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THE IMPROVEMENT BONDING IN METAL-POLYMER SYSTEM THROUGH THE DEVELOPMENT OF NEW POLYMER COATING VARNISH «SINMA-M+V»

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Polymeric composition adhesive system, which allows to keep facing materials to metal surface of denture and masking color of metal. Review of national and foreign sources for investigate of coating varnishes are used to create adhesive layer, and thus formation of strong bond between metal and facing material doesn't give a full picture of chemical composition and physical and mechanical characteristics of these materials.

The purpose of research - improving the adhesive bond in metal-polymer system by creating a new material with meets contemporary requirements.

Object and methods. Created material were investigation on 45 samples for the three compounds. In determining the optimum compound and comparative analysis of relevant indicators indicative properties for this class of materials were obtained: liquid heat resistance, setting time of hardening (minutes), exterior of varnish film and strength of adhesive bond, MPa. In the final phase, justify the selection compound of material for fixed constructions of dentures and made toxicological external expertise.

Results and discussion. The analysis of base properties of materials, which made in accordance various embodiments prescription compounds allowed to find out material on «compound 1» has good performance in all parameters for this type of materials. «Hardening time» is 3 minutes, which corresponds to specifications, the indicator of strength adhesive bonding of varnish film with metal surface is $7,2 \pm 0,1$ MPa, that according to the technical specifications and above normal for 3.5 MPa and significantly $p < 0.001$ to up this indicator in compounds 2 and 3. Appearance of varnish film and thermal fluid parameters corresponds to the norm. Manual compiled. For complex inspection of positive characteristics of new national coating varnish «Sinma-M+V», we conducted a series studies to compare physical and mechanical properties with analogue.

Conclusions. In general, it should be noted, on physical and mechanical properties developed new coating varnish «Sinma-M+V» for fixed dentures complies to requirements for this class of dental materials; and comparative characteristics showed - new national coating varnish «Sinma-M+V» according to all indicators exceeds existing analogues, and has strength adhesive bond of varnish film to metal surfaces equal $7,2 \pm 0,1$ MPa.

ANALYSIS OF THE RELATIONSHIP FACTORS WHICH DETERMINED THE QUALITY OF ORTHOPEDIC DENTAL CONSTRUCTIONS

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The purpose of the study was to analyze correlation relationships between organizational and technological factors that may affect the quality of orthopedic designs.

Materials and methods. To study the clinical and technological quality of orthopedic constructions of dentures from materials of domestic production, carried out under the integrated program aimed at the study of the following types of prostheses: 20329 artificial crowns (plastic – 13304; combined by Belkin, Borodyuk, Akhmetov – 7025), 15621 bridge dentures (plastic – 9789; combined – 5832), 23538 laminar dentures (partial – 11340; full – 12190) 8903 and bugel prosthesis (with locking elements in the form of clasps system Ney – 7100 and with a locking fixation – 1803). The total number of analyzed constructions of dentures – 68391; the total number of doctors - prosthetic-dentists 75 people, dental technicians – 103 people.

Results and discussion. In the early period of clinical exploitation determinants of quality of designs is the structure of staffing of physicians dental clinics, in particular – the index of staffing (F9: COP=0,727) and the proportion of orthopedic dentists of the first qualification category (F2: KC=0,453), while in the distant period the most influential factor is qualification of dental technicians: the proportion of dental technicians without qualification category (F8: COP=0,517).

To ensure the quality of the crowns in the early period the most significant are the level of doctors orthopedists – dentists of second (and higher) qualification (F3: $r_{XY}=-0,325$) and dental technicians of first qualification category, and in the distant period there was an inverse medium strength correlation with the proportion of dental technicians without categories (F6: $r_{XY}=-0,402$).

For bridges in the early period of their clinical exploitation the most significant has been the impact of prosthodontists qualified dentists, in particular F2 ($r_{XY}=-0,918$), F3 ($r_{XY}=+0,665$), F4 ($r_{XY}=+0,435$). Somewhat different patterns are found for removable laminar dentures, namely: F2 ($r_{XY}=-0,378$), F4 ($r_{XY}=-0,513$), F6 ($r_{XY}=-0,256$).

It should be noted that the quality of partial dentures is largely determined by the qualification of dental technicians F7 ($r_{XY}=-0,400$), F8 ($r_{XY}=+0,482$) than the qualification doctors orthopedists – dentists F2 ($r_{XY}=-0,509$). As demonstrated in correlogram relationships index of technological quality (Fig. 2) in the generalized form we can come to the conclusion that the most significant factor of manufacturing quality orthopedic constructions of dentures is the structure of the medical staff and its qualifications. Thus, regardless of these factors, clinical operation of prosthetic constructions is marked by a decline in their quality, which cannot be explained by qualified personnel and requires a more detailed investigation from the standpoint of material science and dental technology of dental prosthesis.

Conclusions.

1. The quality of artificial crowns in the early period of clinical use depends on the level of doctors orthopedists – dentists second (and higher) qualification (F3: $r_{XY}=-0,325$), and tooth-technical laboratories - dental technicians I qualification category; in long - term period average inverse power relationship with the proportion of dental technicians without categories (F6: $r_{XY}=-0,402$) and the quality of orthopedic designs.
2. For bridges in the early period of their clinical exploitation the most significant has been the impact of prosthodontists qualified dentists, in particular F2 ($r_{XY}=-0,918$), F3 ($r_{XY}=+0,665$), F4 ($r_{XY}=+0,435$).
3. In early and distant periods of clinical exploitation, quality laminar dentures depends on the qualification of personnel, design of prosthesis and technical equipment of dental laboratory: F2 ($r_{XY}=-0,378$), F4 ($r_{XY}=-0,513$), F6 ($r_{XY}=-0,256$).
4. The quality of bugel dentures is largely determined by the qualification dental technicians F7 ($r_{XY}=-0,400$), F8 ($r_{XY}=+0,482$) than the qualification of doctors orthopedists – dentists F2 ($r_{XY}=-0,509$).

Prospects of the further researches of interrelations between the quality of orthopedic designs in the early and distant periods of their clinical exploitation associated with the assessment itlike properties of dental materials and clinical and technical factors of treatment.