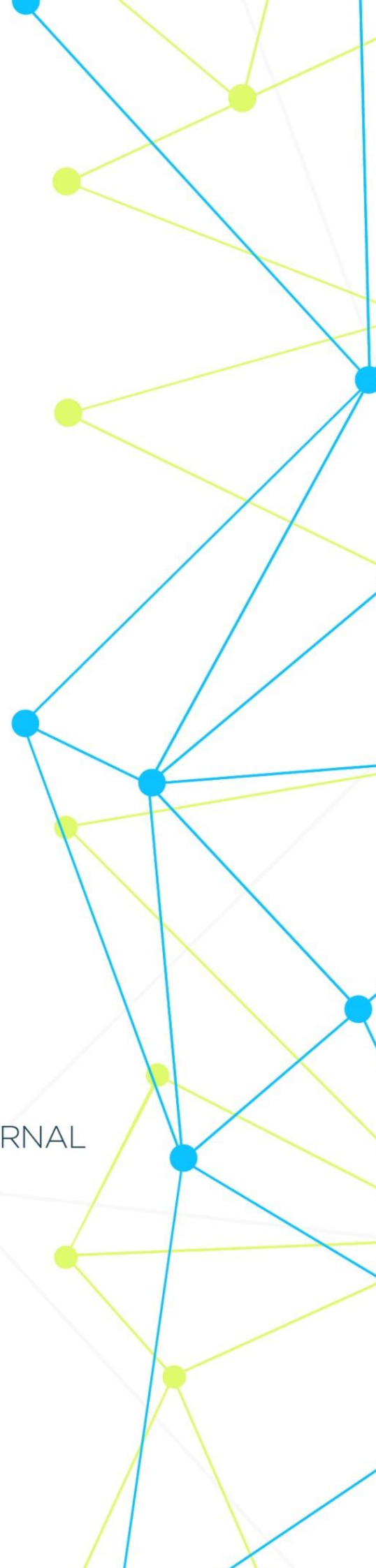


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Study of the application of magnetotherapy in complex with ganoderma lucidum extract on the state of the immunocompetent system in the treatment of patients with dual ultra disease with dysbiosis.

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### **Abstract**

**Purpose of the study:** to study and scientifically substantiate the use of magnetotherapy in combination with synbiotics in the rehabilitation treatment of patients with intestinal dysbiosis.

**Research methods:** 90 patients with colonic dysbiosis, 53 women and 25 men, aged 18-65 years, were studied.

**Treatment methods.** In accordance with the objectives of the study, all patients were divided into groups comparable in terms of the main clinical and physiological characteristics. Patients of the first group (30 patients) were treated with magnetic therapy (MT) from the "Olymp-1" apparatus.

The impact was carried out by 4 pairs of inductors - solenoids on the area of projection of the organs of the large intestine; exposure parameters: intensity - 30% - 100%, frequency 10 Hz, magnetic induction value - 5 mT. The procedures were carried out daily, lasting 15-20 minutes. The course of treatment is 10-12 procedures. Patients of the second group (30 patients) underwent complex treatment: MT according to the above method, as well as a synbiotic consisting of an extract of Ganoderma Lucidum - 1 capsule 2 times a day with meals for 21 days

In the third comparison group (30 patients), the effect of MT from the "Olymp-1" apparatus (placebo) was imitated. The course of treatment consisted of 10-12 procedures. Ganoderma Lucidum extract was included in the treatment complex according to the above scheme.

The results of the studies conducted suggest that the proposed complex treatment potentiates and prolongs the analgesic and anti-inflammatory effects, has an immunocorrective effect, promotes the growth of saccharolytic microflora, restores the dynamic balance of the intestinal microflora and biotope, improves the functional state of the intestine, and has a positive effect on the psycho-emotional state of patients with DU. with accompanying DC.

**Keywords** DU, DC, frequency,

The development of physiotherapeutic and biocorrective technologies of restorative medicine for diseases accompanied by the involvement in the pathological process of systems that provide adaptive reactions in the body, especially immune, metabolic, antitoxic, enzymatic, cytoprotective, etc., is one of the urgent tasks of modern medicine. (Krasnopolsky V.I. et al., 1999; Savelyeva G.M., 1999; Yaglov V.V., 2001; Vikhlyaeva EM, 2012).

