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Original Article

An assessment of maxillofacial fractures treated in a sub-urban tertiary health facility: a 2-year study of 167 patients

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ABSTRACT

Background: Maxillofacial trauma has continued to present a public health nuisance with attendant psychosocial, financial and physical challenges to the individuals affected and the society at large. **Aim:** This paper aims to review the aetiologies, pattern, and types of treatment and outcome of treatment of patients with maxillofacial injuries within the study period. **Methods:** Departmental records of patients with maxillofacial injuries were reviewed for 2011 and 2012. Data were collected into a predesigned data entry form. **Results:** One hundred and sixty-seven correct entries were found. This consist of 118 male and 49 females, giving a male:female ratio of 2.4:1 and the age ranged from 4-63years. The commonest cause of maxillofacial fracture noted was road traffic accident and the least was child abuse, accounting for 75.0% and 1.0% respectively of all the cases seen. The mandible proved to be the commonest fractured facial bone; representing 76.0% of the fractures. 84.0% of associated injuries were contusions and lacerations of soft tissues around the head and neck. Closed immobilization was the commonest treatment protocol and 7.0% adjudged unsuccessful. **Conclusion:** This study concludes that there is a preponderance of male casualties in maxillofacial facial, and the mandible is the most fractured facial bone and that closed immobilization remains a viable treatment option in carefully selected cases.

Key words: Maxillofacial injuries, facial bones, fractures, aetiologies, treatment outcome, psychosocial

INTRODUCTION

Maxillofacial fractures pose a very big challenge to health care professionals worldwide. More so, with an increasing incidence and associated diverse injuries as well as its association with significant morbidity, disfigurement, and loss of function, economic implications and issues that borders of intra and post-operative quality of life.[1-9] The aetiologies of maxillofacial fractures have changed over the past few decades and will continue to do so.[1-9] Road traffic accidents are reported as the main cause of facial fractures in literature from developing countries whereas interpersonal violence remains the leading aetiological factor in the developed world.[3-14] The nasal bone among the Caucasians and the mandible amongst the blacks are the

most frequently fractured of the facial bones.[14-18] A systematic assembly of data with regards demographic patterns of maxillofacial injuries will no doubt aid medicare givers in no little measure. It follows therefore that an understanding of the cause, severity, and chronological distribution of maxillofacial trauma permit clinical and research priorities to be established for effective treatment and prevention of these injuries.[13,14]

The aim of this study is to review the aetiologies, pattern, types of treatment and outcome of treatment of patients with maxillofacial injuries of a two-year study period.

METHODOLOGY

This was a retrospective study. Departmental records of patients with maxillofacial injuries were reviewed for 2011 and 2012. Data were collected into a predesigned data entry form. Data of interest were age and gender of patient, cause of injury, bones involved, associated injuries, treatment done and outcome of treatment in the Department of Maxillofacial Surgery, Delta State University, Oghara. All patients that had a diagnosis of maxillofacial fracture, with or without associated injuries and who had complete case notes were included.

Ethical approval was obtained from the institution's ethical committee.

Statistical analysis

Analysis was done by Statistical Package for Social Sciences (SPSS) version 16.0.

RESULTS

There were one hundred and sixty-seven correct entries which were included in the study population. This number is comprised of 118 (71%) males and 49 (29%) females (figure 1). The age ranged from 4-63years and peaked in the fourth decade (figure 2).

Findings showed that the commonest cause of maxillofacial fracture over the period of study was road traffic accident and the least was child abuse, accounting for 125 (75.0%) and (1.0%) respectively of all the cases seen (figure 3). Road traffic accident was the most implicated and child abuse least implicated, accounting for 75% and 1% of the implicated aetiologies respectively.

