SIGNIFICANCE OF THE D4MF(T+T) INDEX FOR THE CHILDREN WITH PREMATURELY EXTRACTED TEETH

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ABSTRACT

The premature loss of the primary teeth is due to different factors like the level of caries activity, the oral hygiene, the presence of fluoride in the water, the socio-economic status of the population, the philosophy of the dentist (3). The aim of this article is to compare the $D_4MF(T+t)$ index of children with premature loss and those without premature loss of deciduous teeth. The subject of monitoring of the clinical research were 140 children between the age of 6 and 9. The clinical group consisted of 90 children with prematurely extracted teeth, divided into three groups. The control group consisted of 50 children with intact denture. The dental status was examined and registered according to the WHO by the $D_4MF (T+t)$ index. There was a statistically significant difference in the $D_4MF(T+t)$ index between the control groups (1.40±0.13) and the clinical groups (4.68±0.33, 4.90±0.41 and 5.76±0.41). The children with premature extraction of the temporary teeth had a higher caries activity with significantly more complicated carious lesions compared to the control group (children without early loss of teeth). The children from the third group, with prematurely extracted temporary teeth and severe orthodontic deformation have the highest prevalence of $D_4MF(T+t)$. These results demonstrate the connection between $D_4MF(T+t)$, the malocclusions and the need of prophylaxis.

Keywords: $D_4MF(T+t)$, premature extraction, complicated caries, primary teeth, malocclusions

INTRODUCTION

The distribution of the premature extraction of temporary teeth varies among children according to different factors like the socio-economic status of the population, the level of caries activity, the oral hygiene, the presence of fluoride in water, the philosophy of the dentist (3,5,8,14).

The premature extraction of temporary teeth is commonly found among children and is present in 20-65% of the scientific publications (2,4,6,7,10). Tooth decay and its complications are the main factor for premature extraction of temporary teeth. It is the most common chronic disease of the hard dental tissue (1,9,13,16). Worldwide 60-90% of the children in school age have carious lesions (WHO, April 2012). A lot of temporary teeth can be saved from premature extraction if treated timely and adequately.

AIM

The aim of this article is to compare the $D_4MF(T+t)$ of children with premature extraction and those without premature extraction.

MATERIALS AND METHODS

The subject of monitoring of the clinical research were 140 children between the age of 6 and 9. The control group consisted of 50 children and the clinical group consisted of 90 children with prematurely extracted teeth. The patients from the clinical group were divided into three groups of 30 patients each.

used for mixed dentition. The capital latter T marks the permanent dentition and the small t marks the temporary dentition (3). In our study we used the modified D_4MF (T+t), because the complicated carious lesions are the main risk factor for the premature extraction of teeth.

RESULTS AND DISCUSSION

From Table 1 we can see that there is a statistically significant difference in the distribution of complicated caries ($D_4MF(T+t)$) between the control groups and the clinical groups as well as between the clinical groups (Table 1).

Table 1. Comparison of the DMF (T+t) index of the control group and the clinical groups

Groups	Control group (n=50)	Group 1 (n=30)	Group 2 (n=30)	Group 3 (n=30)	P
Index	mean±SEM	mean±SEM	mean±SEM	mean±SEM	
D_4MF	1.40±0.13	4.68±0.33	4.90±0.41	5.76±0.41	<0.0001

- ❖ Patients who have lost one or more teeth through extraction at the dental clinic, have come to the clinic within the first 2 months after the extraction, and have no orthodontic problems.
- ❖ Patients with premature temporary teeth extraction 6 or more month prior to coming to the dental office, without severe orthodontic problems.
- ❖ Patients with premature temporary teeth extraction and severe orthodontic problems (II and III class Angle).
- ❖ The control group consisted of 50 children with intact denture.

