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Research Article

COMPARISON OF THE EFFECTIVENESS OF TREATMENT FOR DENTAL HYPERESTHESIA

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ABSTRACT

Hypersensitivity of hard dental tissues after whitening is one of the most common pathological conditions that create discomfort and have a negative impact on the functional state of the oral cavity. For treatment, 66 patients aged 30–40 years with at least 20–25 natural teeth with a preserved crown and without severe concomitant pathology were selected, with complaints of hyperesthesia of the teeth after professional whitening. Over the course of 6 months, using clinical methods and subjective sensations of patients, the severity of hyperesthesia after treatment with various desensitizers was compared . The high efficiency of Telio CS Desensitizer in the treatment and prevention of hyperesthesia of hard dental tissues was revealed.

KEYWORDS

Hyperesthesia, teeth whitening, desensitizer.

INTRODUCTION

Purpose of the study: comparative assessment of the clinical effectiveness of various desensitizers in the prevention and treatment of dental hyperesthesia after whitening.

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Beautiful and attractive teeth, as a sign of social well-being and beauty, are becoming increasingly in demand for practical dentistry in all social and age groups of the population. Scientific research conducted in this area has shown that people with dental discoloration often experience certain problems with social adaptation and are often subject to some kind of discrimination in society. This leads to the demand for both the whitening procedure itself and the range of constantly improved whitening products and techniques offered in dental clinics. Increased sensitivity of hard dental tissues, often observed after whitening, is one of the most common pathological conditions that create discomfort and have a negative impact on the functional state of the mouth. According to some data, hyperesthesia affects from 15 to 68% of the population, and the causes of its occurrence are quite numerous. Increased sensitivity also manifests itself in carious and non-carious lesions, various damage to the enamel, in particular the presence of cracks, as well as after preparation of hard dental tissues. As stated earlier, increased sensitivity also occurs after professional teeth whitening. The high demand for this type of dental care also requires a timely increase in the effectiveness of treatment and prevention of dental hyperesthesia]. Thus, despite the achievements of dental materials science in the development of new means for the treatment and prevention of dental hypersensitivity (based on important micro- and macroelements, calcium, fluorides, as well as modern desensitizers) that improve the quality of life of the population, there is still a need for further study and comparative assessment of the clinical effectiveness of modern drugs, and on this basis - their optimal individual choice for each clinical situation.

MATERIALS AND METHODS

To determine the causes of discoloration , we interviewed 66 patients aged 30 to 40 years who wanted to improve the color aesthetics of their teeth and change their color using professional chemical whitening. In 35% of respondents, staining of the surface of the crowns of vital teeth is caused by ingestion of foods rich in dyes. Thus, almost 60% of respondents regularly drink 2-3 cups of coffee a day, and almost 15% of respondents drink carbonated drinks with dyes. One of the main exogenous factors contributing to the development of dental discoloration is smoking. A change in the natural appearance of tooth crowns was most often found in unsatisfactory hygienic condition of the oral cavity in combination with abundant deposition of smoker's plaque with subsequent pigmentation of the vestibular and oral surfaces of the hard tissues of the teeth. A relatively large proportion of respondents indicated a low level of effectiveness of previously performed whitening procedures.

Today, there are many desensitizers from various manufacturers on the domestic market, operating on the basis of one or a combination of several

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mechanisms. Many desensitizers are based on modified dentine primer hydroxyethyl methacrylate (HEMA). Additionally, drugs are introduced into it that cause sealing of the dentinal tubules, fluorides and antibacterial components in various combinations. To achieve this goal, the materials of scientific and medical resources on the subject under consideration were studied and analyzed due to the wide variety of combinations of drugs used to reduce the 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 66 patients aged 30-40 years, with at least 20-25 natural teeth with a preserved crown and without severe comorbidity, with complaints of hyperesthesia of the teeth after professional whitening. In the first group of patients, the drug was GC " Tooth Mousse " (Japan). The drug 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 amount of calcium and phosphate ions, keeping them in an amorphous non - crystalline state and provides high adhesion of the drug to the hard tissues of the tooth, pellicle, plaque components and soft tissues of the oral cavity, thereby providing a prolonged effect of the drug. Paste applications 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 drug 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 and swallow saliva. Additional rinsing of the oral cavity was not required. For the next 30 minutes, you should not drink or eat. Control examinations of patients were carried out at the beginning of the study (initial examination) and during the period of application of the remineralizing drug - after 1 and 2 weeks. The obtained data were entered into a special survey card. Gluma was chosen as the basis for the treatment of patients in the second group. Desensitizer (Heraues Kulzer , Germany) . Gluma Desensitizer is a product containing HEMA (hydroxyethyl) methacrylate , glutaraldehyde and distilled water. The mechanism of action of this drug is that it coagulates the proteins of the dentinal fluid inside the dentinal tubules, forming transverse partitions that block the movement of dentinal fluid, which reduces the sensitivity of the dentin. Due to the presence of HEMA in the composition, its penetration depth increases to 200 microns (0.2 mm). Paste applications were carried out in a clinical setting in accordance with the manufacturer's instructions. To begin, the dentin to be treated was cleaned under local anesthesia and then rinsed with water. The mucosa was protected with a rubber dam. Then, a small amount of GLUMA® Desensitizer needed for

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treatment was applied to the treated dentin surface with a brush and left for 30-60 seconds. During this time, we carefully monitored that GLUMA® Desensitizer did not drip from the application 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 carried out at the beginning of the study (initial examination) and during the period of application of the remineralizing drug - after 1 and 2 weeks.

The results of the study showed that patients in the first group, when treated with water-based remineralizing paste GC ToothMousse , had comments about the pleasant taste and smell, as well as the convenience and comfort of using this paste. After using it, 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 or allergenic effects of the paste on the oral mucosa. Thus, regular use of a remineralizing drug contributed to the fact that in 22 patients (88%) complaints about tooth sensitivity disappeared, and in 3 (12%) the symptoms of this pathology decreased. In patients of the second group, on whom GLUMA® Desensitizer was used , before treatment, all patients were clinically determined to have a noticeable pain reaction to irritants. After treatment, dental hypersensitivity disappeared in 20 (80%) patients, and decreased in only 5 (20%) patients. We also found that with repeated local application of GLUMA® Desensitizer , the therapeutic effect is enhanced. The results of treatment of patients were assessed using basic (questioning, examination) and additional (thermal diagnostics) research methods.

Conclusion

Thus, our research has shown that the most effective remedy for reducing tooth sensitivity was the water-based remineralizing paste GC ToothMousse .

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