

# **PERSPECTIVES OF WORLD SCIENCE AND EDUCATION**

Abstracts of IV International Scientific and Practical Conference

Osaka, Japan

25-27 December 2019

**Osaka, Japan**

**2019**

УДК:616.314.17.008.4.085.036:631.234:616.831-053.2

**POTENCY ASSIGNMENT OF THE EFFECTIVENESS OF MOBILE TEETH  
ADHESIVE CONTROLLED IMMOBILIZATION IN THE PROCESS OF  
COMPLEX REHABILITATION OF PATIENTS WITH GENERALIZED  
PERIODONTITIS**

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**Resume.** The problem of choosing an adequate complex therapy for generalized periodontitis treatment is rather an urgent problem for practical doctors, as pathological mobility and teeth migration are always observed in the patients with periodontal pathology, which lead to secondary occlusal disorders, dynamopathology and poor aesthetic characteristics of dental arches. The article analyzes the effectiveness of prolonged controlled immobilization of mobile teeth by adhesive tires with nonmetallic armature (ATNA) in the process of complex rehabilitation of patients with generalized periodontitis with a high level of progression without destruction of dental arch integrity.

**Key words:** generalized parodontitis, controllable splinting, adhesive tires with nonmetallic armature (ATNA)

**Actuality.** Parodontium inflammation processes are the most complicated forms of dental pathology associated with high prevalence, persistent growth tendency, pathology process duration and negative act upon the body in general [1, p.19-20; 2, p.27]. The lack of a clear understanding of the cause-effect relation between parodontal disease development makes effective treatment and disease prevention much more difficult [3, p.38]. The fact of significant "youthification" of generalized periodontal diseases causes a major concern [3, p. 39; 4, p. 869]. Traditionally, it is

considered to be the most effective treatment for parodontitis with an integrated approach that includes adequate oral hygiene, therapeutic, surgical and orthopaedic manipulations [1, p.269; 4, p. 870]. However, despite the fact that there is a large arsenal of treatment remedies and methods, this problem is far from being solved. Minimal invasion biomimetic treatment is becoming topical more and more. Biomimetic treatment will allow the dentofacial system to adapt to changing conditions during treatment in short terms. At the same time, one of the most difficult issues is the problem of planning the sequence of treatment steps and forecasting of its the results [5, p. 68; 6, p. 112]. The growing number of patients with antibiotic resistance, immunodeficiency, psycho-emotional disorders, etc. makes more difficult to choose an adequate and reasonable therapy. Also the control of occlusal relations and immobilization effectiveness bring a special technical difficulty against the background of functional overload and pathological teeth mobility [6, p. 115; 7, p. 62]. Thus, there is a need for further researches and development of protocols for immobilization and selective teeth grinding based on the principles of minimal invasion and approaches of evidence-based medicine in generalized parodontal disease with various features of its course. In connection with the above matter, at the moment, there is an actual question of application of adhesive tires with nonmetallic armature (ATNA) at all the stages of generalized parodontitis treatment due to the possibility of their dynamic controlled application according to occlusal relations of teeth.

**Purpose:** To evaluate adaptation reactions of parodontal tissues with using controlled application of dynamic adhesive tires with nonmetallic armature (ATNA) for immobilization of mobile teeth in complex rehabilitation of patients with generalized parodontitis.

**Methods:** we monitored 32 patients aged from 25 to 44 years who were undergoing comprehensive treatment of moderate chronic generalized parodontitis (according to the new AAR classification, 2018: 2 of severity, Class C (high rate of progression), without destruction of dental arch integrity. The patients were randomly divided into 2 groups: the control group consisted of 16 patients, whose splinting was carried out

by traditional types of fixed and removable structures; the main one – 16 patients, who were sealed with a dynamic controlled adhesive tape, reinforced with GrandTEC fiberglass ribbon. During the course of comprehensive therapy, all patients were treated locally with the original composition we proposed B.Subtilis и B.Licheniformis, as an application once every 3 days during 1 month. 10 applications were conducted in total.

