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Long-term results of generalized periodontitis treatment among 2nd year medical university students with increased level of emotional sensitivity

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Keywords

generalized periodontitis, prooxidant-antioxidant system, emotional sensitivity, medical students

Conflict of interest

Konflikt interesów

None

Brak konfliktu interesów

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Summary

Introduction. In recent years, psychosocial factors, mental exhaustion and stress have been considered by experts from WHO and the International Labor Organization as an important factor affecting the health of young people all over the world. The high level of psycho-emotional stress associated with information overload, the acceleration of life pace, unfavorable learning conditions, contributes to the increase in the prevalence of periodontal tissue diseases.

Aim. The purpose of the study was to evaluate the efficiency of long-term usage of the nootropic drug "Noofen" in complex treatment of generalized periodontitis among 2nd year medical university students with increased level of emotional sensitivity.

Material and methods. 70 students with initial-I stage generalized periodontitis and increased and high levels of emotional sensitivity were observed. Clinical indices PMA, BI, OHI-S and the level of MDA and SOD in saliva were detected.

Results. All data of clinical indices (PMA, BI, OHI-S) and prooxidant-antioxidant system state (MDA and SOD) was improved after treatment in both groups ($p < 0.001$), despite that I group results in a long-term, where advanced treatment was performed, was much more better than in II group ($p < 0.001$).

Conclusions. As a result of treatment we obtained significantly better results in group, where improved treatment was used. It is confirmed by long-term stabilization of clinical trials and biochemical parameters of oral fluid.

INTRODUCTION

In recent years, psychosocial factors, mental exhaustion and stress have been considered by experts from WHO and the International Labor Organization as an important factor affecting the health and performance, motivation of learning and employment of young people all over the world (1).

Professional overload of emotional character in the absence of rational rest in most people leads to a state of chronic emotional stress. The high level of psycho-emotional stress associated with information overload, the acceleration of the pace of life, unfavorable learning and work conditions, contributes to the increase in the prevalence of periodontal tissue diseases. Psychological stress has a negative effect on immune response efficiency, which subsequently leads to disruption in periodontal tissues. The results of various factors influence on the periodontal tissue diseases occurrence indicate that not only stress but also anxiety is a determining factor in periodontal pathology development (2-6).

There are many methods of generalized periodontitis (GP) treatment, using drugs with high anti-inflammatory, antiseptic, antibacterial and antimicrobial effects

on periodontal tissues. "Noofen" is one of the drugs that eliminates heightened emotional sensitivity, namely anxiety, and has a positive effect in GP treatment (7).

AIM

To evaluate the efficiency of long-term usage of the nootropic pill "Noofen" in complex treatment of generalized periodontitis among 2nd year medical university students with increased level of emotional sensitivity.

MATERIAL AND METHODS

To evaluate the effectiveness of advanced complex treatment, we conducted clinical and laboratory examination and treatment of 70 2nd year medical university students with initial-I stage generalized periodontitis. All students, who were examined, had increased and high levels of anxiety. Students were divided into two groups, depending on performed treatment: main or I group (35 people) and comparison or II group (35 people).

Patients in I group received advanced treatment, which included local treatment – mouthwash with solution "Oktenisept" and resorption of pill "Lizak". For general treatment, patients in I group received nootropic pill "Noofen". Patients in II group received con-

ventional treatment according to the dental care protocol, which for local treatment included rinsing the mouth with 0.05% chlorhexidine solution and resorption of pill "Lisobact". Patients in both groups received multivitamin complex "Vita-Supradin Active".

Objective examination data, clinical indices of PMA (papillary-marginal-alveolar index), BI (bleeding index of gums), and Green-Vermillion index (OHI-S) were used to put initial-I stage of GP diagnosis. Danilevsky classification was used to put diagnosis of periodontal disease (8).

The assessment of oral cavity prooxidant-antioxidant system state was determined by the level of malondialdehyde (MDA) and superoxide dismutase (SOD) (9-11).

Clinical and laboratory examination of treatment in both groups were performed before and immediately after treatment, at 1 month, 6 months and 12 months.

RESULTS AND DISCUSSION

As a result of conducted treatment in both groups, a significant improvement of periodontal tissues condition was observed. Clinically, the gums became pale pink, tightened, bleeding and itching of the gums disappeared, and the depth of periodontal pockets decreased.

