

## MODERN METHODS OF DENTAL CARIES TREATMENT

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### INTRODUCTION

Caries is the most common dental problem that occurs with the destruction of hard tissues, about which patients turn to the dentist. The disease has been known since ancient times, has been well studied, and in the early stages doctors successfully cure it [1, 2, 12, 50]. At first, there is a change in their structure, then a rarefaction, at the end - a complete disintegration with the formation of cavities of different sizes. The cause of caries is considered to be the destructive effect of bacteria on the hard tissues of the tooth. A large number of various microorganisms live in the human mouth, after 2-4 hours after thorough brushing of teeth, their number can reach up to 1 million [3, 4, 10, 51]. Caries of milk and permanent teeth, widespread in childhood, is still an urgent problem of modern pediatric dentistry. How the child's acquaintance with the doctor will go depends on his attitude to any treatment in adulthood [5, 6, 9, 52]. And this, ultimately, is a question of attitude to one's own health, which is laid during the first visits to the polyclinic. New rounds of technology development allow you to make a visit to the dentist pleasant and painless. This is especially important at a children's therapeutic appointment. Children are frightened by the sound of a working dental unit, they often refuse to be treated due to the fact that the carious cavity needs to be treated with a drill [5, 13, 14, 53]. Therefore, many scientists have tried and are trying to find alternative methods of treatment. However, it is not yet possible to completely abandon the use of mechanical action, although it is possible to reduce the working time in the oral cavity with a drill right now [7, 8, 11, 54].

Materials and methods of research. The materials of the study is a review of the authors related to the causes of postoperative hyperesthesia formations in orthopedic dentistry and treatment pathways.

Research results. A number of publications are devoted to the problem of prevention of hyperesthesia during preparation for fixed orthopedic structures [6, 16, 18, 55]. It is possible to ensure a positive result of orthopedic treatment and preservation of pulp vitality in the presence of correction and prevention of complications of the condition of the hard tissues of the tooth after dissection, especially with the removal of a significant amount of hard tissues [6, 33, 34, 56]. The protection of the prepared teeth in the postoperative period until the permanent fixation of artificial crowns (temporary protection) consists in replacing the lost surface tissues of the tooth with artificial materials with the application of therapeutic agents on the wound surface. For this purpose, temporary (dispensary) crowns are

made for the prepared teeth [35, 36, 37, 57]. Pharmacological crowns undoubtedly protect the prepared tooth from thermal, chemical, microbial and mechanical influences in the postoperative period, however, by themselves they do not provide a therapeutic effect on damaged tooth tissues [6, 19, 20, 58]. One of the methods of treatment and prevention of dentin hyperesthesia is electrophoresis of 1% sodium fluoride solution, coating of the sensitive surface of the teeth with bonding systems and the use of modern composite filling materials in combination with treatment with fluoride preparations or independently [29, 9, 10, 28, 32, 41, 43].

The method of choice for the treatment of caries in children experiencing increased fear of dental treatment is the method of Atraumatic Restorative treatment (Atraumatic Restorative Treatment — ART) proposed and developed by WHO, based on the chemical-mechanical preparation of carious dentin followed by filling with glass ionomer cements (SIC) [30, 14, 19, 23, 59]. Despite the achievements and progress in the field of modern technologies for the treatment and prevention of caries, recent studies show the relevance of the ART method and its effectiveness in clinical practice, especially in children [4, 6, 15, 17, 22, 60]. The treatment of the carious cavity should begin with removing the overhanging edges with boron. Then the soft carious decay is removed with a cleaning tool from the "Kariklins" set. After that, on the affected dentin for 30-60 seconds. gel No. 1 is applied. This gel is designed to dissolve degraded mineral components of dentin. Gel No. 1 dissolves unstable calcium phosphates, oxyapatites and reaches sclerosed dentin. Further, the activity of gel No. 1 drops sharply. It is necessary to wash off the gel and loosened mineral masses. Then gel No. 2 is applied, which is designed to remove collagen fibers. Gel No. 2 is applied for 30-60 seconds. After washing the cavity, the treated surface will look dull and rough [38, 39, 40]. It is possible to check the cavity for the presence of softened dentin using the Color-test No. 2 caries indicator, although its use on pigmented dentin is not always informative enough [41, 42, 43].

According to the description of the author Tedev, N.V. stabilization of the enamel of temporary teeth (no defects appear in places of thinned enamel); caries does not form in fissures and on the contact surfaces of teeth treated with enamel-liquid (provided careful, controlled once every 3 months, oral hygiene) [44, 45, 46]. Chalky spots practically disappear. Hypersensitivity is eliminated for at least six months, and in some cases for a longer period [47, 48, 49].

Conclusion. According to the above, it can be concluded that enamel-sealing liquid provides long-term remineralization, strengthening it almost 100 times (compared to other fluorides). The high concentration of fluorine and copper ions protects the tooth from cariesogenic microbes. Enamel-sealing liquid, due to the sequence of application of two drugs, does not have a toxic effect, unlike simple fluorides (for example, sodium fluoride). This remedy has no contraindications and side effects. Based on all the data obtained, it can be concluded that chemical-mechanical preparation of hard dental tissues using a set of gels "Kariklins" can be recommended for the treatment of enamel

and dentine caries of temporary and permanent teeth, since it is characterized by minimal pain and relatively short duration of manipulations with relatively high efficiency in the long term. This method makes it possible to ensure in a short time a wide coverage of the children's population with affordable dental care at the early stages of caries development and to prevent the development of complications [5].

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