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Incidence and Assessment of Oral and Maxillofacial Injuries in Saudi Arabia-Key Causes and Comparative Analysis

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Abstract: ***This study investigates the incidence and patterns of oral and maxillofacial (MF) injuries in Saudi Arabia, analyzing their primary causes and coexisting injuries. Data from 1, 199 participants were collected through surveys, revealing falls as the leading cause of MF injuries. The study highlights significant regional differences and coexisting trauma patterns, emphasizing the need for targeted public health measures and advanced trauma management protocols.***

Keywords: maxillofacial trauma, oral injuries, Saudi Arabia, trauma management, injury causes

1.Introduction

Trauma management has evolved significantly in the past few decades thereby reducing mortality in the golden hour. However, Severe injuries to the maxillofacial region can complicate the early management of a trauma patient owing to the region's proximity to the brain, cervical spine, and airway, and the usual techniques of airway breathing and circulation (ABC) management are often modified or supplemented with other methods. Such modifications have their own challenges and pitfalls in an already difficult situation, management of such injuries can be extremely challenging. Injuries of this highly vascular zone are complicated by the presence of upper airway and proximity with the cranial and cervical structures that may be concomitantly involved. While, with non-maxillofacial injuries, a protocol for management of airway, breathing, and circulation is relatively well established.

The challenges and controversies in the management of such patients are discussed, diagnosis and management facial injuries are a challenge particularly in the setting of coexisting polytrauma in emergency department.

Broader knowledge of MF trauma patients, epidemiological properties and trauma patterns with simultaneous injuries in different areas of the body may help emergency physicians to deliver more accurate diagnosis and decisions. Our goal is to establish a clinical data of MF trauma patients for public health measures. In this study we analyze etiology and pattern of MF trauma and coexisting injuries if any.

2.Aim

To assess oral and maxillofacial injuries in Saudi Arabia, identify their main causes, and compare them with other injury types

3.Material And Method

A total of 1, 199 people were interviewed for the various incidents. "Questionnaires specially designed for this study" were published through outreach sites that were circulated to reach the largest possible number of Saudis who were exposed to accidents and various types of injuries. The face, jaw and other areas were identified and communicated with for more details or to check the infection areas, design the questionnaire survey using Google Forms, in addition to the tables that have been organized and analyzed.

Responses to our questions are organized automatically and systematically into forms, with real-time response plans and information, and better utilizing our data by looking at spreadsheets.

4.Results

The total study population consisted of 1119 people. However, the age group 17 to 38 years, 58% (690) of them was female and 42% (500) was male.

The samples were divided into the five main regions of Saudi Arabia, namely: the western region-the northern region-the eastern region-the central region, "the majority of the sample, which included the study of the western region by 610 injured, and the least affected areas were the northern and eastern regions equally 50 injured for each of them, Injury rate in Oral and Maxillofacial was: 399 Injured in Mouth "teeth-surrounding tissues and tongue" - 381 Injured in Facial "nose-cheek bones-around the eyes" - 243 Injured in Jaws "upper jaw or lower jaw" - 96 Injured in Head and neck generally (fig1, 2)

Figure 1: Anterior and posterior nasal packing is usually the first choice for severe maxillofacial bleeding

