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The Effectiveness of the Use of Desensitizers in the Treatment of Hypersensitivity of Hard Tissues of Teeth in Elderly People

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Resume: Today, hypersensitivity of teeth is an urgent problem in dentistry. According to various sources, it is known that dental hypersensitivity occurs in 15 – 70% of the adult population, and this figure is steadily growing. The constant increase in the number of patients with HHTT is a consequence of the use of ineffective methods of treating dental hypersensitivity. The modern and most popular for solving the problem of hypersensitivity of teeth hard tissues, today, is the use of desensitizers. With the development of dentistry, the variety of desensitizers is steadily growing, which makes it important to choose the most effective drug. For this study, we selected 2 of the most effective and frequently used desensitizers, such as GC "Tooth Mousse" and Gluma Desensitizer, which we tested on 50 patients. As a result of our research, the most effective means to reduce the sensitivity of teeth was remineralizing paste GC "Tooth Mousse".

Key words: hypersensitivity, hard tissues, teeth, the elderly, desensitizers, GC Tooth Mousse, Gluma Desensitizer.

Relevance. Hypersensitivity of the teeth is manifested in a short-term pain reaction of the exposed dentin in response to thermal (cold , hot drinks), chemical (sour, sweet), mechanical (toothbrush, toothpick) irritants. It should be noted that this pathology can occur after traumatic professional hygiene (enamel damage with tools, excessive polishing, especially in the neck and root of the tooth).[2,3]. In addition to the pain response that occurs as a result of local causes and stimuli, this kind of pain can also occur in connection with certain pathological conditions of the body (the so-called systemic or functional hyperesthesia).: psychoneuroses, endocrinopathies, diseases of the gastrointestinal tract, metabolic disorders, age-related hormonal changes and disorders, infectious and other concomitant diseases[1,88]. From year to year, the problem of prevention and treatment of hypersensitivity of dental hard tissues becomes more urgent due to the increasing influence of local and general factors [5,7].

Despite the high achievements of dental science and the constant updating of dental products, the problem of prevention and treatment of hyperesthesia of hard dental tissues remains relevant[4,6]. This pathology still refers to the diseases that are most successfully trea table,since the most effective treatment methods that could be used in the clinic to treat patients with manifestations of this pathology have not yet been fully determined .

Purpose of the study. To give a comparative assessment of the clinical effectiveness of using modern desensitizers for the treatment of hyperesthesia of hard tissues of teeth, with different etiologies of occurrence.

Material and methods. Today, there are many desensitizers of various manufacturers operating on the basis of one or a combination of several mechanisms on the domestic market. Many desensitizers are based on modified dentin primer hydroxyethyl methacrylate (NEMA). Additionally, drugs that cause sealing of the dentinal tubules, fluorides and antibacterial components in various combinations are introduced into it. To achieve this goal, materials of scientific and medical resources on the subject under consideration were studied and analyzed due to the wide variety of drug combinations used to reduce hypersensitivity of hard dental tissues. And based on the results obtained, drugs were selected to assess the clinical effectiveness of their use.

This study involved 50 patients divided into 2 equal groups. The age of patients was in the range of 50-7-70 years. In the first group of patients, the drug was GC "Tooth Mousse" (Japan). The preparation is a water-soluble cream containing the Recaldent complex consisting of CPP (casein phosphopeptide) and ACP (amorphous calcium phosphate), which has the ability to bind a large number of calcium and phosphate ions, keeping them in an amorphous non-crystalline state and provides high adhesion of the preparation to hard tooth tissues, pellicle, plaque components and soft tissues oral cavity, which ensures a prolonged effect of the drug. Applications of the paste were carried out in a clinical setting in accordance with the manufacturer's instructions for 3 minutes. Patients were advised to refrain from eating for 30 minutes. Each patient was instructed on the use of this drug at home. The preparation was applied 2 times a day with a dry finger or applicator after brushing the teeth for 5 minutes. For better penetration of the drug into the interdental spaces, it was recommended to use floss. During the procedure, it was not recommended to spit or swallow saliva. No additional mouthwash was required. For the next 30 minutes, you should not drink or eat. Control examinations of patients were performed at the beginning of

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the study (primary examination) and during the use of the remineralizing drug-after 1 and 2 weeks. The obtained data were recorded in a special survey card.

Gluma Desensitizer (Heraues Kulzer, Germany)was chosen as the basis for treatment of patients in the second group Desensitizer (Heraues Kulzer, Германия). Gluma Desensitizer is a drug that contains NEMA – (-hydroxyethyl)methacrylate, glutaraldehyde, and distilled water. The mechanism of action of this drug is that it coagulates the proteins of the dentine fluid inside the dentine tubules, forming transverse partitions that block the movement of the dentine fluid, which reduces the sensitivity of the dentine. Due to the presence of NEMA in the composition, the depth of its penetration increases to 200 microns(0.2 mm). Applications of the paste were performed in a clinical setting in accordance with the manufacturer's instructions. To beginwith, the dentin tobe treated was cleaned under local anesthesia, and then washed with water.

The mucosa was protected with a cofferdam.Then, thenecessary small amount of GLUMA Desensitizer was applied to the dentin surface to be treated with a brush and left on for 30 to 60 seconds. At this time, we made sure that GLUMA Desensitizer did not run off the overlay area. After that, the surface was carefully dried with a jet of air until the liquid film disappeared and the surface stopped shining, then washed with plenty of water. Control examinations of patients were performed at the beginning of the study (primary examination) and during the use of the remineralizing drug-after 1 and 2 weeks.

Results and discussion. The results of the study showed that patients in the first group were treated with GC Tooth Mousse water-based remineralizing paste with comments about the pleasant tastea and smell, as, well as the convenience and comfort of using this paste. Afterits use, the feeling of fresh breath remained for a long time. During the study period, according to control dental examinations, there were no cases of local irritating and allergizing effects of the paste on the oral mucosa. Thus, regular use of the remineralizing drug contributed to the fact that in 22 patients (88%) исчезлисomplaints about tooth sensitivity disappeared, and in 3 (12%) symptoms of this pathology decreased. In the second group of patients treated with GLUMA Desensitizer , the presence of a noticeable pain response to stimuli was clinically determined in all patients prior to treatment. After treatment, dental hypersensitivity disappeared in 20 (80%) patients, and only in 5 (20%) decreased. We also found that repeated topical application of GLUMA® Desensitizer enhances the therapeutic effect. The results of treatment of patients were evaluated using basic (survey, examination) and additional (thermal diagnostics) research methods.

Conclusion. Thus, our research has shown, that GC Tooth Mousse, a water-based remineralizing paste, is the most effective tool for reducing tooth sensitivity.

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