PREVALENCE OF EARLY LOSS OF PRIMARY MOLARS IN SCHOOL CHILDREN IN CAMPINA GRANDE, BRAZIL

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ABSTRACT

The objective of the present study was to evaluate the prevalence of early loss of primary molars in schoolchildren in the city of Campina Grande, PB, Brazil. A total of 369 children (6-10-year-old; 181 boys and 188 girls) were randomly selected from 12 schools. A calibrated experienced examiner (Kappa = 0.90) performed all clinical examinations under natural light. Yates' chi-square test verified the association of variables and odds ratio. Significance level was set to 5%. The results showed that 24.9% of the sample had loss of primary molars, but no differences were observed between genders (P>0.05). There was larger loss prevalence among the 9 year-olds (27.2%) and the most commonly missing teeth were the lower primary molars (74.3%). It can be concluded that the early loss prevalence was high and the lower primary molars were the most commonly missing teeth. It can be concluded that the early loss prevalence was high and the lower primary molars were the most commonly missing teeth.

Key words: *Tooth Loss; Deciduous; Prevalence; Malocclusion.*

INTRODUCTION

Early loss of primary' teeth is most commonly caused by dental caries, trauma and premature root resorption[1,2]. The early or premature loss is defined by the loss of a deciduous tooth before the time of its natural exfoliation[3].

It is generally accepted that the premature loss of deciduous teeth is associated with the malocclusion of permanent dentition. The premature loss of primary teeth may reduce the arch length required for the succeeding tooth, hence predisposes crowding, rotation, and impaction of the permanent teeth[4].

Early loss of primary first molars can cause distal drifting of the primary canine if the loss occurs during the active eruption of the permanent lateral incisors. Early loss of primary second molars is a problem because these teeth serve as a guide for the erupting permanent first molars[5]. Early loss of a primary second molar, especially in the maxillary arch, results in arch length reduction due to mesial migration of permanent molars[6].

This study was idealized with the purpose of evaluating the prevalence of early loss of primary molars.

METHOD

The study is characterized by a transversal research with descriptive and analytic characteristics. The research project was independently reviewed and approved by the Ethics in Research Committee of the State University of Paraiba, Brazil.

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The sample universe population was constituted by children aged 6 to 10 years old, regularly attending municipal schools in the city of Campina Grande, state of Paraiba, located in the northeast of Brazil. A probabilistic sample was constituted with 95% confidence interval and 5% error margin. After application of the inclusion/exclusion criteria, the study population comprised 369 children (181 boys - 49.1% - and 188 girls -50.9%) from 12 schools. All parents/guardians were asked to sign a written informed consent form authorizing the enrolment of their children in the trial.

Data were collected by a single calibrated examiner (Kappa = 0.90) and were recorded in study-specific forms. The following characteristics were observed: age, gender and type of lost tooth. Inclusion criteria were: presence of informed consent and being present for examination on the day of screening.

Premature loss of primary molars was recorded when a tooth was absent, regardless of the reason for its loss. The early loss was classified according to the chronological table of eruption of the permanent tooth proposed by Kronfeld[7] and decreasing 12 months as proposed by Cardoso et al[2]

Statistical Analysis

All statistical analyses were performed using the Epi Info 2007 software (Centers for Disease Control and Prevention, Atlanta, GA, USA). The absolute and percent frequencies were obtained for data analysis (descriptive statistical techniques). The existence of significant association among the variables was verified by means of bivariate analysis (Yates' chi-square tests) considering a value of α=0.05 for rejection of the null hypothesis.

RESULTS

A total of 92 children (24.9%) presented early loss (53.3% for males and 46.7% for females), with no statistically significant difference between genders (P = .65). The distribution of the cases of early loss of primary molars, according to the age shows that there was larger loss prevalence among the 9 year-olds (27.2%) (Table 1).

Gender	(Age in years) 6		7		8		9		10		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	5	5.4	12	13.0	13	14.1	14	15.2	5	5.4	49	53.3
Female	10	10.9	10	10.9	9	9.8	11	12.0	3	3.3	43	46.7
Total	15	16.3	22	23.9	22	23.9	25	27.2	8	8.7	92	100.0

TABLE 1: DISTRIBUTION OF THE SCHOOL CHILDREN WITH EARLY LOSS ACCORDING TO THE GENDER AND AGE.

Tooth	Gender Male		Female		Total	
	n	%	n	%	N	%
54	7	4.7	3	2.0	10	6.7
55	5	3.4	3	2.0	8	5.4
64	7	4.7	3	2.0	10	6.7
65	5	3,4	5	3.4	10	6.8
74	8	5.4	7	4.7	15	10.1
75	14	9.5	16	10.8	30	20.3
84	20	13.5	13	8.8	33	22.3
85	15	10.1	17	11.5	32	21.6
Total	81	54.7	67	45.3	148	100.0

TABLE 2: TEETH MOST COMMONLY AFFECTED BY EARLY LOSS ACCORDING TO GENDER.

A total of 148 teeth were lost early. The tooth with highest loss prevalence was 84 (mandibular right first primary molar) with 22.3% of the total, followed by 85 (mandibular right second primary molar) with 21.6% of the cases (Table 2).

Regarding the number of primary molars, 55 (59.8%) children had one lost tooth, 25 (27.2%) children two lost teeth, 6 (6.5%) had three lost teeth. 5 (5.4%) had four lost teeth and only one child had five primary molars lost (1.1%).

According to the distributions by dental arch, the results showed that the mandibular arch was more affected than the maxillary arch, 74.3% and 25.7 respectively. The first molars constituted 45.9% of the teeth lost precociously and the second molars had a percentage of 54.1%.

DISCUSSION

Pedodontists have traditionally accepted active supervision of the developing dentition as a major responsibility. Management of space problems associated with the transitional stages from primary to permanent dentition is a routine component of pedodontic practice[8].

Brazilian children present one of the highest indices of premature dental extractions without space maintenance[2,9]. Premature loss of primary teeth is regarded as the most common local factor leading to a malocclusion[10]. A premature loss of temporary teeth interferes with the harmony of the adult dentition and the main consequence of this loss is crowding, caused by migration of the adjacent teeth[11].

The prevalence of early loss reported in several studies[2,12-14] ranges from 4.3% to 42.6%. In the present study, 24.9% of the children had early loss of primary molars. Regarding the gender, this study found a small difference in early dental loss for males; however, such difference was not-statistically significant, which also confirms the results of a previous study[2].

Among the study group, 55 children had one tooth lost, while 37 had lost multiple teeth. Analyzing the distribution of early dental loss by arch, a larger prevalence was observed in the lower arch. The largest percentage of early dental losses occurred in the age of 9 years old and the teeth more frequently lost were 84 and 85, respectively, which confirms the results reported by previous studies[2,12,14,15]

Premature loss of a primary tooth is of concern not only because of the loss of function, but also because of the increased possibility that the other teeth may drift[16]. It would be useful in determining the treatment, if the dentist could predict the sequel of premature loss of primary teeth[8]

The premature loss of deciduous teeth influences the occlusion normal development and creates an increased need for orthodontic treatment[18].

CONCLUSION

The early loss prevalence was high and the lower primary molars were the most commonly missing teeth. Therefore, our findings emphasize the importance of early detection of tooth loss.

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