Health Services Vocational Collage

Oral hygiene care in primary school children: practice recommendations

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Abstract

Poor oral hygiene is a great public health problem worldwide. Dental caries is considered the most prevalent human disease, affecting 80–90% of the world population. In children, it appears to have a fivefold higher prevalence than asthma, which is the second most prevalent disease. Oral diseases can cause severe pain and loss of teeth, both of which affect appearance, dietary intake, and consequently the growth and development of children. Children may not be very good at cleaning their teeth and mouth. The child's dexterity and the parent's attitude determine the tooth brushing habit. Milk teeth contain more organic matter than normal teeth, so they are more prone to decay and decay more easily and quickly. The purpose of this study is to compile the current concepts and scientific evidence needed to understand and implement preventative oral health programs designed to improve health problems for children at risk of dental caries.

Keywords: Dental caries, oral ecosystem, oral hygiene.

Introduction

The mouth is colonized by 200 to 300 bacterial species, but only a limited number of these species participate in dental decay (caries) or periodontal disease (Liu et al., 2012). The oral ecosystem reforms with the eruption of the first tooth. The host and environmental factors also influence the assembly of the oral microbiome in early childhood (Dewhirst et al., 2010). The most studied factors include genetics, terms of labor, delivery mode, antibiotics use during birth and early infancy, feeding method, and maternal oral microbiome characteristics. These influencing factors contribute to shaping both bacterial and fungal communities. Microorganisms originating from the oral flora that settle on the tooth surface produce acid by metabolizing the sugars taken with food (Moore et al., 1994). The oral microbiome encompasses a highly diverse microbiota, consisting of over 700 microorganisms, including bacteria, fungi, and viruses. Colonization of oral mucosal surfaces begins at birth with the introduction of bacteria and fungi through multiple paths, including maternal transmission during childbirth, parental exposures, diet and horizontal transmission from caregivers and peers. The oral microbial community continues to develop with the eruption of primary teeth in early infancy and establishment of permanent dentition in children, evolves into a complex and diverse microbiome. The biochemical changes that occur in the hard tissues of the teeth are called dental caries (Caufield et al., 2000). Dental decay recognized the world's most common bacterial infection and is due to the irreversible solubilization of tooth mineral by acid produced by certain bacteria that adhere to the tooth surface in bacterial communities known as dental plaque. Streptococcus mutans is the main cause of dental decay (van Houte et al., 1982). However, other microbial species were also isolated from carious lesions and have been related to the process of tooth decay, including lactobacilli and bifidobacteria (Agnello et al., 2017).

Various lactobacilli are associated with progression of the lesion. The tooth surface normally loses some tooth mineral from the action of the acid formed by plaque bacteria after ingestion of foods containing fermentable carbohydrates. This mineral is normally replenished by the saliva between meals. However, when fermentable foods are eaten frequently, the low pH in the

plaque is sustained and a net loss of mineral from the tooth occurs (Featherstone 2008). This low pH selects for aciduric organisms, such as S mutans and lactobacilli, which (especially S mutans) store polysaccharide and continue to secrete acid long after the food has been swallowed (Raja et al., 2010).

Caries become intensely painful when the lesion approaches the tooth pulp. Oral health care education is a public health priority as the maintenance of oral hygiene is integral to overall health. It is known that dental caries can be reversed at the initial stage and can be stopped up to a stage. But the mouth current demineralization-remineralization in the environment balance continues to deteriorate in favor of demineralization. If it does, cavitation occurs. Caries reaching this level can only be restored with interventional treatments. To control the dental caries problem in the society First of all, it is necessary to spread the awareness of prevention, and then to ensure that the most appropriate treatment is applied.

