

ORIGINAL ARTICLES

COMPARATIVE STUDY OF THE PREMATURE EXTRACTION OF PRIMARY TEETH OF CHILDREN TREATED UNDER LOCAL AND UNDER GENERAL ANESTHESIA

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ABSTRACT

The premature extraction of primary teeth of children could be done both under local or under general anesthesia. The method of choice depends on different factors. Dental treatment under GA is an effective way to provide necessary dental care to children with special needs, medically-compromised, cognitively immature, highly anxious. The aim of this study is to compare the average age and the average DMFT index of the children with premature extraction of primary teeth treated under local and under general anesthesia. Subject of monitoring of the research were 60 children. The clinical group consists of 30 children with teeth for premature extraction under general anesthesia and the control group consists of 30 children for premature extraction under local anesthesia. The dental status was examined and registered by the DMFT index. The age of the children was filled out in special registration cards. There was a statistically significant difference in the age and the DMFT index between the first group (4.67 ± 0.26 average age) and second group (4.67 ± 0.26 average age). The DMFT index for the first (clinical) group is 7.18 ± 0.66 and -5.17 ± 0.33 for the second (control) group. The results show the connection between the carious activity and the need of prevention in younger children.

Keywords: *general anesthesia, carious lesions, premature extraction, local anesthesia*

INTRODUCTION

Non-pharmacologic behavior management techniques are primary techniques for treating children in the dental chair. Alternative methods such as conscious sedation and other forms of sedation are also widely used. However, in some circumstances these techniques may fail, and the use of general anesthesia (GA) becomes the only resource to provide dental treatment for children in a safe and effective way (1,2).

General anesthesia (GA) is a medical procedure that renders the patient unconscious, allowing the safe and humane provision of medical and

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dental diagnostic and surgically invasive procedures (2). Dental treatment under general anesthesia is recommended for better quality and safety for certain groups of children such as young children with large pathology, children with early childhood caries, children with dentophobia (fear of dental treatment), children with behavioral problems, uncooperative to dental treatment, children with increased gag reflex, allergy to local anesthetics (1,3,4). Another group of children recommended for general anesthesia are children with specific health needs (3,13). These include children who already have or are at an increased risk of chronic physical disabilities, mental disabilities, behavioral and emotional disabilities (7,8,11). These children are important for pediatric dentistry, because apart from the known etiologic factors, their oral status is affected negatively by a lot of different factors such as: medications used to treat the main disease; specific diets; motor problems affecting chewing and oral hygiene procedures; parents who are not motivated to maintain proper oral hygiene; ignorance or significant medical problems of the child; impossible access to preventive procedures (1,2,6).

AIM

The aim of this article is to compare the age and the DMFT index of the children with premature extraction of primary teeth, treated under local and under general anesthesia.

MATERIALS AND METHODS

Subjects of the research were 60 children. The clinical (first) group consists of 30 children with teeth for premature extraction under general anesthesia and the control (second) group consists of 30 children for premature extraction under local anesthesia. The dental status was examined and registered according to the WHO by the DMF(T+t) index. This 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 clinical observation of patients with dental mirror, dental probe, cotton pellets and suction. The DMF(T+t) index represents the sum of the teeth with decay-(D), missing teeth-(M), and those with fillings-(F). T is tooth and T+t is used for mixed dentition. The capital letter T marks the per-

manent dentition and the small t marks the temporary dentition (3). The age of the children was filled out in special registration cards.

RESULTS AND DISCUSSION

The demographic analyses establish a statistically significant difference in the distribution of the groups by the age - $t=9.15$, $p<0.05$ (Fig. 1).

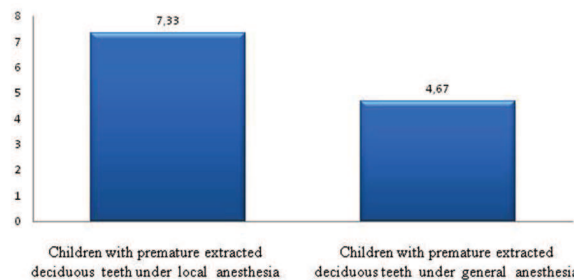


Fig. 1. Average age of children with prematurely extracted deciduous teeth under local and under general anesthesia in years

The children treated under general anesthesia have prematurely extracted teeth significantly earlier. The mean age at the time of treatment under general anesthesia was 4.67 years with a range between 24 months to 12 years old (age 4.67 ± 0.26 years) than children treated with local anesthesia (age 7.33 ± 0.33).

Our results are similar to those given by many authors (5,6,12,14). The results suggest that children treated under general anesthesia have prematurely lost primary teeth significantly earlier than those treated with a local anesthesia. It is due to the fact that such children are cognitively immature, with negative behavior, with specific health needs or with early childhood caries. Their oral health is neglected because of serious medical or behavioral problems. Their parents are looking for dental care mainly in the cases of emergency. The lack of prevention is a prerequisite for the early appearance of the dental pathology that can be controlled only under general anesthesia.