Evaluation of the periodontal condition was carried out using mathematical indicators (indices): PI (Ind.Russel) periodontal index; GI (Ind.Silness-Loe) of the gingival index; BI (Ind.Fuchs) bone index; HI (Ind.Greene - Vermillion) hygiene index. These indices were calculated before 1 month, 3 months, 6 months, 12 months.

**Results:** When analyzing the condition of parodontal tissue as a result of treatment, among 16 patients of the main group, where more physiological, fragmentary dynamic long-term adhesive tires with nonmetallic armature (ATNA) were used, a more pronounced and stable decrease in periodontal inflammation and improvement of the hygienic state of the oral cavity was revealed. PI significantly decreased, by an average of 49.1% of the baseline, whereas after 1 month GI decreased by 43.6%. The effect of treatment of the main group is stable and after 12 months the GI significantly decreased by 71.2%. A significant normalization of the bone structure could only be observed in the frontal area during the observation period, where splinting was carried out by stepwise controlled ATNA. The best improvement was recorded in 5 patients (their KP increased to 23.6%). The dynamics of PI and KP was equally pronounced in patients with different levels of inflammation and bone tissue condition on the background of treatment. However, the influence of initial states of parodontal tissues affected the dynamics of GI and HI. The indicators of inflammation and hygienic state in the main group of patients decrease more rapidly than in the control group as a result of treatment.

**Conclusion:** Comparative analysis of the periodontal condition in both study groups of patients treated with different types of immobilization showed a significant advantage of long-term linear and stepwise adhesive splinting with discrete fixation time in comparison with conventional splicing methods. The ATNA usage allows to

make the immobilization more effective, to make correction in the process of treatment in a minimally invasive and aesthetic way. Also, it allowed to control occlusive relation at the stages of treatment more effectively. Methods that combine minimally invasive immobilization of teeth can be prospective biomimetic methods of treatment, elimination of traumatic occlusion and microcirculation disorders with pathogenic drug effects on the microbial component and immunodeficiency probiotics usage.

## LITERATURA

1. Herbert V.F. Parodontologiy / Herbert F. Volf, Edit M. Rateychak, Klaus Rateychak. – MEDpress-inform, 2008. – 547c.
2. Mitronin A.V. Kompleksnoe lechenie i reabilitatsiya bolnuh s destruktivnymi formami khronicheskogo parodontita: aftoref. dys. dok. med.nauk/A.V Mitronin ; MGMSU. – M., 2004. – 27c.
3. Baelum V., Lopez R. Periodontal disease epidemiology – learned and unlearned? // Periodontol. – 2000. – 2013. – Vol. 62, №1. – P.37-58.
4. Nibali L., Farias B.C., Vajgel A., Tu Y.K., Donos N. Tooth loss in aggressive periodontitis: a systematic review// J.Dent.Res. – 2013. – Vol.92, №10. – P.868-875.
5. Kyriukhyn V.Y. Ob effektivnosti primeneniya shinirovaniya zubov zhgutom iz titanovoy nity pry zabolevaniyah parodonta / V.Y. Kyriukhyn, G.I. Rogozhnikov, M.V. Martyusheva, R.F. Gilyazeva// Rossijskij zhurnal biomekhaniky. – 2007. – T.11, №2. – C.65-74.
6. Karavaeva E.M. Biomekhanicheskoe modelirovanie primeneniya shiniruyishchego volokna na osnove bazalta pry lechenii pacientov s zabolevaniyami parodonta/ E. M.Karavaeva, G.I. Rogozhnikov, Y.I. Nyashin, V.N. Nikitin.// Rossijskij zhurnal biomekhaniky. – 2015. – T.19,№1. – C.106-115.
7. Antonenko M.Y., Symonenko R.V. Sranitelnyj analiz effektivnosti adgezyvnykh metodov prolongirovannogo shinirovaniya podvignykh zubov v processe kompleksnoj reabilitatsii bolnykh generalizovannym parodontitom . /M.Y.Antonenko,R.V.Symonenko// Sovremennaja stomatologiy – 2018. - №1. – C.60-64.