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Збірник наукових праць
науково-практичної стоматологічної конференції
у рамках конкурсу

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**ADVANCED TECHNOLOGY MAKING OF DENTURES FROM
ACRYLIC PLASTICS**

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The prevalence of edentulous still remains high. Thus, according to the authors of 18.6% of the patients do not use full dentures when fully edentulous. According to the literature 24,85% of patients do not enjoy complete removable dentures, because quite often experience an allergic and inflammatory processes of the mucous membrane prosthetic bed, as well as poor fixation of prostheses, especially in orthopedic beds edentulous mandible. It is generally known that one factor is the adhesion fixation, which depends on the accuracy of matching of micro- and macro relief prosthetic bed base surface adjacent the mucosal prosthetic bed. These phenomena occur due to the insufficient quality of polymethyl methacrylate, which is the main base material for the manufacture of dentures, both in our country and abroad. This polymer compared to other basic materials, most closely meets the clinical and technological requirements to them. This basic requirement is its mode of polymerization. However, except for the positive properties of the most vulnerable to lodge prosthetic compliance, strength and biological indifference of polymethylmethacrylate denture base, there are still negative factors that occur during the polymerization and, above all, linear and volumetric polymerization shrinkage. Various forms of error in respect of the base and the accuracy of fit to a prosthetic box may significantly decrease the strength of fixation and lead to injury of the mucosa.

Thus, the classical method of manufacturing plastic dentures to toothless jaw bases in the polymerization in a water bath does not always provide them with the necessary quality. Thus, fractures bases dentures from acrylic

materials is 60-80%. After the repair and restoration of repeated fractures marked bases in the same place. In the basis of the prosthesis has a residual monomer from 0.3-0.5%, which leads to complications in the form of inflammatory reactions of the mucous membrane prosthetic bed, as well as paresthesias in the form of burning, numbness, and others. The increased water absorption and the presence of pores in the lower denture base its biological indifference, hygienic properties and dimensional accuracy basis. In addition, during the polymerization denture bases deformed and contain residual monomer.

Therefore, on the basis of the above, the basis of polymethylmethacrylate denture polymerized in accordance with the manufacturer's instructions, do not always meet all requirements for engineering plastics, their durability and biological indifference; their correspondence prosthetic bed of polymerization shrinkage, which leads to a discrepancy of the prosthesis base surface micro- and macro relief mucosa prosthetic bed, which can be explained by a pathogenic basis of inflammatory and allergic reactions mucosa.

The **aim of the study** was to investigate the comparative characteristics of the physical-mechanical and chemical properties of polymethyl methacrylate polymerized in a water bath for guests - the instructions of the manufacturer and under anhydrous conditions at the boundary of the pressure drop.

Material and methods. The study of physical-mechanical and chemical properties of plastics "Etakril-02", produced by our industry joint-stock company "STOMA", held in the central laboratory of the Kharkov factory of medical plastics and dental materials. For the 20 samples that were made, polymerized by conventional technology and 20 - according to our proposed technology at the boundary with the pressurized air. We carried out the study of physical-mechanical and chemical properties of these samples at a specific viscosity, breaking strength in static bending, microhardness, water absorption,

the residual monomer. The samples were put demands: cracks, pores and defects made of plastic dough obtained by mixing the powder and liquid in a weight ratio of 2: 1. Measurements of length, width and thickness of the samples was carried out by a micrometer with an accuracy of 0.01 mm., Were weighed on an analytical balance accurate to 0.0001 g

Results. The analysis results of physical and mechanical and chemical properties of methyl methacrylate, indicating that the samples according to the proposed technology polymerized samples exceed polymerized GOST. Thus, the specific viscosity is higher by 8.13%, breaking stress at static bending 9% microhardness of 24.6%, the water absorption decreased to 14.3%, and the amount of residual monomer was reduced by 2.8 times .. Obviously, improved mechanical and chemical properties due to the absence of contact of polymer-monomer composition with water vapor, and the ordering of the seal structure during polymerization under pressure of compressed air to 4 atm. Throughout the heat obrabotki.Takim way, carried out prolonged pnevmoformovka that provides targeted volumetric polymerization shrinkage. The latter prevents linear shrinkage. That is, the adjacent surface of the base plays a replica of both micro and macro relief of the mucous membrane prosthetic bed and its linear dimensions.

Based on the above, we can conclude that the developed method for the polymerization of methyl methacrylate possible to produce prostheses with a high degree of conformity on the basis of micro- and macro-relief prosthesis prosthetic bed, improve biological indifference, increase the strength of bases. This method can serve as a good starting point for further improvement of existing and development of new methods of prosthetics by which the problem will be solved fixation and stabilization of dentures on the edentulous jaw orthopedic beds, including the largely atrophy prosthetic bed.

Наукове видання

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