Original Article

# Pattern Of Associated Injuries In Maxillofacial Trauma- A Retrospective Study

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## Abstract

**Objective-** The primary objective of this study was to determine the pattern of associated injuries along with the maxillofacial trauma.

**Methodology-** Data collection was done retrospectively from the previous records of 10 years for patients affected with facial trauma along with associated injuries. Age, gender, cause, type of injury and fractures elsewhere in the body was also recorded.

**Results-** Total out of 750 patients 110 patients were included in the study on meeting the inclusion and exclusion criteria. Most common associated injuries in maxillofacial trauma were head injury (51.82%) followed by orthopaedic injury (44.54%).

**Conclusion-** Head is in close proximity and also the most prominent part to the maxillofacial region therefore it is most susceptible to injury along with maxillofacial injury.

**Keywords**: Associated injuries, Facial trauma, Road traffic accident**.**

## INTRODUCTION

Injuries to the Upper and lower limb , hip bone and chest occur due to high and low force of impacts arising from road traffic accidents (RTA), assaults, gunshot wounds, blasts, sports, falls etc. Mostly all age groups are affected. More than 1 million people die and around 15 to 20 million people are affected in road traffic accidents (RTA) annually according to the statistics of World Health Organization (WHO). The initial assessment of a person who is injured significantly from poly-trauma is a challenging task and each minute makes a difference between life and death. So immediate diagnosis and intelligent

cooperation between anaesthesist, general surgeon, orthopaedic surgeon, plastic surgeon, maxillofacial surgeon and neurosurgeon may greatly affect the outcome and hence lessen the mortality and morbidity in poly trauma patients.[1]
Knowledge of concomitant injuries in patients with maxillofacial injuries is important in the rapid assessment and treatment planning as well as prevention of further complications.[2] Concomitant injuries that have been reported include neurological, orthopaedic, chest, abdominal, pulmonary and urological injuries.[3]

These associated injuries worsen the facial trauma prognosis as some of them may result in functional disabilities or even death.[4] Most of the studies on facial fractures associated injuries are from developed countries where facial traumas are mainly caused by interpersonal violence. Reports from developing countries where the leading etiology is road traffic crashes are scarce. The aim of the study was to determine the pattern of associated injuries in maxillofacial patients.

## MATERIALS AND METHODS

This Retrospective study was carried out from records of 10 years to evaluate the pattern of associated injuries in conjunction with maxillofacial trauma.

Inclusion Criteria**:** Maxillofacial injury patients with associated injuries were included in the study.

Exclusion Criteria**:** Patients having isolated maxillofacial trauma with no associated injuries of the body were excluded from the study. Patients with lesions exclusive to soft tissue of the face were not included in the study.
Diagnosis of associated injuries given previously by consultant of each speciality was recorded along with maxillofacial injuries.
Data was analysed in SPSS version 16.0. The frequency and percentage was computed for qualitative variables.

## RESULTS

Out of 750 patients of maxillofacial injuries, a total of 110 patients had associated injuries of other regions of the body.

The no. of males involved were 94 whereas the total no of female patients was only 16. (Figure 1)

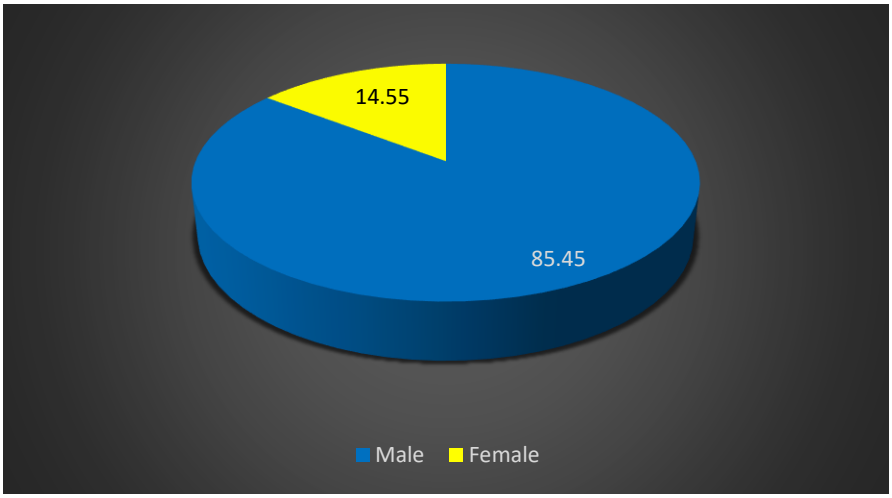


Figure 1- Distribution of study subjects according to sex

Most common type of associated injuries with maxillofacial injuries were head injuries presenting in about 57 (51.82%) individuals out of 110. Followed by orthopaedic injury present in 49 (44.54%) individuals. (Table 1).

