Evaluation of Standard Risk Factors for The Development of Dental Caries

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Abstract
Background: Caries progression or reversal of the process depends on the balance between demineralization and re-mineralization. "Caries balance" is determined by the relative weight of the sum of pathological risk factors and the sum of protective factors.
Objective to identify the main risk factors for caries of temporary teeth acting in the studied group of children through a survey of their parents.
Material and Methods: Parents of children from the town Varna and Varna region. Displacement Monitoring 100 persons. Units of observation: Patients 3 to 6 years with a need for prevention and treatment of dental caries temporary dentition. Methodology: Direct individual anonymous questionnaire completed by the parents of patients in dental practices in the city of Varna, University Medical Dental Center Varna- and clinical halls of Faculty of Dental Medicine – Varna, Bulgaria.
Results: Children 81.0% with dmft> 1. All 81.0% have tested emerging active primary carious lesions d1 and d2 during the last year. Our results show that the worst risk factors for the development of caries in that age group had increased amounts of Str. Mutans, which found in 85.0% of children. In our study the prevalence of caries is high.
Conclusion: The analysis in our study proves the strong influence of the carbohydrate diet and poor oral hygiene with the development and progression of carious process in the mixed dentition. Of all the factors we examined found that children have a high risk for dental caries.

I. Introduction

The epidemiology of dental caries in children population indicates that caries is no longer a pandemic among the USA population. The frequency is limited to one part of the pediatric population [1,2]. Caries progression or reversal of the process depends on the balance between demineralization and re-mineralization. "Caries balance" is determined by the relative weight of the sum of pathological risk factors and the sum of protective factors. Minimally invasive dentistry is meant the smallest possible removal of enamel or dentin, including a reduction of pathological factors and enhance re-mineralisation to avoid any removal of hard tissue. The balance between pathological and preventive factors may change in the direction of caries prevention interventions and the active role of the dentist [3].

A significant benefit can be achieved if children with high risk can be prophylaxis and treated before they develop lesions. Most indicators of dental caries in preschool children have high levels of salivary mutans streptococci. Other risk factors include inadequate oral hygiene, low fluoride exposure, low socio-economic status, as well as the model for the child from the family in which he lives. Children at high risk of caries should be involved in more intensive programs at home by brushing the child with fluoride toothpaste the size of a pea or 0.4% SnF_2 or 1.1% NaF gels or water for oral hygiene children over 6 years [4]. Dietary control programs are cost-effective measures to prevent caries in children of preschool age [5]. The aim is to provide practical, daily clinical management of dental caries based on risk assessment in a group or individually. Can also be used in the planning and management of effective methods for each patient [6].

Objective to identify the main risk factors for caries of temporary teeth acting in the studied group of children through a survey of their parents.

II. Material And Methods

- Evaluation of standard risk factors for the development of dental caries.
- Evaluation of individual specific risk factors of each child.
- Subject of monitoring: Parents of children from the city of Varna and the district of Varna.
- Capacity of the monitoring: 100 persons.
- Units of observation: Patients aged 3 to 6 years with a need for prevention and treatment of dental caries of temporary dentition.

The incidence of tooth decay in children 3 to 6 years shows a direct connection with the holding of oral hygiene with the help of parents. High index values for that age and analysis of results obtained identified demand from us and other risk factors for the development of dental caries in this age range. For this purpose a survey compiled by precisely selected questions that parents of children surveyed answered in writing anonymously. Viewed by children under us received 100 completed questionnaires. Factors examined by sociological method act in each of the age of the children so united them in a common pooled group. Risk and protective factors examined in correlation with specific the value of dmft and OHI-S Green-Vermillion (1964) for groups of children. Compared to the answers of the respondents surveyed parents parted factors into two main groups - risk and protective for the development of dental caries.

Monitored: Parents of children from the town Varna and Varna region. Displacement Monitoring 100 persons. Units of observation: Patients 3 to 6 years with a need for prevention and treatment of dental caries temporary dentition.

III. Methodology

Direct individual anonymous questionnaire completed by the parents of patients in dental practices in the city of Varna, University Medical Dental Center Varna- and clinical halls of Faculty of Dental Medicine – Varna, Bulgaria.

Registration is carried out in a specially developed questionnaire including questions 14 each with the possibility of more than one answer.
**Signs of observation:**
1.Age, medical history
2.1 Diagnosis of caries
2. Oral hygiene habits
3. Motivation for screening and non-invasive treatment
4. Means prescribed by dentists to improve hygiene, prevention and non-invasive treatment of caries.

