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MODERN METHODS PREVENTION AND TREATMENT POSTOPERATIVE HYPERESTHESIA IN ORTHOPEDIC DENTISTRY

Makhmudova Ugiloy Bakhtiyorovna
Samarkand State Medical University

Annatation

A number of publications are devoted to the problem of preventing hyperesthesia during preparation for fixed orthopedic constructions. 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 the state of hard tissues of the tooth after preparation, especially with the removal of a significant amount of hard tissues. Based on the study of modern literature the methods of prevention and treatment of hyperesthesia after the abutment teeth preparation are presented.

Key words: teeth preparation, hyperesthesia, desensitizers, low intensity laser, high intensity laser, adhesive systems, primer, bonding.

Introduction

Preventive measures taken in the process of tooth preparation:
1. Cooling of the surgical field and prevention of overheating of the tooth:
• intermittent preparation,
• sharp abrasive tool,
• optimal bur rotation speed,
• water cooling,
• optimal bur pressure on the tooth is not more than 100 g/mm2
2. Prevention of drying - continuous moistening of the surgical field.
3. Vibration prevention - alignment of all rotating tools and handpiece bushing.
4. The use of solutions of weak antiseptics supplied to the area of the surgical field through the tip. Helps prevent microbial invasion during preparation. Important tasks are also the preservation of the articulatory balance of the teeth after odontopreparation and the prevention of tooth displacement.
P. Jakobsen offers the following classification of treatment methods for the sensitivity of hard dental tissues: 1. Obturation of dentinal tubules to prevent fluid movement:
a) composite or glass ionomer restorations,
b) fabrication and fixation of the crown,
c) obturation of dentinal tubules by exposure to:

• tin fluoride salts; combinations of sodium fluoride and tin fluoride; potassium oxalate; iron oxides; strontium chloride;
• amino-protein complex (gluteraldehyde);
• adhesive systems (dentine sealer, methyl methacrylate).

2. Desensitization of nociceptors with a decrease in response to irritation.

3. 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 to the wound surface. To this end, on prepared teeth are made temporary (provisional) crowns. Provisional crowns undoubtedly protect the prepared tooth from thermal, chemical, microbial and mechanical influences in the postoperative period, however, they do not provide a therapeutic effect on damaged tooth tissues by themselves. With hypersensitivity of the cervical dentin, the use of glass ionomer cement is recommended. For the treatment of hypersensitivity of the teeth, the use of the Gluma One Bond bonding system is also effective. The use of finely dispersed hydroxyapatite for obturation of dentinal tubules as a means of protecting the pulp is substantiated. The rapid development of the adhesive technique has led to a dramatic growth in direct and indirect restorations. Based on living teeth. These are fillings made of composite and compomer materials, veneers, inlays and onlays, metal-free and metal-ceramic crowns. However, it is not always possible to completely eliminate post-operative sensitivity, and patients sometimes feel discomfort in the area of restoration for a month, regardless of the type of adhesive system used and the doctor's qualifications. In addition, dentin hypersensitivity may occur after procedures such as tartar removal, periodontal interventions, alignment roots, teeth whitening. Hypersensitivity often worries patients with exposed necks of teeth, cervical defects. Violated oral hygiene, tk. brushing your teeth becomes painful, the diet changes by excluding sour and cold foods. The problem of dentine sensitivity has led to the creation of a whole class of drugs aimed at its elimination. These materials have a different chemical nature, mechanism of action and even indications for use, however, they have a common goal, which allows them to be combined into one group and called desensitizers, which not only close the dentinal tubules, prevent the formation and progression of wedge-shaped defects, but also allow preventing the appearance of erosion, root caries, eliminate hypersensitivity due to the formation of a hard and durable film on the surface of the dentin. Recently, dental desensitizers have appeared that reduce the sensitivity of hard tissues by sealing dentin - Gluma Desensitaizer, Seal & Protect, Desensil, D / Sense 2, Viva Sens, preparations for deep fluoridation (enamel and dentin sealing liquids — «Dentin Fluid» and “Enamel

