vijjaykanth M. Prevalence and pattern of maxillofacial trauma in North Chennai: A retrospective study. *J Indian Assoc Public Health Dent* 2018;16:303-7