Respondents express an opinion on: the diagnosis of caries, oral hygiene habits of the child motivation for screening and non-invasive treatment means prescribed by dentists to improve hygiene, prevention and non-invasive treatment of caries.

IV. Results

After processing the results and determination of the highlights was conducted by actual survey data processing package for mathematical and statistical analysis SPSS v 20.0. In the clinical data we calculated what the children have the highest risk of caries (correlation between OHI (S), risk, age and dmft in temporary teeth). Our results show that the worst risk factors for the development of caries in that age group had increased amounts of Str. Mutans, which found in 85.0% of children. The study was carried out with the aid of salivary tests and taken from the group of children saliva. Plaque biofilm is proved by clinical examination at 100.0% of the children (Fig. 1). Common and more than three intermediate intake of food or beverages containing sucrose 94.10% have children. We found that they have preferred carbohydrate diets and high daily frequency of intake.
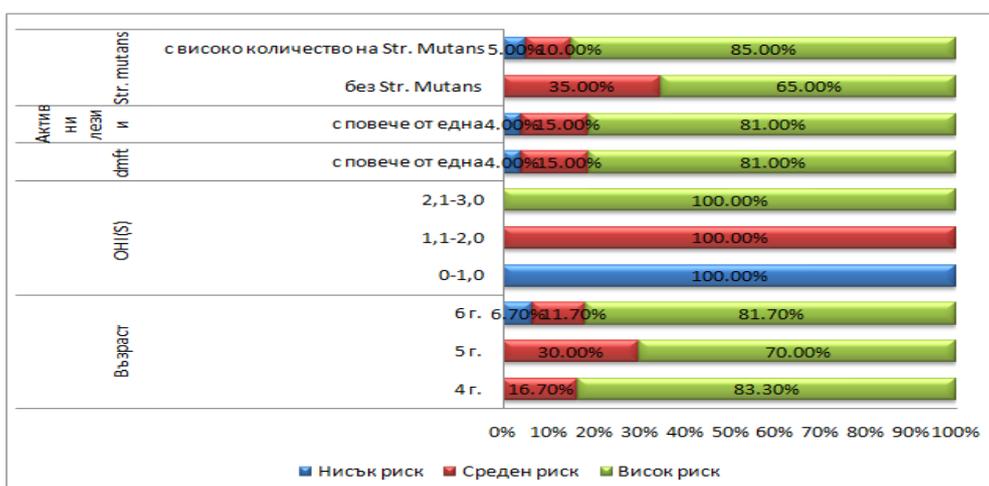
Fig. 1. Risk factors related to the clinical observation of development of caries (Blue - low risk, red - medium risk, green - high risk; children 4, 5 and 6 years old)

Of the children 81.0% are with dmft>1 and the same percentage have new emerging active primary carious lesions d1 and d2 in the last year. Of behavioral factors moderate to strong impact on the development of dental caries have the frequency of tooth brushing (r = -0,44, p<0,001) and the use of sugar foods and beverages (r = 0,51, p<0,001). In our study the prevalence of caries is high. It is assumed by many scholars that this is caused by early transmission Str. Mutans and Str. Sobrinus in living conditions or lack of proper oral hygiene and bad habits and patterns of behavior in families Fig. 1. However, it is determined that the social status of families in our country is not a determining factor for the development of caries, the most widespread disease, it still has albeit indirectly related to prevention. Although most of the respondents are defined as the average family has not yet been realized reaching this standard. Of respondents with low to medium economic status were 91.50%. Of these, only 8.50% have a high economic status and are determined to rich people in Bulgaria. Due to the selection of the children in the study group does not include those with specific health needs. Pre-set our criteria define children 3 to 6 years to be clinically healthy, free general medical characteristics and diseases Fig. 1.

The age limit of researches children not include the following risk factors: a child fell asleep with a bottle containing natural or added sugar. Because children are a common meal they already use bottle with a bottle and artificial milk containing carbohydrates. Factor carbohydrate diet is especially determines the development of caries and it remains a significant risk and long-lasting. Work on its exclusion requires an early awareness, constant motivation and lasting change in family habits and traditions of the children and the parents.