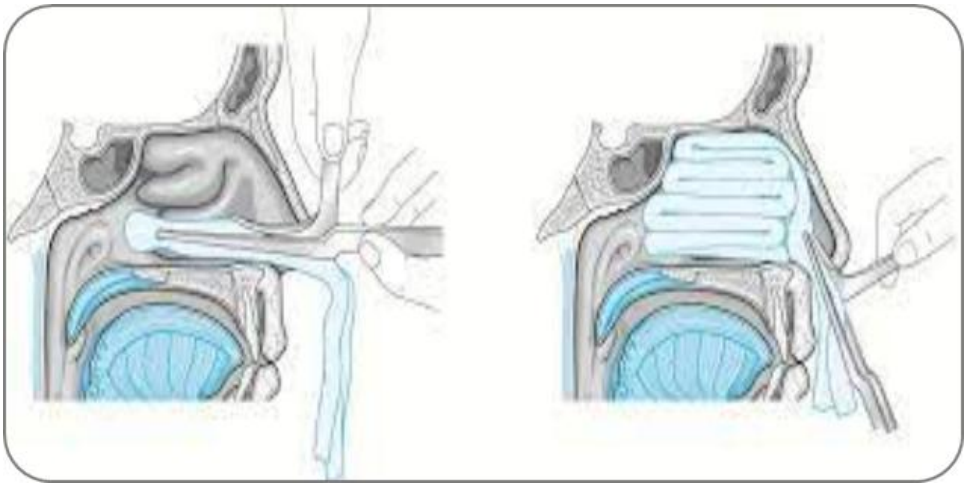

Figure 2: Anterior and posterior nasal packing is usually the first choice for severe maxillofacial bleeding

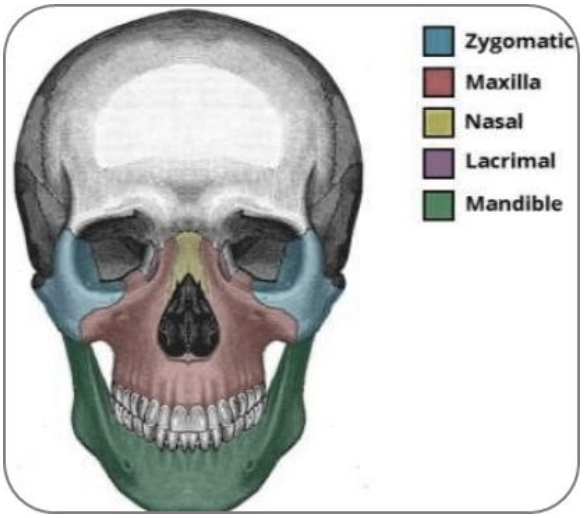

Figure 3: Frontal view of the facial bones. Blue highlights the zygomatic bone, red highlights the maxilla bone, yellow highlights the nasal bone, purple highlights the lacrimal bone, green highlights the mandible and the grey highlights the cranium.

The causes of injuries ranged from: 660 were injured as a result of the fall and impact-210 were injured as a result of a traffic accident-160 were injured while performing work-related tasks-90 were injured as a result of the quarrel "sharp tool"-40 were injured as a result of the abuse-10 were injured as a result of being shot.

The number of casualties in different areas of the body, other than their oral and maxillofacial injuries as follows: 700 of these people no injuries other than those injuries in the head area only-350 were injured in one of the lower or upper limbs-50 were injured in the chest area-50 were injured in the abdominal area and below-20 suffered injuries in the spine area.