Under the influence of complex treatment, the indicator of oral hygiene also changed (fig. 1). Thus, immediately after treatment, the OHI-S index decreased in 4.46 times in I group and in 2.9 times in II group, which is statistically significant ($p < 0.001$). It should also be noted that in a long term this indicator was lower than the initial data in both groups, but in I group OHI-S index was more stable and at 12 months after treatment equaled 0.81 ± 0.04 points, which in 1.54 times was better than II group indicator (1.25 ± 0.04 points) ($p < 0.001$).

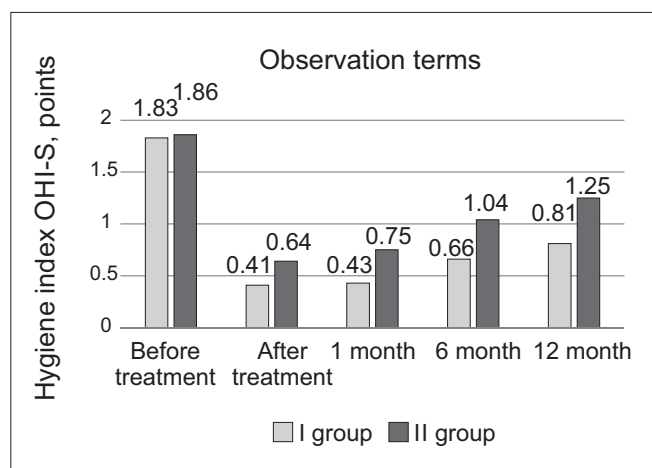


Fig. 1. Dynamics of hygiene index changes during treatment stages

As a result of the treatment, inflammation of the periodontal tissues was significantly reduced. Thus, the PMA index (fig. 2) in group I became better in 9.17 times, and in II group – in 5.79 times ($p < 0.001$). In a long term, the PMA index in I group, where advanced treatment was performed, was almost unchanged ($p < 0.001$), which proved the efficiency of

therapy. PMA index in II group, where conventional treatment was performed, was not stable in a long term and significantly exceeded the corresponding I group data ($p < 0.001$).

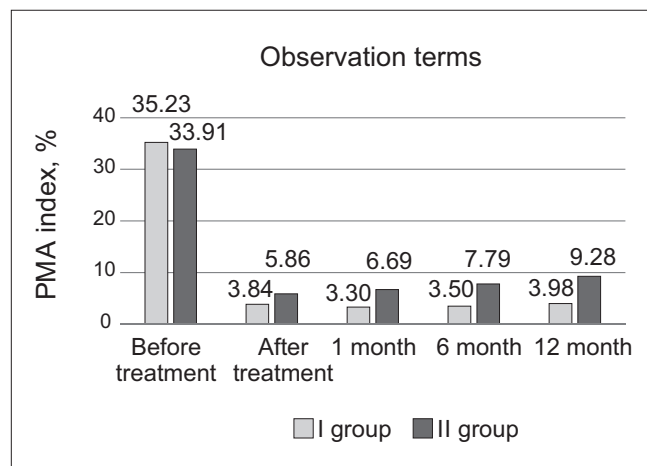


Fig. 2. Dynamics of papillary-marginal-alveolar index changes during treatment stages

Gum bleeding index also decreased as a result of treatment (fig. 3). In I group BI decreased to 0.05 ± 0.01 points, and in II group to 0.2 ± 0.02 points, which was significantly better in relation to the initial data ($p < 0.001$). With regard to long terms after treatment, it should be noted that values in I group were more stable than in II group. At 12 months after treatment, BI in I group was 0.17 ± 0.02 points and in II – 0.94 ± 0.04 points, which indicate more effective treatment in I group ($p < 0.001$).