Oral hygiene index as an indicator of the level of oral hygiene and the rate of accumulation of dental biofilm also demonstrated a statistically significant correlation with risk assessment. This is probably due to the fact that dental biofilm plays an active role in the conduct of the carious process.The plate retaining realized in close proximity to the enamel surface of the main etiological factors (microorganisms and carbohydrates), providing them with the necessary time for action and isolating the enamel of the eluent action of saliva.

Without proper and daily oral hygiene and the presence of plaque biofilm covering temporary teeth and surfaces are 100.0% of the children included in the study. The test plaque index OHI-(S) Green & Vermillion by staining in clinical conditions shows medium oral hygiene to poor. Visually clinically revealed plaque in all surveyed children.Thus the initial review plaque and poor oral hygiene are high risk factor associated with indices dmft and OHI-(S), Fig. 1.This shows again the presence of high risk children who washed their teeth once a day and / or frequently during the week. About 71.40% this factor is more risk of being protected in our study. Irregular use of fluoride toothpastes and the recommended concentration of fluoride, as proven Static caries decreased and the beneficial effects of healthy enamel surfaces and caries lesions d1a. And this risk factor is necessary to conduct a systematic motivation of parents and their children.Professional topical fluoride and non-invasive treatment in clinical settings have only 10.0% of the surveyed children. Respondents' answers indicate a high risk of developing caries in mixed dentition. Neither parent is not announced to conduct a comprehensive prevention of his child by a specialist familiar methods and tools in childhood.

Small percentage are responsible for conducting prevention and non-invasive treatment prescribed permitted means at home. Clinically sealants described in the review of temporary molars were minimum, about 4.00% of the children. To date, the level of exogenous fluoride, non-invasive methods and silants for temporary teeth is too low.Prophylactic examinations set for twice a year are held regularly by parents in 81.20% of 100 children covered. Again factor of protective passes more risk. These are our results show that only 81.20 percent of children have regular check-ups twice a year, but not covered children at high risk of caries and need three or four examinations a year. Just the same children (81.20%) can be modeled behavior and they together with their parents to be motivated to successful application of modern methods and tools in every preventive direction of children's dental clinic.

V. Discussion

Our out protective factors are not strong enough and successful to determine superiority in the balance of preventive factors in the study over the dominant risk factors. This determines the children in the study of high-risk for dental caries. The ACT supports the implementation of caries management by risk assessment in clinical practice using the following principles: a modification of the oral flora, health education of the patient, re-mineralization and minimal surgery. Includes a list of scientists compiled a consensual [7]. Risk assessment is the first step in preparing a comprehensive report on oral health and child care. It is important that cooperation between all health professionals regarding early and timely intervention to promote prevention of dental diseases of children [8,9]. In the USA, CRA has been successfully applied in the accurate assessment of patients at high risk of caries. The assessment of caries risk in the program CAMBRA good clinical tool for daily dental practice. [10] In Bulgaria applies an instrument of assessing the risk of developing dental caries and drawn in the Department of Pediatric Dentistry at the Faculty of Dental Medicine Sofia.

The risk assessment in general dental practice is more common and has led to the development of protocols for prevention and activities that aim to act as a framework for obtaining optimal level. Many models

of risk have been informed by research undertaken in academia and are based on aggregated statistics on population. A considerable part of the patients are treated regularly, often for long periods of time. This provides general dental practitioners with a wealth of knowledge about their patients to inform clinical decision making on an individual basis [11]. Ellen RP et al. isolate high amounts of Lactobacillus, S. mitis and S. salivarius in agar. Str. mutans and lactobacillus are isolated frequently from enamel surfaces which are already carious than those who are healthy [12].

VI. Conclusion

The analysis in our study proves the strong influence of the carbohydrate diet and poor oral hygiene with the development and progression of carious process in the mixed dentition. Of all the factors we examined found that children have a high risk for dental caries.

Data From The Survey Among Patients From Varna, We Defined The Following Conclusions:
1. Parents children from 3 to 6 years have satisfactory knowledge and habits in relation to a number of risk factors affecting oral health of their children and maintaining oral hygiene.
2. Do establish a significant difference between respondents in relation to the formation of opinion and behavior on key issues related to prevention, oral hygiene and preventive and non-invasive treatment of caries of temporary teeth.
3. The volume and type of visits to the dental clinic primary or consecutive non factors for change in the methods and means of oral hygiene and preventive and non-invasive treatment of patients.
4. In case study of risk factors and behavior of the parents toward oral prophylaxis is a need for a new approach to children's dentists oriented programming preventive and non-invasive treatment of children according to their individual needs.

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