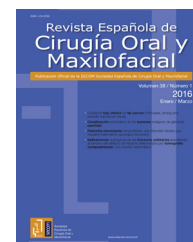




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## Original article

# A 10-year retrospective study of dental trauma in permanent dentition

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### ABSTRACT

**Objective:** This study aims to identify the characteristics and factors associated with TDI treated at a referral service.

**Material and methods:** A ten-year period cross-sectional retrospective analysis of medical records of patients with TDI in their permanent teeth was performed, and injury-related data were collected. Statistical analysis was performed using the chi-square association test and complex analysis ( $p < 0.05$ ).

**Results:** Records of 545 patients, totaling 1438 traumatized teeth, were evaluated, and a male prevalence at a 2.4:1 ratio was found. The age group with highest incidence was 13–19 years. Central maxillary incisors and dislocations were the most affected teeth and TDI, respectively. Statistical analysis showed different TDI causes according to age: children are often victims of falls, traffic accidents, aggression and collisions, whereas adolescents are involved in sports accidents, and young adults in traffic accidents, falls and collisions.

**Conclusion:** Considering the scope of this retrospective study at a single referral center, a profile of young male patients with TDI in superior central incisors due to falls, collisions, traffic accidents or sports could be detected.

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### Estudio retrospectivo de 10 años sobre trauma dental en la dentición permanente

#### RESUMEN

**Objetivo:** Identificar las características y los factores asociados con el traumatismo dentoalveolar (TD) atendido en un servicio de referencia.

#### Palabras clave:

Traumatismo de los dientes

Avulsión de diente

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Epidemiología  
Dentición permanente

**Material y métodos:** Ha sido realizado un análisis retrospectivo de los pacientes con TD en dientes permanentes en un período de 10 años. Fueron extraídos los datos relacionados con el TD. El análisis estadístico se realizó mediante el test de asociación chi-cuadrado y el análisis de los residuos ( $p < 0,05$ ).

**Resultados:** Los registros de 545 pacientes con un total de 1.438 dientes traumatizados fueron incluidos. Se constata la prevalencia en el sexo masculino, con una proporción de 2,4:1. El grupo etario con mayor incidencia fue el de 13-19 años. Los incisivos centrales superiores fueron los dientes más afectados y el traumatismo dentario más diagnosticado fueron las luxaciones. El análisis estadístico ha mostrado una asociación de diferentes causas de TD con la edad: los niños son víctimas, con mayor probabilidad, de caídas, accidentes de tránsito, agresiones y colisiones, mientras que los adolescentes los son de accidentes deportivos, y los adultos jóvenes de accidentes de tráfico, caídas y colisiones.

**Conclusión:** Considerando el alcance de este estudio retrospectivo en un único servicio de referencia, se detectó un perfil de jóvenes pacientes del sexo masculino con la presencia de TD en los incisivos centrales superiores por las caídas, colisiones, accidentes de tráfico o prácticas deportivas.

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## Introduction

Traumatic dental injuries (TDI) accounts for about 5.0% of all bodily trauma.<sup>1-3</sup> However, its incidence and characteristics changes according to age group and socio-demographic factors involved, as is the case of children injuries, in which TDI represents 17.0–20.0% of all traumas they were involved in.<sup>4</sup>

Unlike other injuries, the incidence of these lesions decreases from the second decade of life.<sup>1,2,4</sup> This can be explained by periodontal ligament space characteristics, upper incisor exposure and lack of lip sealing during the growth phase. In addition, there is an association between Class II malocclusion and TDI.<sup>5</sup> Among dental elements, the upper central incisors are most commonly affected due to their projection and exposure.<sup>5</sup> Less complex injuries such as single crown fracture and concussion are more frequent than complicated crown fractures or severe dental dislocations.<sup>6,7</sup>

TDI is a public health hazard due to its high frequency and association with violence, traffic accidents and sports activities.<sup>8-10</sup> These injuries have an impact on the quality of life of patients by impairing chewing, phonation, esthetics, as well as their physical and psychological condition.<sup>7,11,12</sup>

Knowledge of TDI characteristics is important for the establishment of preventive action and treatment so as to reduce associated costs and improve the population's quality of life.<sup>9,12</sup> This study aims to identify the characteristics and factors associated with TDI in patients treated at a specialized service for a ten-year period.

## Material and methods

The present cross-sectional retrospective study was reviewed and approved by an Institutional Research Ethics Committee for Human Beings (protocol n. 049/2007). Records of patients treated at an Oral and Maxillofacial Surgery Department (Pelotas, south of Brazil) during a ten-year period were evaluated. Patients with DAT records in permanent teeth were

included in the study, but those with incomplete records or showing other kinds of injury were excluded.

After researcher calibration, data were collected and transferred in duplicate to a table specifically created for the study. The collected variables were age, gender, cause of trauma, presence and type of dislocation, tooth fracture and bone plate fracture. Data were analyzed by means of descriptive statistics, and the chi-square test at 95% significance level was performed; when the null hypothesis was rejected, complex analysis to verify the association between variables was carried out.

## Results

After collection, 545 records of patients treated at the service were included in the study, 387 of whom (71.0%) were male and 158 (29.0%) female. As to age, there was an average of  $20.77 \pm 12.04$  years, and the study included patients ranging from six to 63 years, with a median of 17 years.

The prevailing age group was between 13 and 19 years (30.6%), followed by 6–12 years (27.9%) and 20–29 years (22.2%). The most common etiologies were bicycle (20.4%) and traffic (16.9%) accidents, falls (16.1%) and aggression (16.0%) (Table 1).

The 545 patients included in the study had a total of 1304 teeth affected by TDI, an average of  $2.39 \pm 1.69$  teeth per patient. Twelve was the maximum number of affected teeth in one isolated patient, with four cases. The most affected dental elements were the maxillary central incisors (57.0%), followed by upper lateral incisors (17.7%), lower central incisors (9.3%) and lower lateral incisors (6.7%) (Table 2).

Concerning TDI, 1438 injuries were observed, among which dental dislocations were found in 55.8% of cases alone, whereas 9.0% were associated with dental and/or bone fractures. Dental fractures occurred isolatedly in 31.7% of cases whereas in 6.2% of them were associated to other kinds of injuries. Alveolar bone fractures occurred in isolation in 2.5% of cases as contrasted to 1.2% associated with tooth fractures or dislocations (Table 2).

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