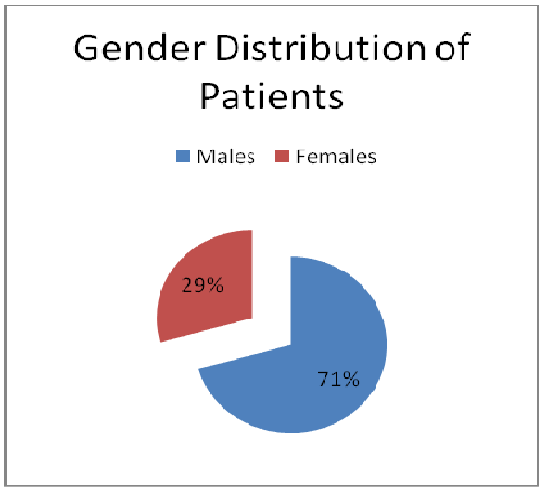

Figure 1: Gender distribution of the study population

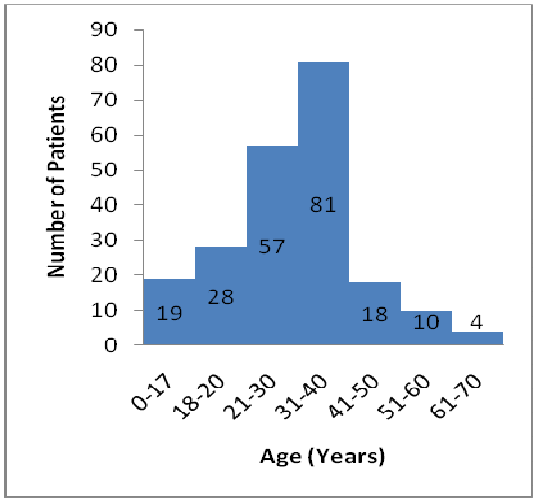

Figure 2: Age range of the study population

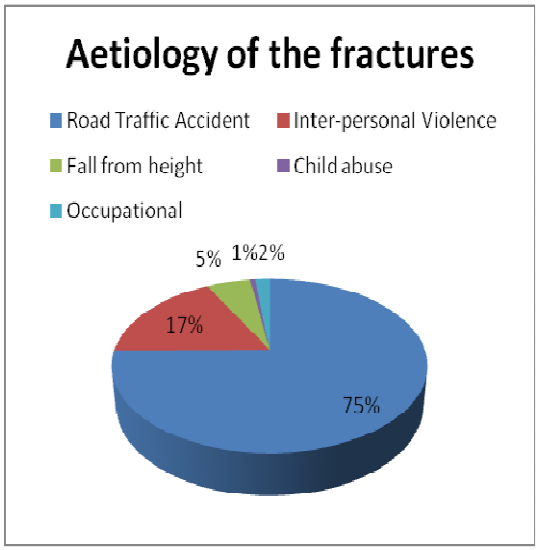

Figure 3: Aetiology of the fractures in the study population

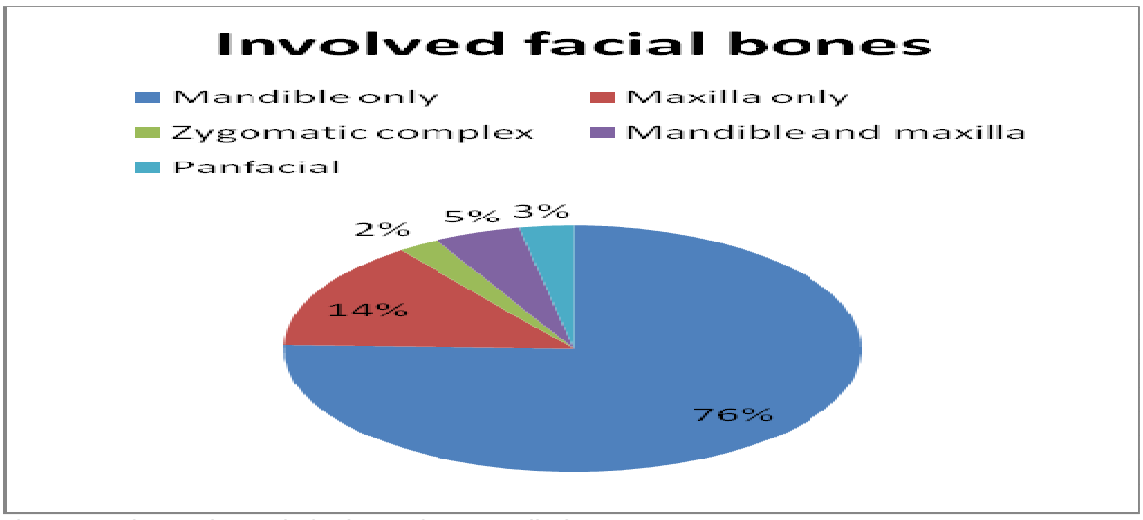

Figure 4: Diagnosis made in the patients studied

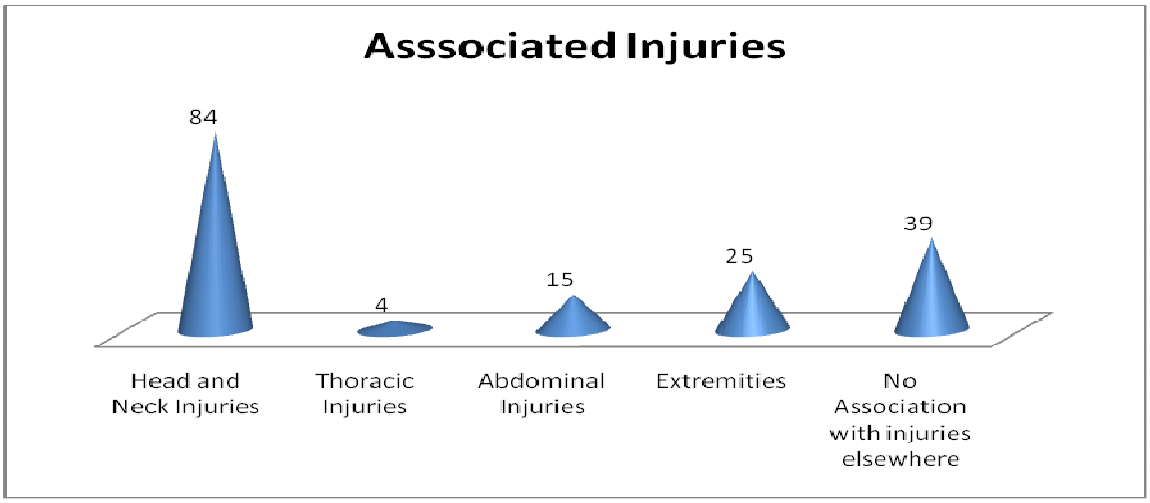

Figure 5: Associated injuries in the cases studied

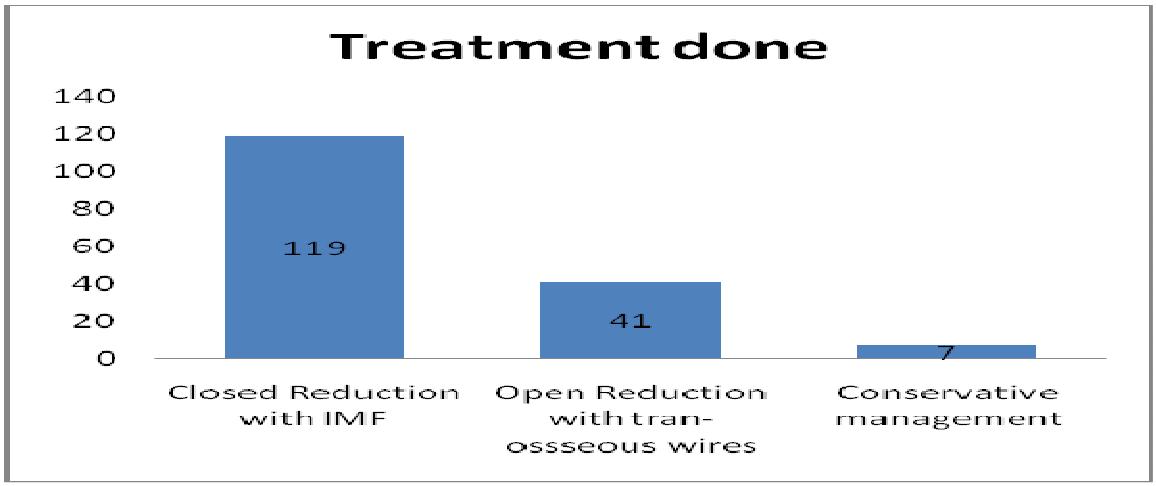

Figure 6: Management of the patients studied

The pattern of fracture is displayed in figure 4 below. This result showed that the mandible is the single most fractured facial bone in this study.

Head and neck injuries are the most associated injuries. This is noted in 84 (50.3%) of the cases, thoracic injuries are least associated, noted in 4 (2.4%) of the cases while 39 (23.4%) of the cases presented no associated injuries elsewhere in the body (figure 5).

One hundred and sixty patients had inter-maxillary fixation, 25.6% of this have open reduction and trans-osseous wiring, prior to fixation (figure 6). A total of 160 patients were treated with inter-maxillary fixation (IMF); 119 patients had closed reduction with IMF only and 41 had open reduction with transosseous wiring before being placed on IMF.

