



ELSEVIER



Epidemiology and management of maxillofacial fractures in an Australian trauma centre

Miguel S. Cabalag^a, Jason Wasiak^b, Nadine E. Andrew^c,
Jason Tang^a, Julia C. Kirby^a, David J. Morgan^{a,*}

^a Plastic, Hand & Faciomaxillary Surgery Unit, The Alfred Hospital, Melbourne, VIC, Australia

^b Victorian Adult Burns Service and School of Public Health and Preventive Medicine, Monash University, The Alfred Hospital, Melbourne, VIC, Australia

^c Translational Public Health Unit, Stroke and Ageing Research Centre, Southern Clinical School, Monash University, Melbourne, VIC, Australia

Received 15 September 2013; accepted 14 October 2013

KEYWORDS

Maxillofacial fractures;
Epidemiology;
Management;
Complications;
Risk factors;
Australia

Summary *Background and aim:* Trauma is a leading cause of morbidity and mortality, with a considerable proportion of trauma patients sustaining concomitant maxillofacial (MF) injuries. The purpose of this study was to review and analyse the epidemiology, management and complications of patients with MF fractures managed by the Faciomaxillary Surgery Unit at the Alfred Trauma Hospital in Melbourne.

The secondary objective of the study was to determine the risk factors for developing post-operative complications.

Methods: A retrospective records review was performed for 980 patients who were treated for MF fracture(s) from January 2009 to December 2011. Descriptive statistics were used and independent demographic and injury-related factors assessed for association with outcome using multivariate logistic regression.

Results: A total of 1949 MF fractures from 980 patients were treated over the study period. Males ($n = 785$, 80.10%) and patients aged 15–24 years ($n = 541$, 55.20%) were the most frequently affected (mean age (standard deviation, SD) 27.69 (19.22)). The most common aetiology was assault ($n = 293$, 29.90%). The majority presented with fractures of the orbit ($n = 359$, 36.33%). In total, 803 fractures from 500 patients were treated operatively. Mandibular fractures were most commonly treated surgically (79.82%). Postoperative complications occurred in 69 of 500 patients treated surgically (13.8%), most commonly due to infected metalware ($n = 16$, 3.20%). Multiple fractures were associated with a higher probability of

* Corresponding author. Faciomaxillary Surgery Unit, The Alfred Hospital, 55 Commercial Road, Melbourne, VIC 3004, Australia. Tel.: +61 03 9076 3626; fax: +61 03 9347 8799.

E-mail address: D.Morgan@alfred.org.au (D.J. Morgan).

requiring surgery ($p < 0.001$) and developing postoperative complications ($p < 0.001$) compared to isolated fractures.

Conclusion: MF fractures most commonly affected young males, often as a result of an assault. Per bony injury, mandibular fractures had the greatest proportion that was managed operatively. High-energy injuries were associated with an increased risk of sustaining multiple MF fractures and developing postoperative complications.

© 2013 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

Trauma is a leading cause of mortality and morbidity in Australia, with an estimated 5–33% of major trauma patients suffering concomitant maxillofacial (MF) injuries.^{1–3} It has been estimated that MF injuries contribute to 28% of the total cost of treating trauma patients, ranging from \$793 to \$20,678 per patient.^{4,5} In New South Wales, Australia, the acute care costs of managing MF trauma was reported to be over \$30 million annually.⁴ Few published Australian data are available analysing the epidemiology and management of MF fractures in general, with most being bone-specific.^{6–8}

The purpose of this study was to review and analyse the epidemiology, treatment and complications of MF fractures managed by the Faciomaxillary Surgery Unit at Alfred Hospital in Melbourne, one of the busiest tertiary trauma centres in Australasia. The secondary objective was to determine the risk factors for developing postoperative complications.

Methods

A retrospective review of prospectively collected data was conducted for 980 patients with MF fractures managed by the Faciomaxillary Surgery Unit at the Alfred Hospital (Melbourne, VIC, Australia) from January 2009 to December 2011. Patients with MF fractures were identified using the unit's audit database (created in January 2009, [Figure 1](#)) and were confirmed with hospital records. Those patients with isolated dentoalveolar trauma were excluded, as they were treated by dentists.

Demographic variables extracted from the medical records included age, gender and injury variables ([Table 1](#)). Motor vehicle accidents (MVAs) included motorbike injuries, and sporting injuries included cycling. The group classified as 'other' included events such as explosions, home or work accidents and medical complications or conditions. For the regression analyses, pedestrians were included in the group 'other' due to small subgroup numbers. The frequency and pattern of facial fractures, their management and associated postoperative complications were also recorded. The psychological complications of MF trauma were not studied (e.g., posttraumatic stress disorder).

Anatomically, MF fractures were subdivided by bony regions as shown in [Table 2](#). All the paired bones (zygoma, orbit, nasoorbitoethmoid (NOE) complex, hemimaxilla, hemimandible and condyle) were considered to be single unilateral units. Fractures of the zygoma, orbit, NOE complex and maxilla were not mutually exclusive. With regard to the mandible, intracapsular fractures were defined as

fractures of the condylar head, which were not amenable to open reduction and internal fixation (ORIF). Extracapsular fractures involved the condylar neck and subcondylar region and could undergo ORIF.

Data were presented using descriptive analyses. Multiple logistic regression analyses were used to identify demographic and injury-related factors associated with outcome. Outcome variables included the need for and type of surgical management and the occurrence of postoperative complications. Stata[®] (StatCorp. 2011. Stata Statistical Software: Release 12; College Station, TX, USA: StatCorp LP) was used for all analyses and a p value of 0.05 was considered statistically significant.

Ethics approval was obtained from the Hospital Research Ethics Committee prior to data collection.

Results

A total of 980 patients sustained 1949 MF fractures over the 3-year study period ($n = 197, 414$ and 369 , respectively).

Demographics of MF fractures

Males were affected more than females with a ratio of approximately 4:1 ($n = 785, 80.10\%$ vs. $n = 195, 19.90\%$) and the mean (standard deviation, SD) age was 27.69 (19.22) (range 18–99). In both genders, the 15–24-year-old age group had the highest frequency of MF fractures ($n = 541, 55.20\%$). There was a progressive decline in the frequency of MF fractures with increasing age ([Figure 2](#)).

Mechanism of injury

Data variables in reference to mechanism of injury are summarised in [Table 1](#). Assault was the most common mechanism of injury ($n = 293, 29.90\%$), followed by MVA ($n = 234, 23.88\%$). In the 15–44-year-old age group, the most common mechanism of injury was assault followed by MVA. However, in the 45–84-year-old age group, the most common cause was falls followed by MVA ([Figure 2](#)). Assault was the most frequent cause in males ($n = 267, 34.01\%$) and falls was the most common in females ($n = 77, 39.49\%$). A history of preceding alcohol use was present in 142 patients (14.49%), of whom 70 were assault cases. After 'other' injuries, patients who suffered sporting injuries most commonly sustained an isolated fracture ($n = 91, 60.26\%$) and they were most likely to undergo

Download English Version:

<https://daneshyari.com/en/article/4118137>

Download Persian Version:

<https://daneshyari.com/article/4118137>

[Daneshyari.com](https://daneshyari.com)