Table1. Frequency of associated injuries in patients with maxillofacial fractures

| Type of injuries | Number of subjects | % of subjects |
|---|---|---|
| Head injury | 57 | 51.82 |
| Abdominal injury | 2 | 1.81 |
| Orthopaedic injury | 49 | 44.54 |
| Other injuries | 11 | 10 |

## DISCUSSION

Injuries to limbs, hip and chest occur due to various impact forces, which can vary from low to very high such as fall or road traffic accidents (RTA), and mostly all age groups are affected. Immediate diagnosis and intelligent cooperation between anaesthetist, general surgeon, orthopaedic surgeon, plastic surgeon, maxillofacial and neurosurgeon may greatly affect the outcome and hence lessen the mortality and morbidity in polytrauma patients.[5]

The aim of the study was to determine the pattern and incidence of associated injuries in conjunction with maxillofacial trauma. It has been reported that incidence of associated injuries varies widely between different countries.[6,7]

According to the annual statistics of World Health Organization (WHO) the no. of people affected by road traffic accidents around the world ranges from 15 to 20 million causing death of around 1 million people. Head injury (51.82%) accounted for the greater majority of associated injuries,similar to findings from several studies.[8-10] Manson[11] has shown this high incidence of head, maxillofacial and cervical spine injuries in about 75% of RTA victims. When a forward moving vehicle is brought to an abrupt halt, the unrestrained occupants will be thrown upwards and forwards until their movement is arrested by some part of the vehicle, or if they are forcefully ejected from the vehicle on contact with the ground or other objects.

The head may come in contact with the windscreen, or with its upper surrounding and the roof of the vehicle.[12] The incidence of head injury in this study may have been influenced by the non-enforcement of the seat belt and motorcycle helmet legislation in India. In the UK, where the use of seat belt and motorcycle helmet is mandatory, there has been a reduction in head and maxillofacial injuries.[13,14] The Glasgow coma scale is a useful tool for evaluating head injury patients.[15]

Scarce literature was available regarding the type of head injury in associated injuries. In this study we had categorize the head injury into hard and soft tissue injury. With bony injury accounting for (56.14%) and soft tissue injury (43.86%). There was only one case of intracranial haemorrhage which required immediate surgical intervention by the neurosurgeon for relieving the intra cranial pressure.

Orthopaedic injuries are commonly associated with maxillofacial trauma [8, 9, 11, 16, 17] and motorcyclists are particularly at risk.[12] Most often, bones of the lower and upper limb are involved.[12,18] This is similar to the findings from this study where the combined fractures of the upper and lower limb were predominant. This however is not supported by various other international studies which show that limb fractures are less commonly associated with facial trauma.

A low incidence of cervical spine injuries is unusual, considering the very low utilisation of seat belts and helmets because the incidence of cervical spine injuries is higher when occupants are ejected from their vehicles.[19,20]

In this study up to 4% of patients with facial fractures had cervical spine injury. Therefore, cervical spine injuries should be considered in all the trauma patients especially the unconscious one. Computed tomography (CT) scans are more useful in evaluating cervical spine injuries than plain films [8] but financial constraints limited their routine use in our institution.

The minimal associated injuries were those of abdominal injuries and lung contusion.

Associated injuries with maxillofacial fractures could be life-threatening if not detected quickly and managed expertly.

## CONCLUSION

In conclusion, injuries elsewhere may exist in patients with maxillofacial trauma and conversely, maxillofacial trauma may coexist with other injuries in a high proportion of cases. The most common associated injury with maxillofacial trauma were head injury followed by orthopaedic injuries. This inter-relationship makes it necessary for the maxillofacial surgeon to be a part of a multidisciplinary trauma team. This ensures prompt management of maxillofacial injuries along with profound and effective management without delays in consultation and referral along with associated injuries.

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