MEDICAL SCIENCES

POSITIVE AND NEGATIVE QUALITIES OF SILICONE IMPRESSION MATERIALS

Gurbanov R.,
Doctor of Philosophy in Medicine,assistant
Department of Terapeutic Dentistry
Akbarli L.,
Department of Orthopedic Dentistry.Assistent
Kalbiyeva N.
Department of Pediatrik Dentistry Assistant
Azerbaijan Medical University
Baku, Azerbaijan
https://doi.org/10.5281/zenodo.11390513

Abstract

Today we finally have a previously unknown problem. Problem of choice. There are so many dental materials that many have long been confused by the diversity of the offer and cannot understand what is better, why it is better and how to use it. Even experienced doctors often make basic mistakes, while beginners sometimes don't even know how to use this or that impression material.

Keywords: alginate materials, A-silicones and C-silicones.

Modern dental materials science continues to research and present new impression materials with the necessary characteristics and certain qualities, without which it is impossible to imagine the manufacture of any orthopedic structure. After determining the treatment plan and choosing a design, the orthopedic dentist sets himself the task of selecting an impression material to achieve good results [2, 6]. A correctly obtained impression should accurately reflect all the relief features of the surface of soft tissues, opposing and adjacent teeth and the supporting tooth.

When choosing an impression material, it is necessary to take into account such factors as the design features of the future prosthesis, the pliability of the oral mucosa, as well as the condition of the gingival sulcus [4, 5, 7]. Today, dental impression materials face a significant number of requirements: accurate negative representation of the anatomical shape of the teeth and the relief of the soft tissues of the mucous membrane; hydrophilicity, biocompatibility, ease of use, dimensional stability [3]. E.G. Agadzhanyan believes that the classification of impression materials by I.M. Oxman, which is the most popular, is not currently used. Russian clinics in most cases use polyesters, alginate materials, A-silicones and C-silicones [1].

The purpose of the study is to study the properties of class A and C silicones according to literature sources. Conduct a survey of dentists to study the prevalence of use of materials. Research objectives. Find out the positive and negative properties of A and C silicone materials.

Material and methods.

During the formation of the research work, we studied domestic and some foreign literature. A survey of 20 dental orthopedic doctors in practical healthcare was carried out. The following questions were asked: 1. Preference in use between A-silicone and C-silicone. 2. Which silicone material is more convenient for you to use? 3. Which silicone material, in your experience, gives a more accurate impression? 4. Have there been any cases of allergic reactions when using these materials? We also carried out a practical study - taking impressions using several representatives of different groups of silicones: A- and C-silicones. Study the properties of each class. Results. As a result of a survey of 20 orthopedic dentists, it was found that only 35% of respondents prefer to use silicone material of group "C" in their work, the remaining 65% of doctors prefer silicone impression materials of class "A". Based on the results of a practical study, as well as taking into account reviews of orthopedic dentists and literature data, the following positive properties of silicone impression materials of group "A" can be noted: the components of these materials are easily mixed due to the homogeneity of the main and catalytic pastes; do not have an unpleasant odor or taste; accurately reproduce the relief of the prosthetic bed, are hypoallergenic, do not have a toxic effect, and also have high hydrophilicity. The main negative properties of materials in this group include, first of all, high cost compared to silicone materials of group "C", as well as the inability to knead the material in latex gloves due to a violation of the polymerization reaction of the print. Silicone materials of class "C" are inferior in their properties to materials of class "A". The main positive properties of C-silicones include: relatively low cost, low shrinkage, good elasticity and at the same time strength of the base and corrective masses, as well as the possibility of disinfecting the impression. Negative properties of C-silicones: insufficient adhesion to the impression tray, hygroscopicity (sensitivity to moisture), low hydrophilicity, lack of automatic mixing of material components, excessive rigidity of the base mass. In addition, the literature describes cases of toxic effects of the mass on the human body. In addition, higher accuracy of plaster models was obtained using impressions made from silicone material of group "A".

