

Oral hygiene assessment of children treated under general anesthesia

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Abstract

The children treated under general anesthesia are mainly 3 groups: children with early childhood caries (ECC); anxious children and children with special health needs. The study aimed at establishing the oral hygiene level in a group of children treated under general anesthesia. Subject of monitoring are 395 children treated under general anesthesia, divided in 3 groups according to the age: 0-5 years; 5-12 years; 12-18 years. The assessment of oral hygiene status was done by using the Silness-Loe plaque index (PLI). Results: The difference between the three studied groups was statistically significant. In the first group (under 5 years aged children), the index is the lowest 1.41 ± 0.76 , while the children in the third group - over 12 years of age are with the highest index 2.47 ± 0.69 . The OHI index in the second group is 2.01 ± 0.78 . Conclusion: The higher values of Silness-Loe plaque index in the three groups studied is due to the fact that children treated under general anesthesia are problematic as behavior and physical or mental health, which leads to neglecting of their oral hygiene. With increasing the age, it strengthens its influence one of the most important factors for the occurrence of the carious process - hygiene.

Keywords: general anesthesia, oral hygiene, pediatric dentistry.

Introduction

Behavioral management has an important role in pediatric dentistry. A large number of children receive dental treatment using behavioral management techniques in dental clinics, with or without local anesthesia (1).

However, there are some cases when children do not receive routine dental treatment and the use of general anesthesia (GA) becomes the only alternative to providing dental care for children in a safe and effective way.

Dental treatment in childhood, accompanied by pain or unpleasant mental or violent experiences, can lead to fear, anxiety and avoidance of treatment even in adulthood. This leads to the search for new options for behavioral and pain control in dental treatment in childhood. The treatment of children under the condition of physical constraint is unacceptable, especially if it is possible to avoid it, by using general anesthesia (1,2,3). A great number of children treated under general anesthesia are with mental or physical disorders (children with special health needs). They have significant prevalence of caries lesions and poor oral hygiene, because of their main diseases. Many of them are using sugar containing medicines, special diet and difficult dental care access (3,4).

Aim

The aim of this study is to establish the oral hygiene level in a group of children treated under general anesthesia.

Materials and methods

Subject of monitoring are 395 children treated under general anesthesia, divided in 3 groups according to the age: 0-5 years; 5-12 years; 12-18 years. The assessment of oral hygiene status was done by using the Silness -Loe plaque index. The probe is used to assess the amount of dental plaque by sliding over the surfaces of each tooth. The findings are recorded in 4 points: 0- no plaque; 1- plaque is located on the cervical area; 2-plaque is visible on the cervical area and interdentially; 3 – plaque covers the entire surface of the tooth. The plaque index is calculating by the adding the scores and dividing them by the number of the teeth assessed. The index is scored in the following way: 0- excellent oral hygiene; 1- from 0,1 to 0,9- good oral hygiene; 2- from 1,0 to 1,9- satisfactory oral hygiene; 3- from 2,0 to 3,0 - poor oral hygiene (5). The oral hygiene is assessed plaque index of Silness-Loe and after the involvement of the children under general anesthesia, because of the lack of cooperation with most of the children, treated by this method (6).

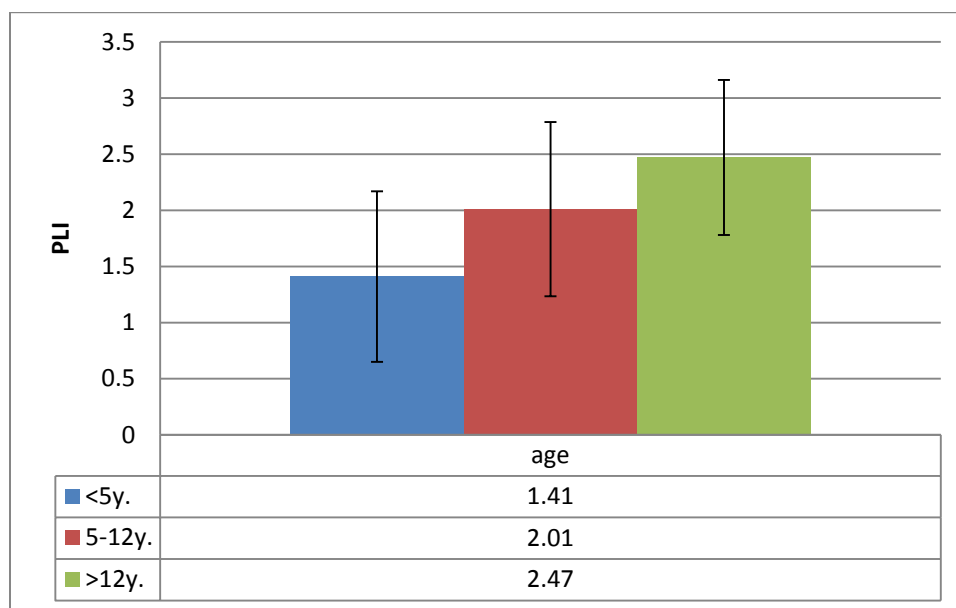
Results and Discussion

The difference between the three studied groups was statistically significant- $\chi^2= 13,8$; $df= 2$; $P= 0.0149$ (Table1)

Table 1. Average values of PLI index in three groups of studied children

PLI \ group	0-5 years	5-12 years	12-18 years	P-value
Mean	1,41	2,01	2,47	$\chi^2 = 13,8$ df = 2 P = 0.0149
SD	0,76	0,78	0,69	

In the first group (under 5 years aged children), the index is the lowest (satisfactory oral hygiene) 1.41 ± 0.76 , while the children in the third group - over 12 years of age are with the highest index (poor oral hygiene) 2.47 ± 0.69 . The PLI index in the second group is 2.01 ± 0.78 (Fig. 1)

**Fig.1. Average values of PLI index according to the age**

Most of children have poor or satisfactory oral hygiene. This could be due to the fact that the children from the first studied group are mainly with early childhood caries (ECC) and pain disturbs the proper oral hygiene. Yet their oral hygiene is better than the other two examined groups, perhaps because it is done by parents who are more manual, precise, and strict (2,5,8). The children from the second group have mainly behavioral problems that could concern the oral habits. The high values of the PLI index can be related to the fact that at this age they are washing their teeth themselves. The parents do not always control this process and the children are not yet sufficiently responsible and diligent to do regular and proper oral hygiene procedures (1,7,9). The most of the children with special health needs are disable to

brush correctly their teeth, because of their physical disability. Parents also often neglect the oral hygiene of these children because they have serious medical problems that are their priority (10,11). The children of all the groups studied have a high carious activity, which shows the relationship between the appearance of carious lesions and oral hygiene, respectively the amount of plaque accumulated (12). Our results correspond with these of some other authors (5,6,7,8), but they differ from the results published by other authors (9,10,11). They assess that the children treated under general anesthesia have good oral hygiene.

Conclusion

The higher values of Silness-Loe plaque index in the three groups studied is due to the fact that children treated under general anesthesia are problematic as behavior and physical or mental health, which leads to neglecting of their oral hygiene. With increasing the age, it strengthens its influence one of the most important factors for the occurrence of the carious process - hygiene.

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