Findings showed that most cases (115, 93%) treated resulted in a successful outcome while 12 of the cases representing 7% were adjudged unsuccessful in outcome (figure 7). A hundred and fifteen (93%) treated resulted in a successful outcome while 12 of the cases representing 7% were adjudged unsuccessful in outcome.

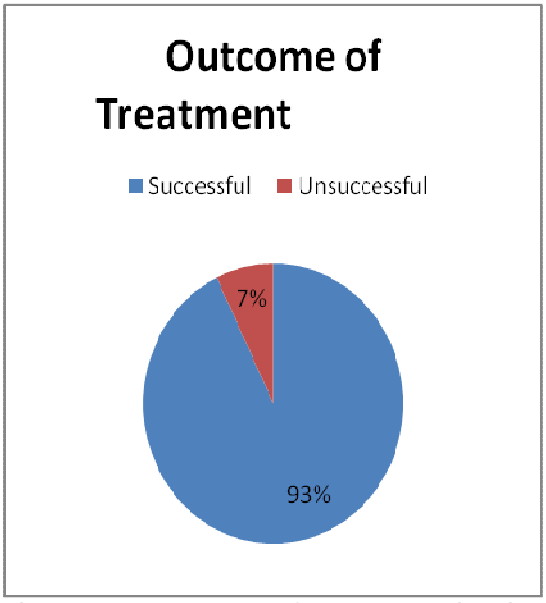

Figure 7: Outcome of treatment in the patients studied

DISCUSSION

The associated functional, psychological and cosmetic disfigurement has kept maxillofacial trauma among the list of leading public health concerns in the circles of researches worldwide. Geographical terrain, culture and the social status of a people have been implicated in the aetiology and pattern of maxillofacial fractures.[11,12,15-17]

In this study, 119 (71%) of the study population were male while 48 (29%) were females. This is so because in the study setting and environs, the males are more likely to engage in driving and motor bike riding, under the influence of alcohol. The Niger Delta suburb hosting the Teaching Hospital is known for the consumptions of illicit gin and spirits with the attendant psychomotor impairment. Whereas the females as dictated by culture will likely be indoors. Under the influence of alcohol the males are more likely to want to socialize, drive and ride motor bikes around the towns and neighboring towns making them more prone to road mishaps, and maxillofacial trauma.

The age of involvement peaked in the 4th decade of life, in this study. This is unlike the finding of a recent retrospective study done in a nearby Teaching Hospital where the incidence peaked in the 3rd decade[18-20] and many other research findings but in tandem with the findings of Abiodun[21] and co-workers in 2012, where the peak incidence was in the 4th decade of life. One may argue that this is a true representation of peak incidence and rural dwellers are less likely to lie about their ages compared with urban dwellers, who for various reasons will falsify their ages to appear younger that they truly are.

Road traffic accident remained a leading cause of maxillofacial fractures,[15,16,19,21,23] accounting for three-quarters of the cases seen in this study. Drunk-driving, lack of regards to traffic laws, over-speeding, over-loading, poor road conditions and poor vehicular conditions have been implicated.[17,24] This finding is in consonance with the findings of many studies done in the developing economies, but contrasts findings from developed economies.[25-27] There were two cases of child abuse report in this study. This is of interest because it is rarely reported and may have been under-reported in this study. Child abuse is expectedly common because of the high levels of polygamy in the environment coupled with low levels of education, and poor economic

status.

The mandible was involved alone in 76% of cases and with the maxilla in 5% of cases, making it the most involved of the facial skeletons. This is similar to findings of the many indigenous studies but differs from studies among the Caucasians.[10-13,15-20] The mobile nature of the bone, angulation and presence of tooth sockets has been implicated to make it prone to fractures.

In this study, eighty-four of the cases were involved with injuries in the head and neck regions; this is mostly due to the proximity of the face to the head and neck regions. There were thirty-nine cases with no associated injuries and these were mainly cases of inter-personal violence and child abuse.

Most (119) of the cases were treated by closed reduction. This is as a result of non-availability of any plating system in the centre during the period under review and the involvement of mainly the mandible. Findings from this study showed that 93% of cases were adjudged successful while 7% were said to be unsuccessful; these cases noted as unsuccessful were re-treated or referred.

This study concludes that there is a preponderance of male casualties in maxillofacial facial that the mandible is the most fractured facial bone in this environment and that closed immobilization remains a viable treatment option in carefully selected cases. It recommends awareness campaigns to educate the populace on road traffic safety measures.

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Conflict of Interest: None declared