Conclusion. From our practical research, it became clear that for the manufacture of microprostheses, as well as prostheses that require an ideal marginal fit, it is necessary to use materials that give a lower relative error of plaster models - group A silicones. In the manufacture of larger dentures, impression materials can be used, the relative the error of which is greater, for example C-silicones. Conclusion. Based on the studied material, a survey of orthopedic dentists, and practical research, we can conclude that the most important and important positive property of group “A” silicones is hydrophilicity, which makes it possible to obtain a better and more accurate impression, which is necessary for the manufacture of denture structures. A negative property is its rather high price compared to other impression materials. The main positive property of group “C” silicones is that they are inexpensive for the traditional two-stage technique and are accurate in reproducing small details. A negative property is low hydrophilicity. Both during the survey and during the practical study, no cases of allergic reactions to silicones of groups “A” and “C” were identified; cases of toxic effects were described only in the literature - to silicone “C”.

References:

1. Agadzhanjan Je.G. Sravnitel'nye harakteristiki ottisknyh mass. Sovremennaja stomatologija. 2007;4:133-137.

2. Bizjaev A.A., Googe L.A., Konnov V.V. Protezirovanie pacientov s otsutstviem perednih zubov verhnej cheljusti s uchetom ugla naklona nebnogo svoda. Rossijskij stomatologicheskij zhurnal. 2008;1:24-26.

3. Zhil'cova E.S., Vorob'eva M.V., Shherbakova T.A. Preimushhestva primenenija irrigatora u lic, pol'zujushhihsja zubnymi protezami. V sb.: Jeffektivnaja klinicheskaja praktika: problemy i vozmozhnosti sovremennogo vracha. Sbornik materialov mezhdunarodnoj nauchno-prakticheskoj konferencii. Pod red. Gorshunovoj N.K. 2017;217-225.

4. Konnov V.V., Pichugina E.N., Popko E.S., Arushanjan A.R., Pylaev Je.V. Myshechno-sustavnaja disfunkcija i ee vzaimosvjaz' s okkljuzionnymi narushenijami. Sovremennye problemy nauki i obrazovanija. 2015;6- 0:131.

5. Olenko A.A., Matycina T.V., Vorob'eva M.V. Preimushhestva ustanovki s#emnyh protezov s oporoj na implantaty pri polnom otsutstvii zubov na nizhnej cheljusti. Innovacionnoe razvitie. 2017;10(15):81-82.

6. Arushanjan A.R., Konnov V.V., Popko E.S., Pichugina E.N., Razakov D.H., Konnov S.V. Programma dlja opredelenija stepeni myshechno-sustavnoj disfunkcii. Svidetel'stvo o registracii programmy dlja JeVM RUS 2016614212. 02.03.2016.

7. Razakov D.H., Konnov V.V., Arushanjan A.R., Pichugina E.N., Popko E.S. Rol' dinamicheskoj jelektronejrostimuljacii v kompleksnom lechenii myshechno-sustavnoj disfunkcii pacientov s deformacijami zubnyh rjadov i prikusa. Sovremennye problemy nauki i obrazovanija. 2015;6-0:199.

8. Pichugina E.N., Arushanjan A.R., Konnov V.V., Razakov D.H., Sal'nikov V.N. Sposob ocenki okkljuzionnyh vzaimootnoshenij zubov i zubnyh rjadov. Zhurnal nauchnyh statej «Zdorov'e i obrazovanie v XXI veke». 2016;18:11:52-54.

9. Konnov S, Razakov D, Konnov V, Arushanyan A, Mukhamedov R, Khodorich A, Mikailova V. Functional status of masticatory muscles at occlusion disturbances accompanied with displaced mandible. Archiv Euro Medica. 2018;8:1:41.

10. Konnov V, Razakov D, Salnikova S, Mukhamedov R, Pylaev E, Konnov S, Mikailova V. Clinical features of temporomandibular joint dysfunction in patients with mesial occlusion complicated by dentition defects. Archiv EuroMedica. 2018;8:1:27-32.