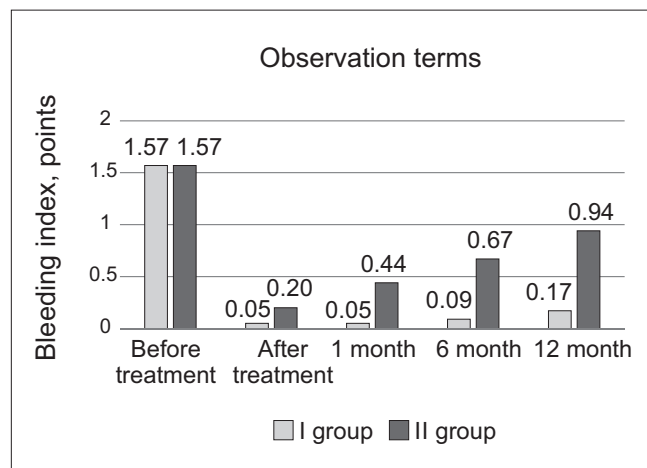


Fig. 3. Dynamics of bleeding index changes during treatment stages

The efficiency of treatment is indicated by changes in oral fluid antioxidant system data changes. The values of MDA (fig. 4) in both groups significantly improved after treatment, and were 0.21 ± 0.01 nmol/ml and 0.23 ± 0.02 nmol/ml, respectively, in I and II groups ($p < 0.001$). In a long term after treatment data of I group was more stable compared with II group, and at 12 months was 0.48

± 0.02 nmol/ml, which was much better than in II group – 0.87 ± 0.03 nmol/ml ($p < 0.001$).

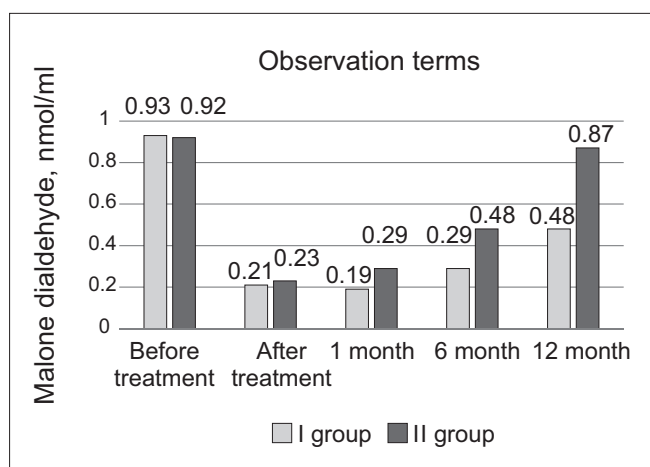


Fig. 4. Dynamics of malone dialdehyde index changes during treatment stages

An improvement in oral fluid antioxidant system is observed with SOD indicator changes (fig. 5). The value of this indicator improved after treatment in I and II groups from 19.37 ± 0.55 $\mu\text{mol}/\text{min} \cdot \text{mg}$ and 20.11 ± 0.54 $\mu\text{mol}/\text{min} \cdot \text{mg}$ to 67.14 ± 2.3 $\mu\text{mol}/\text{min} \cdot \text{mg}$ and 53.77 ± 1.56 $\mu\text{mol}/\text{min} \cdot \text{mg}$, respectively ($p < 0.001$). In a long term indicators in I group were more stable compared to II group, and within a year after treatment were 54.37 ± 2.04 $\mu\text{mol}/\text{min} \cdot \text{mg}$ in I group and 35.29 ± 1.62 $\mu\text{mol}/\text{min} \cdot \text{mg}$ in II group, which was statistically confirmed ($p < 0.001$).

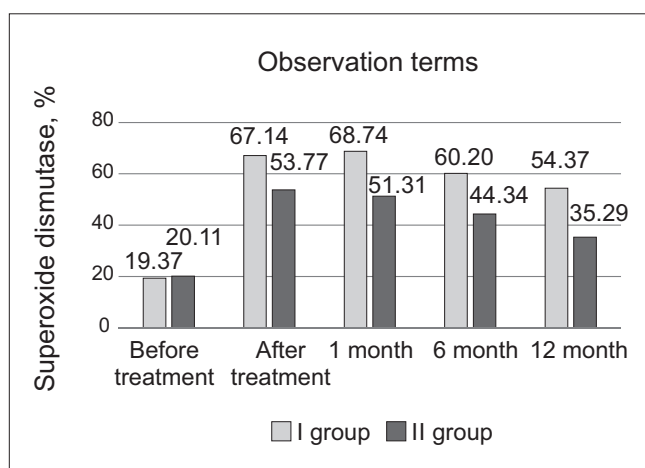


Fig. 5. Dynamics of superoxide dismutase index changes during treatment stages

CONCLUSIONS

As a result of treatment, positive results were obtained in both groups, which indicates the stabilization of the pathological process in periodontal tissues. However, it should be noted that the results of treatment in I group are significantly better compared to II group. This indicates that "Noofen" is effective in treating GP patients with increased level of emotional sensitivity.

PROSPECTS FOR FURTHER RESEARCH

We plan to further study the impact of improved treatment in students with different stages GP of third, fourth and fifth course medical university.

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