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СОСТОЯНИЕ ПОЛОСТИ РТА ДЕТЕЙ, НУЖДАЮЩИХСЯ В СТОМАТОЛОГИЧЕСКОМ ЛЕЧЕНИИ ПОД ОБЩЕЙ АНЕСТЕЗИЕЙ

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ORAL HEALTH OF CHILDREN IN NEED OF DENTAL TREATMENT UNDER GENERAL ANESTHESIA

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Резюме. Были проанализированы стоматологические карты 32 детей, получавших стоматологическое лечение под наркозом, определено время лечения кариеса временных зубов. У детей выявлены высокий и очень высокий уровень интенсивности кариеса, легкое воспаление или риск развития патологии пародонта и плохая гигиена полости рта. В среднем одному ребенку требовалось лечение/удаление 6,3 зубов. Лечение кариеса одного зуба заняло от 7 до 20 минут.

Ключевые слова: общая анестезия, стоматологическое здоровье, дети.

Resume. The outpatient dental records of 32 children who sought dental treatment under general anesthesia were analyzed. Time measurement was done for caries treatment of primary teeth. For children in need of treatment under general anesthesia high and very high level of caries intensity, risk of periodontal pathology or mild inflammation and poor oral hygiene are typical. On average, one child required treatment/removal for 6.3 teeth. Caries treatment of primary tooth took from 7 till 20 minutes.

Keywords: general anesthesia, oral health, children.

Introduction. For various reasons (the patient's age, the negative experience of the previous treatment, the special psychophysiological state of the child, etc.) it is not always possible to carry out dental treatment of children using just behavioral management and local anesthesia techniques. In such cases, treatment is carried out under sedation or general anesthesia.

General Anesthesia is used to provide safe and comprehensive dental care for the pediatric patient with behavioral, medical, or other problems that preclude treatment in the office setting by eliminating cognitive, sensory, and skeletal motor activity in order to facilitate the delivery of quality comprehensive diagnostic, restorative, and / or other dental services [1, 2, 3].

Aim: to analyze the oral health of children in need of dental treatment under general anesthesia, their need for treatment and estimate the time spent by a dentist.

Objectives:

1. To evaluate oral health of children in need of dental treatment under general anesthesia.
2. To analyze need of dental treatment of such persons.
3. To evaluate the procedure duration for the most common kind of dental treatment.

Materials and methods. We have analyzed outpatient dental records of 32 children who sought dental care in one of the private clinics in Minsk that provides treatment under intravenous and inhalation general anesthesia.

The following oral health characteristics were evaluated in children in need of dental treatment under general anesthesia:

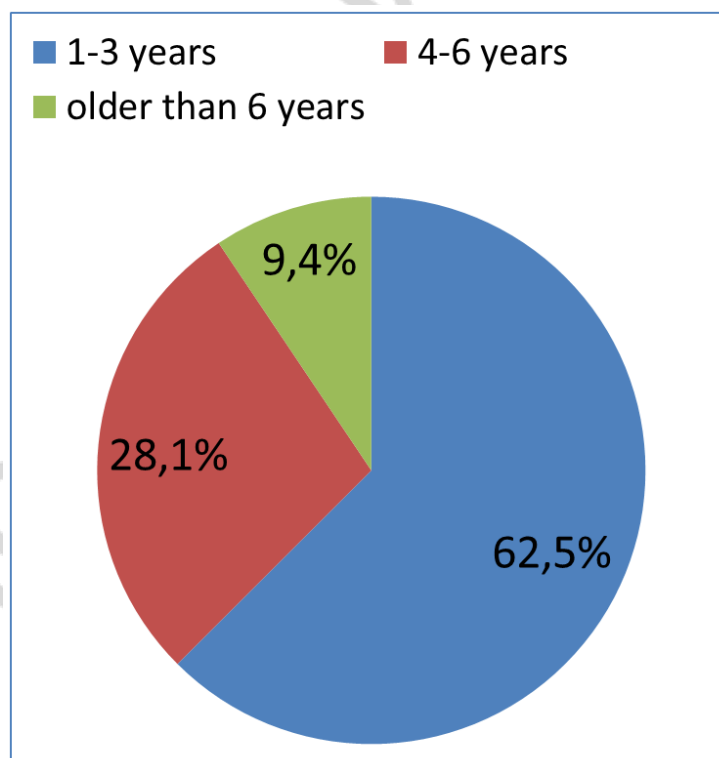
- oral hygiene level using the Oral Hygiene Index Simplex (OHI-S) (if the person has index teeth) or Plaque Index (PI) [4],
- the level of caries activity using the indices DMFT/deft (Decayed, Missing (Extracted) and Filled Teeth) and LCI (Level of Caries Intensity) [4],
- periodontal condition using Complex Periodontal Index (CPI) by P.A. Leous [5].
- the number of teeth requiring treatment/removal.

The patient's age, initial or repeated treatment under general anesthesia, previous dental experience were also evaluated.

Time measurement was done for caries treatment of primary teeth as for the most common kind of oral pathology. The time measurement was carried out in the treatment of caries of 12 teeth (6 with restoration from glass ionomer cement and 6 with restoration from resin material).

Results and discussion. The average age of the patients was 4 years 1 month (from 1 year 9 month to 10 years 9 months), 17 boys and 15 girls.

The majority of children - 20 persons (62.5%) – was at the age of 1-3 years, 9 patients (28.1%) were at the age of 4-6 years and 3 persons (9.4%) were older than 6 years (diagram 1).