The dental status was examined and registered according to the WHO by the modified DMF(T+t) - $D_4MF(T+t)$. The DMF(T+t) index is one of the most often used in oral epidemiology to estimate the distribution of dental caries and the need of treatment among the population. The index is based on the clinical observation of patients with dental mirror, dental probe, cotton pellets and suction. $D_4MF(T+t)$ represents the sum of the teeth with decay – especially the complicated cases, missing teeth, and such with fillings. D_4 - is for decay (complicated carious lesions), M - is for missing, F- is filling and t or T is tooth. T+t is

The children from the control group (without prematurely extracted teeth) have the lowest ($D_4MF(T+t)$) - 1.40±0.13. The children from the clinical groups have a significantly higher $D_4MF(T+t)$, especially the third clinical group (4.68±0.33, 4.90±0.41 and 5.76±0.41 for the last group). This result confirms the relationship between the high caries activity and the orthodontic deformation which is in both directions. Children with orthodontic deformation have higher plaque retention and a higher caries risk as a result, and more complicated carious lesions as well. The caries complication also lead to premature tooth extraction which is one of the risk factors for the development of orthodontic deformation. Our results are confirmed by Ribagin and other authors (11,12,15).

These results are shown in a graph by a Box-plot diagram on Fig. 1.

There are some cases from the second and the third group with an extremely high ($D_4MF(T+t)$) index – around 12, and even more – 13.5 for the third group.

The results from the statistical analysis show the normal distribution of the $D_4MF(T+t)$ index (Fig. 2).
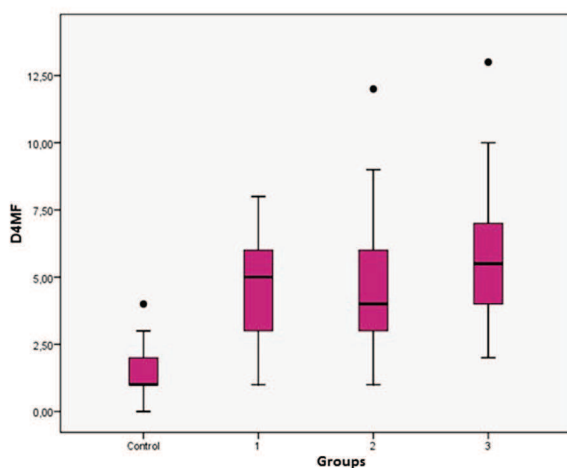
Fig. 1. Box-plot diagram for the D4MF(T+t) index in the control group and the clinical groups

Fig. 2. Histogram of the DMF(T+t) index control and clinical groups

The $D_4MF(T+t)$ index for most of the children is between 4.7 and 5.8. This results show that most of the examined children have a high prevalence of complicated caries. Only a few cases have extremely high and extremely low values of $D_4MF(T+t)$ index such as 0 or higher than 13.

To make a comparison between the groups we used dispersion analysis (one-way ANOVA) of the $D_4MF(T+t)$ index.

CONCLUSION

The data from the oral examination status show that children with premature extraction of the temporary teeth have higher caries activity and complicated carious lesions compared to the control group (children without early loss of teeth). The children from the third group, with prematurely extracted temporary teeth and severe orthodontic deformation, have the highest prevalence of $D_4MF(T+t)$. These results demonstrate the connection between $D_4MF(T+t)$, the malocclusions, and the need of prophylaxis.

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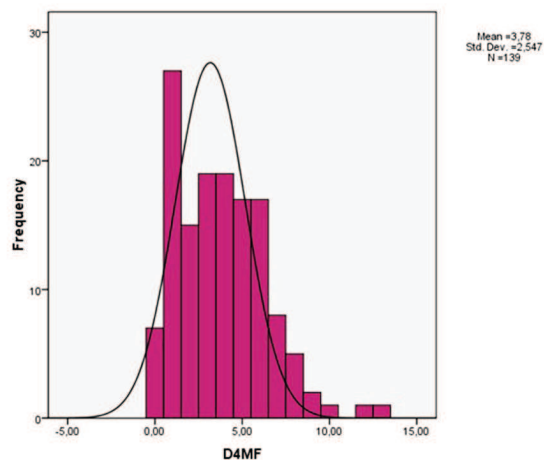2. Bjork A. A method for epidemiological registration of malocclusion. Acta Odontol Scand. 1964;22:27-44.

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