Figure 2 compared the DMF(T+t) indexes of children treated with local anesthesia and those under general anesthesia with prematurely extracted primary teeth. The DMF(T+t) index of the first group of children was 5.17 ± 0.33 , while that of the second group - 7.18 ± 0.66 .

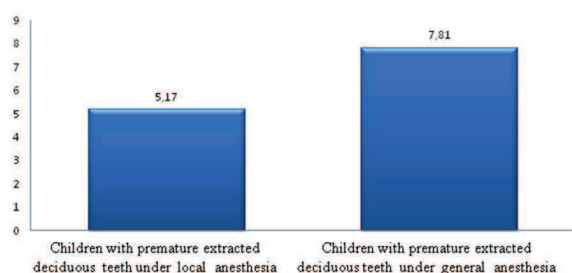


Fig. 2. Average age DMF (T+t) indexes of children with an early loss of teeth treated under local and general anesthesia

There is a statistically significant difference in the carious activity of children treated with local and those under general anesthesia - $t=3.58$, $p<0.05$.

The results clearly show the greater pathology in children treated under general anesthesia. Our results are similar to those given by many authors (8,9,10,12,13) and differs from other reported results (6,7,14). The significant carious activity of these children is related to the specifics of their contingent. They are under the action of the main etiological factors for the development of the oral pathology and also under the influence of different factors associated with the main problem. The negative behavior of the second group of children also leads to neglected oral health. A great deal of restorative treatment and extractions were needed for the majority of patients. The extensive amounts of restorative care have been reported in previous studies from many authors (5,11,12,13). It is due to the fact that children treated under local anesthesia have a higher carious prevalence.

CONCLUSION

The data from the oral examination status and the special registered cards show that children with premature extraction of the temporary teeth under general anesthesia have higher caries activity and are younger in age compared to the control group (children with early loss of teeth, treated under local anesthesia). This result demonstrates the connection between the carious activity and age of children treated under general anesthesia and the need of prevention inof this children as soon as possible. Thus, it is highly recommended to refer these children at an earlier age to a hospital where prophylaxis, tooth restoration,extraction under general anes-

thesia can be performed. Preventive treatment and encouragement to follow oral self-care recommendations should be repeated regularly and frequently enough to obtain the most favorable outcomes. However, there will always be children whose needs are too great or who are too young to accept treatment in the dental chair. Therefore, treatment under general anesthesia is an important method for providing treatment for this group of children.

REFERENCES

1. Basma K, Fuad H. Dental management for pediatric patients under general anesthesia at Queen Rania hospital for children in Jordan. *Journal of royal medical services*, 2015;22:78.
2. Bello LL. A retrospective study of pediatric dental patients treated under general anesthesia. *Saudi Dent J*. 2000;12:10-15.
3. Birute J, Jorma I. Treatment under general anesthesia among children younger than 6 years in Lithuania. *Medicina (Kaunas)*. 2013;49(9);403-8.
4. Deidre P. Dental care for the handicapped. *Br Dent J*. 1981;20:267-70.
5. Jarad FD, Albadari SS, Lee GT, et al. The frequency of repeat general anesthesia for teeth extractions in children. *Int. J Pediatr Dent*. 2006;16:45-48.
6. Harrison MG, Roberts GJ. Comprehensive dental treatment of healthy and chronicall sick children under general anesthesia. *Br Dent J*. 1998;184:503-506.
7. Holt RD, Rule DC, Davenport ES, et al. The use of general anesthesia for tooth extraction in children in London. *Br Dent J*. 1992;171:56-58.
8. Karim ZA, Mussa N. Utilization of dental general anesthesia of children. *Malays J Med Sci*. 2008;15:31-9.
9. Lee PY, Chou MY. Comprehensive dental treatment of healthy and disabled children. *Chang Gung Med J*. 2009;32:636-42.
10. Nabina B. The impact of premature extraction of primary teeth on the subsequent need for orthodontic treatment. University of Leeds, dissertation for the degree of doctor of clinical dentistry. 2013;13-15.
11. O'Sullivan EA, Curzon ME. The efficacy of comprehensive dental care for children under general anesthesia. *Br Dent J*. 1991;173:333-339.

12. Osuji OO, Assery MK. The dental treatment of children under general anesthesia at a hospital in Taif Saudi Arabia. *Saudi Dent J.* 2005;17:120-5.
13. Tsai CL, Lin YT. A retrospective study of dental treatment under general anesthesia of children with or without a chronic illness. *Chang Gung Med J.* 2006;29:41-8.
14. Vinckier F, Gizani S. Comprehensive dental care for children with rampant caries under general anesthesia. *Int. J Pediatr Dent.* 2001;11:25-32.