A 5-Year Retrospective Study of Zygomatico-Orbital Complex and Zygomatic Arch Fractures in Sao Paulo State, Brazil

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Purpose: This descriptive analytical study evaluated the cause, type, incidence, demographic, and treatment data of zygomatico-orbital complex and zygomatic arch fractures managed at our program during a 5-year period.

Patients and Methods: A total of 1,857 charts of patients presenting maxillofacial trauma and treated by the Division of Oral and Maxillofacial Surgery, from the Piracicaba Dental School (UNICAMP), were reviewed. A total of 371 patients presented with zygomatico-orbital complex and/or zygomatic arch fractures. Patients with isolated orbital fractures were excluded. The patients ranged in age from 2 to 88 years. Epidemiological data including age, gender, etiology, site of injury, and details of treatment were collected and tabulated in Excel software (Microsoft). All maxillofacial injuries were assessed and treated by residents and staff surgeons. Other concomitant bodily injuries were treated by pertinent consulting specialists.

Results: The majority of fractures were sustained by males between 21 and 40 years old, usually resulting from falls, altercations, and bicycle accidents. Unilateral fractures of zygomatico-orbital complex were present in 266 patients (71.69%). Bilateral fractures were found in 22 cases (5.93%). Unilateral zygomatic arch fractures occurred in 39 cases (10.51%). A total of 210 patients (56.60%) did not receive surgical treatment. Surgical intervention was done in 161 patients (43.40%). The surgical treatment was conducted using the approach as reported by Ellis and Kittidumkerng in 1996. A complication incidence of 6.47% was observed, which is compatible with related articles in the literature.

Conclusions: The study revealed interesting features about etiology, demonstrated by the high occurrence of bicycle accidents. The treatment protocol proposed to the patients showed adequate results as evidenced by low complication frequency. The findings of this study bring information about an area in Sao Paulo State, Brazil, that is valuable in reaffirming previously established trends and identifying new patterns of disease frequency.

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Many articles pertaining to the incidence and causes of maxillofacial injuries have been published.[1-19] The main causes worldwide are traffic accidents, assaults, falls, sports-related injuries, and civilian warfare.[8] The large variability in reported prevalence[17] is due to a variety of factors, such as the environment, gender, age, socioeconomic status of the patients, as well as the mechanism of injury.[15,16] However, apparently there are no reports detailing the causes and incidence of zygomatico-orbital complex and zygomatic arch fractures in South American countries. The management of these fractures is controversial, as evidenced by varied and often conflicting treatment philosophies described in the literature.[9-14] An understanding of the demographic patterns of this kind of facial fractures is of importance for prevention and treatment.

The present study is a descriptive and analytical retrospective of all zygomatico-orbital complex and zygomatic arch injuries treated by the Division of Oral and Maxillofacial Surgery from Piracicaba Dental

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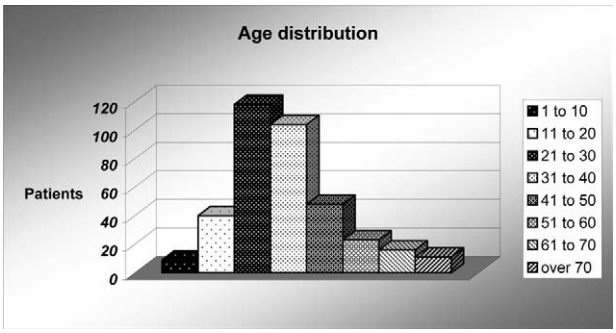

FIGURE 1. Age distribution of patients with zygomatico-orbital complex and zygomatic arch injuries.

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School, UNICAMP, over a 5-year period (1999 to 2004). The goals of this study were to determine the frequency of those fractures among males and females, to determine the age group in which injury occurred most often, to examine the mechanisms of injury, to report the treatment methods applied, and to examine the postoperative complications.

Patients and Methods

A 5-year retrospective epidemiological study evaluated the charts of all patients treated for zygomatico-orbital complex and zygomatic arch fractures from April 1999 to March 2004 by the Division of Oral and Maxillofacial Surgery from Piracicaba Dental School (UNICAMP) in Sao Paulo State, Brazil. The research is a descriptive and analytical study, and was conducted by the main author (P.P.G.) and supervised by the co-authors (L.A.P., J.R.A.B.). All patients with zygomatico-orbital complex and/or zygomatic arch injuries, whether admitted to hospital and treated in the operating room or seen as outpatients, were included in this investigation. Patients with isolated orbital fractures were excluded.

The patients ranged in age from 2 to 88 years and were classified into 8 age groups: 1 to 10, 11 to 20, 21 to 30, 31 to 40, 41 to 50, 51 to 60, 61 to 70, and over 70 years old. The patients were seen in 9 different institutions, including the Dental School and 8 hospitals. Various parameters, including age, gender, etiology, site of injury, type of injury, treatment methods, and complications, were evaluated. The causes of injury were classified into 9 categories: falls, alleged assaults, bicycle accident, motor vehicle accidents, motorcycle accidents, sports-related trauma, vehicle-pedestrian collisions, work accidents, and gunshot wounds. Patient information was collected and tabulated with Excel software (Microsoft). All maxillofacial injuries were assessed and treated by residents and staff surgeons. Other concomitant bodily injuries were treated by pertinent consulting specialists.

Results

A 5-year retrospective epidemiological study evaluated the charts of 1,857 patients with maxillofacial trauma. Among them, 371 patients presented with zygomatico-orbital complex and/or zygomatic arch fractures. Males accounted for 82.75% of all fractures, and females, 17.25%. The patients ranged in age from 2 to 88 years old. Most patients were males between the ages of 21 and 40 years with peak incidence occurring in the 21- to 30-year-old age group (Fig 1). Addiction included 15.63% patients relating alcohol abuse, 14.02% smokers, and both in 15.90%. Illegal drug use was reported by 4.31% patients using a nonintravenous route, and by 0.81% using an intravenous route.

The major cause of injuries in this study was falls, which accounted for 21.83% of the sample, followed by alleged assaults (19.41%), bicycle accidents (15.63%), motor vehicle accidents (12.67%), motorcycle accidents (13.48%), sports-related trauma (7.82%), vehicle-pedestrian collisions (4.31%), work accidents (3.77%), and gunshot wounds (1.08%) (Fig 2). Within the motor vehicle and the motorcycle accident groups, only 13 patients (3.50%) were wearing seat-restraining devices and 37 (9.97%) were wearing helmets, respectively. The time elapsed from injury to the first examination ranged between 1 to 55 days; however, 120 patients were seen the day of the trauma. The time from injury to surgical treatment ranged from 1 to 69 days. There was just 1 patient seen 120 days after his trauma who had surgical treatment 133 days after the trauma. Most patients (86.96%) were discharged from hospital 1 day after their surgical treatment, and the others between 2 and 10 days.

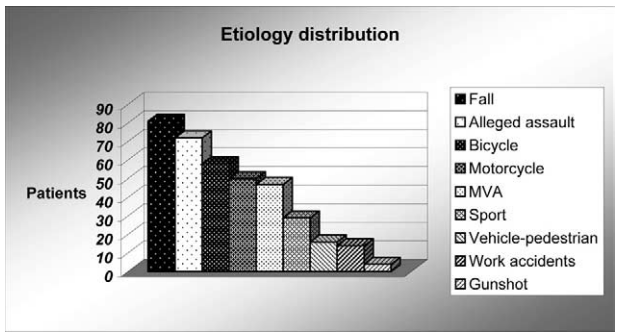

FIGURE 2. Etiology distribution of patients' zygomatico-orbital complex and zygomatic arch injuries.

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