Traumatic anterior dental injuries in Cuban preschool children

Rodríguez JG. Traumatic anterior dental injuries in Cuban preschool children.

Abstract – The purpose of this study was to determine the prevalence and distribution of traumatic dental injuries in 2–5 year-old children. It included 543 children of both sexes, all attending five urban nurseries in San José de las Lajas, Cuba. The prevalence of injuries was 34.2%. Type and prevalence of dental injuries was determined using Andreasen's classification. Enamel fracture was the predominant injury (67.1%). The maxillary central incisor was the most vulnerable to injuries. Boys (41.8%) experience more injuries than girls (26.8%).

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The prevalence of dental trauma in young people is a continuing clinical and dental public health problem. According to Andreasen and Ravn (1), approximately 30% of children are exposed to dental trauma while reaching school leaving age.

Usually, the dental injuries represent serious problems affecting children physically, aesthetically and psychologically, and traumatic injuries to the primary teeth can affect the development and eruption of the permanent teeth, but more attention has been given to injuries of permanent teeth than primary teeth. Hypoplasia, including enamel discoloration and/or enamel defects, are the most frequent malformation sequela of traumatic injuries to the primary dentition (2–4).

The majority of dental injuries involve the anterior teeth and usually affect a simple tooth, with boys being more frequently affected (1–10).

The purpose of the retrospective investigation was to identify, by age and sex, the prevalence of traumatic injuries to the primary anterior teeth in preschool children in the city of San José de las Lajas, Cuba.

Material and methods

A cross-sectional survey was carried out in San José de las Lajas, Province of La Habana, Cuba in 2003. The study involved 543 children 2–5 years of age attending five urban nurseries. A total of 282 boys and 261 girls were examined. Children were examined in predetermined order in selected rooms under natural light. The examiner wore gloves during the clinical examinations, and used a plane mouth mirror and a CPI periodontal probe. The dental examination for traumatic dental injuries included only maxillary and mandibular primary incisors and were based on the method described by Andreasen and Andreasen (2).

Statistical analysis was carried out by chi-squared test with the significance level set as $P < 0.05$.

Results

The study included 543 children: 282 boys (51.9%) and 261 girls (48%), between 2 and 5 years old attending five urban nurseries in San José de las Lajas, Cuba. The prevalence of traumatic injuries in primary incisors was 34.2%: 41.1% in boys and 26.8% in girls. Four-year-old boys experienced more trauma, with the male sex predominating all of the groups; the difference was statistically significant ($P < 0.05$) (Table 1).

The types of injuries observed are summarized in Table 2. The most common injuries in children were enamel fracture (67.1%), crown discoloration (13.3%), enamel dentin fracture (9.3%), avulsion (4.0%), intrusion (2.2%), lateral luxation (1.3%) and subluxation (0.8%). The children presented 225 traumatized teeth. The teeth most affected were the maxillary central incisors (54.2%), followed by maxillary left central incisors (43.1%) (Table 3).

Table 1. Distribution of dental injuries by age and sex

Age and sex	Dental injuries, *n* (%)	No dental injuries, *n* (%)
2 years		
Boys	14 (15)	31 (33.3)
Girls	10 (10.7)	38 (40.8)
All	24 (25.8)	69 (74.1)
3 years		
Boys	32 (22.7)	47 (31.9)
Girls	17 (11.5)	51 (34.6)
All	49 (33.3)	98 (66.6)
4 years		
Boys	40 (24.3)	46 (28.0)
Girls	27 (16.4)	51 (31.0)
All	67 (40.8)	97 (59.1)
5 years		
Boys	30 (21.5)	42 (28.0)
Girls	16 (11.5)	51 (36.6)
All	46 (33.0)	93 (66.9)
2–5 years		
Boys	116 (21.3)	166 (30.5)
Girls	70 (12.8)	191 (35.5)
All	186 (34.2)	357 (65.7)

Boys/girls: relation 1.65.

Table 2. Distribution of affected teeth in relation to different types of dental injuries

Traumatic dental injuries	Boys, *n* (%)	Girls, *n* (%)	Total, *n* (%)
Enamel fractures	90 (66.6)	61 (67.6)	151 (67.1)
Crown discoloration	19 (14)	11 (12.2)	30 (13.3)
Enamel/dentin fracture	12 (8.8)	9 (10)	21 (9.3)
Avulsion	6 (4.4)	3 (3.3)	9 (4)
Intrusive luxation	3 (2.2)	2 (2.2)	5 (2.2)
Lateral luxation	2 (1.4)	1 (1.1)	3 (1.3)
Enamel/dentin/pulp fracture	2 (1.4)	2 (2.2)	4 (1.7)
Subluxation	2 (1.4)	1 (1.4)	3 (1.3)
Total	135 (100)	90 (100)	225 (100)

Table 3. Prevalence of affected teeth

Affected teeth	*n* (%)
Maxilary right central incisors	122 (54.2)
Maxilary left central incisors	97 (43.1)
Maxilary right lateral incisors	2 (0.8)
Maxilary left lateral incisors	3 (1.3)
Mandibular left central incisors	1 (0.4)
Total	225 (100)

The children had a total of 225 injured teeth, representing approximately 1.2 teeth per accident. Most children (70.9%) had only one tooth injured.

Discussion

The prevalence detected in the present study on 543 children, aged 2–5 years was 34.2%, according to retrospective studies reported (5–12).

The present research showed that according to gender, boys had more injuries in all groups, with a ratio of 1.65 boys to each girl. Many other authors also reported a similar pattern (10–13). This may be attributed to developing motor coordination or the more physical nature of their games (1, 13–14). The majority of the affected preschool children (70.9%) had one traumatized tooth, while 20.9% had two damaged teeth. No child had more than two damaged teeth. This proportion is similar to that reported in the literature (5, 6, 8, 14).

In the present investigation, enamel fractures dominate (66.6%) followed by discoloration (8.8%) and enamel–dentin fracture (8.8%). The highest number of crown fractures observed (77.0%) was also found in other retrospective studies conducted in preschool children (5, 8, 15). However, in Onetto et al. (10) and Cardoso & Rocha (12), the most common injuries were luxations. Finally, the maxillary central incisors were the teeth most affected (98.3%), and these findings are very similar to those reported by other authors (6–15).

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