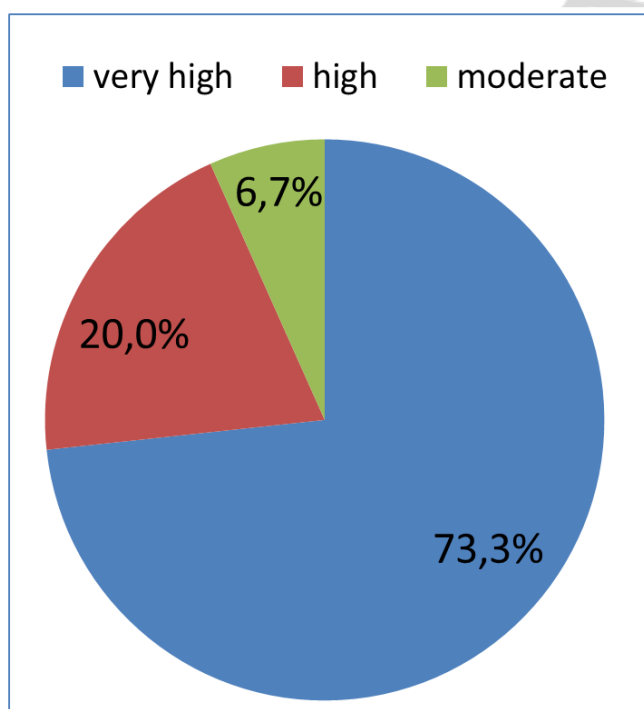


Diagr. 1 – Age distribution of the patients

The average level of oral hygiene using the PI was assessed in 29 persons (they did not have completely erupted permanent central incisors and first molars) and it was 2.4 (poor oral hygiene). The majority of these children – 28 persons (96.6%) - had poor oral hygiene and just one person (3.4%) had fair oral hygiene.

The average level of oral hygiene using the OHI-S was assessed in 3 persons which had completely erupted index teeth and it was 2.1 (fair oral hygiene). All these children had fair oral hygiene.

The level of caries intensity in primary teeth was evaluated for persons younger 9 years old (30 children). In majority of children - 22 (73.3%) children, the level of caries intensity was rated as very high, in 6 children (20.0%) as high and in 2 children (6.7%) as moderate. No one had low LCI. Average LCI was 2.4 (very high level of caries intensity) (diagram 2).



Diagr. 2 – Distribution of the patients in accordance with LCI of primary teeth

Both persons at the age 9 years and older had very high level of caries intensity of permanent teeth (average LCI is 1.0).

Component D/d in DMFT/deft was prevalent for all age groups. The structure of DMFT/deft index is demonstrated in the table 1.

Assessment of periodontal condition with CPI was possible for 17 persons due to age limitation. The majority of them – 14 children (82.4%) had risk of periodontal pathology and 3 individuals (17.6%) had mild pathology. Taking into account poor oral hygiene, this fact can be explained by the anatomo-physiological features of periodontal tissues in children.

Table 1. Structure of DMFT / deft in children*

Age	n	DMFT	D	M	F	deft	d	e	f
1 year	3	-	-	-	-	4,7	4,7	0,0	0,0
2 years	5	-	-	-	-	7,0	7,0	0,0	0,0
3 years	12	-	-	-	-	6,6	6,3	0,3	0,0

4 years	4	-	-	-	-	6,3	5,3	0,5	0,5
5 years	3	-	-	-	-	8,0	5,4	1,3	1,3
6 years	2	0,0	0,0	0,0	0,0	8,5	8,0	0,0	0,5
8 years	1	1,0	1,0	0,0	0,0	4,0	4,0	0,0	0,0
9 years	1	4,0	4,0	0,0	0,0	1,0	1,0	0,0	0,0
10 years	1	6,0	6,0	0,0	0,0	2,0	2,0	0,0	0,0

* There were not children at the age of 7 years in the research

26 (81.3%) children needed therapeutic dental treatment only, 6 (18.7%) children needed both therapeutic and surgical treatment. On average, one child required treatment/removal for 6.3 teeth. The most common diagnosis was dental caries of primary teeth.

The majority of children - 29 persons (90.6%) - have visited the clinic for first treatment under general anesthesia, 3 children (9.4%) for repeated such treatment. More than half of children – 19 persons (59.4%) – had unsuccessful experience of treatment without general anesthesia. The rest of children – 13 persons (40.6%) has refused dental treatment due to their age and behavior.

Time management revealed that caries treatment of primary tooth with restoration from modified GIC requires from 7 till 15 minutes (average duration is 10 minutes 30 seconds), with resin material – from 12 till 20 minutes (average duration is 17 minutes 10 seconds). The duration of some steps of treatment is demonstrated in the table 2.

Table 2. Average duration of some steps of caries treatment

Kind of procedure	Average duration
Isolation by cofferdam	2 minutes
Tooth preparation	2 minutes
Bonding (1 step in combination with light-curing)	1 minute
Placement of one layer of resin material	1 minute
Placement of portion of modified glass ionomer cement and its modelling	1 minutes 40 seconds
Contouring and polishing	3 minutes
Matrix installation	30 seconds

Conclusion:

1 For children in need of treatment under general anesthesia high and very high level of caries intensity, risk of periodontal pathology or mild inflammation and poor oral hygiene are typical.

2 On average, one child required treatment/removal for 6.3 teeth.

3 Caries treatment of primary tooth takes from 7 till 20 minutes.

All of the above indicates the need when working with such children: to create a clear and consistent treatment plan for this visit and to motivate the child and parents and create the optimal measures for caries prevention in the future.

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