Fluid"). In the presence of a defect in hard tissues, it is necessary to carry out restoration or filling. The dentin-bonding preparation penetrates into the dentinal tubules and seals them, which leads to the disappearance of pain. Primers of bonding systems such as Sootchbond MultiPurpase, Clearffin Liner Bond reduce the permeability of dentinal tubules by precipitation of proteins, so their effective use in the treatment of dentin hypersensitivity is possible.Thus, Cluma Desensitizer reduces tooth sensitivity by obturating dentinal tubules by depositing dentinal cerebrospinal fluid proteins. For a simple single-stage sealing of dentinal tubules, it is proposed to use the Super Seal preparation (Bisco), which does not contain gluteraldehyde, HEMA, benzalkonium chloride. "Super Seal" has a formula that removes the smear layer, seals the dentinal tubules, relieves hypersensitivity in one step. Due to its acidic nature, Superseal demineralizes organic and mineral remains and "peretubular dentin". The drug reacts with calcium hydroxyapatite and forms a precipitate of tiny granules of calcium oxalate both inside the dentinal tubules and on the surface viable dentin, enamel and cementum. This deposit is an acid-resistant lining that forms a biological and chemical complex with the underlying living dentine substrate. A significant disadvantage of these adhesive systems is the mechanism of action on living tissue, in which a polymer is formed. a protective barrier that is unable to stimulate reparative processes in the dentin. The use of remineralizing therapy for hyperesthesia remains the most common method of treatment. Enamel and dentine resistance can be restored by introducing mineral components into these tissues. As a result of remtherapy in hyperesthesia, the stability of hard dental tissues increases, and the formation of tertiary dentin is stimulated. Since demineralization of hard dental tissues develops as As a rule, against the background of general and local factors, then with hyperesthesia of hard tissues of the teeth, it is recommended to use a complex remineralizing therapy, in which phosphorus-calcium, fluoride and other drugs are prescribed orally and externally for local applications and electrophoresis. For the treatment of hyperesthesia, a large arsenal of agents (pastes, gels, varnishes, solutions) is currently used, which include substances that cause biological restructuring of tooth tissues (fluorine preparations; oxalate chloride, potassium nitrate; strontium chloride; iron oxalate, hydroxyapatite-containing preparations, bonding systems). The use of chewing gum with potassium chloride significantly reduces pain sensitivity.

Despite the increasing prevalence and popularity of the use of a low-intensity laser, the mechanisms of its therapeutic effect on the human body have not yet been explained and the nature of its endogenous chromophore has not been determined, there is still no scientifically substantiated method for choosing radiation doses. The

introduction of low-intensity therapy into clinical practice is predominantly empirical. A.V. Belikov, A.V. Skripnik (2009) explain the mechanism of the therapeutic effect of a low-intensity laser by the following factor, that the chromophores of laser radiation in the red region of the spectrum are endogenous porphyrins. They are capable of intensely absorbing light in this region of the spectrum and are well known as photosensitizers. Content porphyrins in the body increases in many diseases and pathological conditions of a person. In this case, cells (leukocytes, blood lipoproteins, etc.) containing porphyrins become targets for laser exposure. Porphyrins, absorbing light energy low-intensity laser radiation (LILI), induce photosensitized free radical reactions leading to the initiation of lipid peroxidation (LPO) in leukocyte membranes and lipoproteins with the formation of primary and secondary LPO products. The accumulation of products of lipid peroxidation (hydroperoxides, etc.) in membranes contributes to an increase in ion permeability, including number and for Ca2+ ions. An increase in the content of Ca2+ ions in the cytosol of leukocytes triggers Ca2+ dependent processes leading to priming cells, which is expressed in an increase in the level of their functional activity, in an increased production of various biologically active compounds (nitric oxide, superoxide-anion-radical oxygen, hypochlorite-anion, etc.). Some of these compounds have a bactericidal effect, others can affect blood microcirculation.

For example, nitric oxide is a precursor to the so-called Endothelium Derived Relaxing Factor (EDRF) - a factor that relaxes the vascular endothelium, which leads to vasodilation of the latter and to an improvement in microcirculation, which is the basis for most of the beneficial clinical effects of laser therapy. Indications for the use of low-intensity laser radiation in the field of therapeutic dentistry can be reduced to the treatment of periodontal and oral mucosa diseases (mainly of an inflammatory nature), pulpitis and periodontitis, odontogenic inflammatory processes (alveolitis, periostitis, abscesses and phlegmon), osteomyelitis and jaw fractures , trigeminal neuralgia, precancerous diseases of the oral mucosa and lips, as well as stimulation of the healing of postoperative wounds, injuries, burns.

Contraindications are determined on the basis of general contraindications to the use of physiotherapeutic phototherapy agents. These include: severe diseases of the cardiovascular system, cardiac arrhythmia, atherosclerotic cardiosclerosis with a pronounced violation of the coronary circulation, cerebral sclerosis with impaired cerebral circulation, aortic aneurysm, circulatory failure of the II degree, diseases of the nervous system with a sharply increased excitability, blood diseases, hyperthyroidism, severe and severe stage pulmonary emphysema, functional kidney

failure, malignant tumors, severe diabetes mellitus in an uncompensated state or with unstable compensation, etc.

Conclusion:

The processes occurring in the enamel and dentin at the microelement level during the preparation of teeth for various types of fixed orthopedic structures remain insufficiently studied today. Thanks to the development of modern dentistry, there are methods to prevent the death of a tooth after a traumatic effect caused by an operative effect on the structure of the tooth during orthopedic treatment. I would like to hope that orthopedic dentists will forget that there were times when teeth were depulped, to be covered with fixed dentures.

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