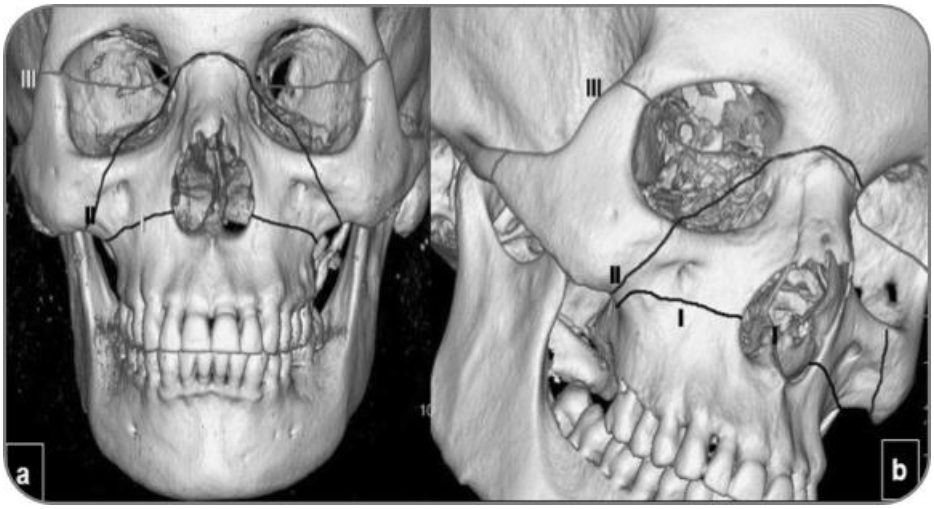

Figure A: Three-dimensional CT image shows LeFort I floating palate fracture (*green line*), LeFort II pyramidal fracture (*blue line*), and LeFort III craniofacial disjunction fracture (*red line*) pattern.

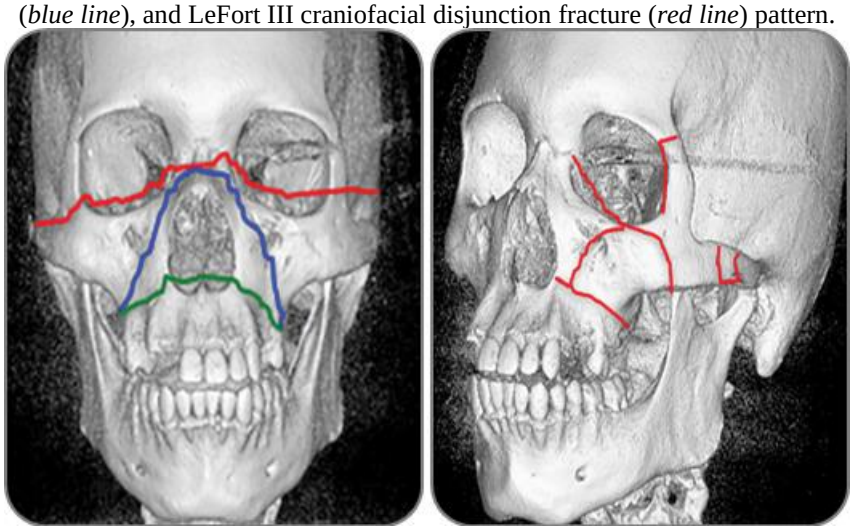

Figure B: Three-dimensional CT image shows zygomaticomaxillary complex fracture pattern (lateral and inferior orbital rim, zygomatic arch, and maxillary sinus walls) (*red lines*).

5.Discussion

The most cause of deaths occurred in first 40 years of life is Trauma and MF injuries are frequently seen in polytrauma victims. so special attention must be paid in case of MF trauma cause it's the region of the organs executing essential functions of the body like respiration, speech, mastication, vision, smelling, and the most important sequence of Advanced trauma life support (ATLS) is maintenance of airway patency in these patients due to tongue falling back, hemorrhage to oroparyngeal region, foreign bodies, mid facial fractures themselves. If possible endotracheal intubation is the preferred method to establish airway patency as no chance to intubate, crichothyroidotomy can be performed particularly in comatose patients [10].

In our study, The Most age group has MF trauma is 17-38 age group and that seems to be correlated with the other studies while higher age is more correlated to falls and younger age is more inclined to assaults and road traffic accidents [5, 8]. In our investigation falls are the primary cause of injury in males, females accounting for 56, 4% of the samples.

There is also a lack of studies involving MF trauma to non-facial areas of body and mortality, in our study we have found total of 1119 of patients suffered coexisting trauma. Study from India [13] points out that mostly head and orthopedic injuries are seen in MF trauma patients. Indian study reports high coexisting trauma rate of 25.6% due to high ratio of road traffic accident victims in that study. In our study road traffic accident patients have ratio of 17, 9% additional trauma with high ratio of orthopedic and head injuries in line with Indian study.

6.Conclusion

Maxillofacial injuries present significant challenges due to their proximity to critical structures such as the brain and airway. This study highlights the need for a multidisciplinary approach to trauma management, incorporating advanced technologies and public health measures to address regional injury patterns effectively.

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