Childhood oral diseases

Early childhood caries (ECC) is characterized by the presence of one or more primary teeth with caries, in the form of lesions that are cavitary or not, or teeth that are missing or filled because of caries, in preschool children aged from 0 to 60 months (Finnegan et al., 2016). In children younger than 3 years, severe forms of ECC are defined by signs of caries on the smooth surfaces of teeth, generally the maxillary incisors, and in children from 3 to 5 years old, one or more of the maxillary incisors with caries or filled or missing because of caries (Seow et al., 2009).

Children from families with a low socioeconomic position (SEP) are affected by poor oral health, including dental caries (Kossioni 2018). It is thus important to identify and understand the risk factors for dental caries in order to reduce oral health inequalities in the future. Caries, the most common chronic childhood disease, is of dietary/bacterial origin, and it occurs as a result of cariogenic diets (sugar-related) and the metabolism of specific bacteria on dietary sugars in susceptible hosts (Alvarez 1995). The role of dietary carbohydrates on caries development is well-known, but the influence of infant feeding and its practices on childhood caries is poorly understood and can lead to confusion. There are several studies

showing that breastfed babies were less affected by cavities than bottle-fed babies (Avila et al., 2015). Timby et al. characterized and compared the oral microbiome in formula-fed and breastfed infants (Timby et al., 2017). The oral microbiota pattern of breastfed infants differed markedly from the formula-fed infants, with significantly lower species richness at 4 months of age (Arweiler and Netuschil, 2016). However, notable enough, this difference in oral species richness between breastfed and formula-fed infants disappeared when these infants reached 12 months of age. In contrast to the species richness, the difference of certain microbial community characteristics remained even after the discontinuation of the breastfeeding, which indicates that there might be a long-term effect of breastfeeding on the oral microbiota and this phenomenon deserves further follow-up (Tham et al., 2015). The oral microbiome remains its stability over time in healthy individuals, despite subjected to a variety of host and environmental challenges.

Prevention and Treatment

Cleaning should begin after the first teeth begin to appear in the baby's mouth (6-8 months). After each feeding, the teeth are wiped with a clean cheesecloth or gauze. Starting from the age of 1-1.5, teeth can be cleaned with a soft toothbrush (Joshi et al., 2018). The toothbrush should have small, flat, soft and nylon bristles. After their second birthday, children can use toothbrushes, but this is only to get them into the habit. This task belongs to the parents. After the age of 2.5, a very small amount of toothpaste can be placed on the toothbrush. But it should never be swallowed. The widespread use of fluoride in the water supply, in dentifrices, and in local applications by the dentist has reduced the prevalence of caries by 30 to 50 percent among young people in many industrialized countries (AAPD, 2017). In clinical trials, the use of topical antimicrobial agents to eradicate diagnosed S mutans infections usually significantly reduces decay. Brushing at least twice a day with toothpaste containing fluoride is considered an important aspect of the prevention and promotion of good brushing habits at an early age to prevent early childhood dental decay (Fisher-Owens 2007).

Maintaining optimal oral hygiene among children is challenging and can be supported by using relevant motivational approaches. According to the data of the

Turkish Statistical Institute (TUIK), the proportion of children aged 3-17 who brush their teeth at least once a day in 2022 was 66.5%. When tooth brushing rates were analyzed by gender, it was seen that girls had a higher rate of tooth brushing than boys. While the rate of girls in the 3-17 age group, who stated that they brush their teeth once a day, was 36.7%, the rate of boys was 34.1%. While the rate of girls in the 3-17 age group, who were stated to brush their teeth more than once a day, was 36.7%, the rate of boys was 26.0%. When tooth brushing rates were analyzed by age groups, it was observed that the proportion of children brushing their teeth increased with age. While the rate of children in the 3-5 age group who stated that they brush their teeth more than once a day was 21.3%, the rate of children in the 13-17 age group was 39.3%. Reduction of carbohydrate intake frequency is one of the most important methods which decreases demineralization and thereby promotes remineralization. In order to control the problem of tooth decay in society, it is necessary to first spread awareness about prevention and then ensure the application of the most appropriate treatment.

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