One of the components of the pathological symptom complex in duodenal ulcer disease is the development of dysbiotic conditions, which is associated, among other things, with the use of antibacterial therapy according to the recommendations

of all the protocols of the Maastricht Consensus. In the scientific literature there are data indicating a 100% combination of some diseases with intestinal dysbiosis (DC) (Strizhova N.V. et al., 2001; Pasma N.M. et al., 2006), which leads to the formation of a syndrome of mutual burden, and thus complicates the treatment of this category of patients. The experience of using synbiotics (SG) in gastroenterological practice is widely presented in the literature (Gusakova E.V., 2005; Efendieva M.T. et al., 2006; Ushkalova E.A., 2007; Gionchetti P. et al., 2006; McFarland LV, 2006). The results of recent studies give reason to consider the methods of physical therapy as one of the most promising, given the possibility of their differentiated and targeted impact on various links of the pathogenesis of the disease, an increase in the adaptive and reserve capabilities of the body with a minimum risk of developing side and allergic reactions (Strugatsky V.M. et al., 1999; Razumov A.N., 2002).

Various methods of physiotherapy are successfully used in gastroenterological practice. At the same time, the experience of using magnetotherapy in the treatment of intestinal diseases (Serdyuk V.V., 2004, Eremina A.A., 2007) is limited. The theoretical prerequisite for the use of magnetic therapy (MT) in patients with intestinal dysbiosis is the data of previous studies, indicating its beneficial effect on the state of the body's regulatory systems, an increase in adaptive reactions, an improvement in regional hemodynamics in patients with various pathologies (Bogo Lyubov V.M. et al., 1998; Berkutova AM et al., 2000), which is important in the treatment of this category of patients. Immunity disorders play one of the central places in the pathogenesis of DU and DC.

Savelyeva G.M. et al., 1997; V. I. Kulakov et al., 1998), in connection with which it was given attention to the study of the mechanism of action of MT as a method of monotherapy for local influence, as well as in combination with the extract of *Ganoderma Lucidum* on the state of the immune system.

Objective: to study the use of magnetic therapy in combination with *Ganoderma Lucidum* extract on the state of the immune system in the treatment of patients with duodenal ulcer disease with intestinal dysbiosis.

Research methods: 90 patients with colonic dysbiosis, 53 women and 25 men, aged 18-65 years, were studied.

In addition to general clinical studies, laboratory diagnostics of DC were carried out according to the method developed by F.L. Vilypansky (1970), endoscopic examination of the colon using the Olympus apparatus, histological examination of biopsy specimens of the colon mucosa, assessment of the immune status using tests that give an idea of the quantitative indicators of cellular and humoral immunity: T- and B-lymphocytes, immunoglobulins class G, A, M in peripheral blood (methods of Mjondal et al., 1972; I. Moretta et al., 1975; G. Mancini, 1965), assessment of psychological status using a computer version of the SMOL (Abbreviated Multifactorial Questionnaire for Personality Research) according to the Hare method V.P. (1981), assessment of the psychosomatic state using the SAN test (well-being, activity, mood). The data obtained were processed by the methods of variation statistics using the Microsoft Excel (2007) software package on an IBM PC with the calculation of Student's t-criterion (as modified by Fisher). In the presence of

related samples, the Student's difference test was used. To assess the difference in shares (change in the presence of the sign as a percentage), the alternative F-test was used. Differences between mean values were considered significant at

Treatment methods. In accordance with the objectives of the study, all patients were divided into groups comparable in terms of the main clinical and physiological characteristics. Patients of the first group (30 patients) were treated with magnetic therapy (MT) from the "Olymp-1" apparatus. The impact was carried out by 4 pairs of inductors - solenoids on the area of projection of the organs of the large intestine; exposure parameters: intensity - 30% - 100%, frequency 10 Hz, magnetic induction value - 5 mT. The procedures were carried out daily, lasting 15-20 minutes. The course of treatment is 10-12 procedures. Patients of the second group (30 patients) underwent complex treatment: MT according to the above method, as well as a synbiotic consisting of an extract of *Ganoderma Lucidum* - 1 capsule 2 times a day with meals for 21 days

In the third comparison group (30 patients), the effect of MT from the "Olymp-1" apparatus (placebo) was imitated. The course of treatment consisted of 10-12 procedures. *Ganoderma Lucidum* extract was included in the treatment complex according to the above scheme.

#### Research results:

Analysis of the dynamics of the immune status showed the benefits of complex treatment. This was characterized by the restoration of the balance of the immunoregulatory T-cell subpopulations  $T\gamma$  and  $T\mu$  and an improvement in their ratio due to a clearer differentiation of T-lymphocytes in the thymus, as well as a significant increase ( $p < 0.05$ ) of the immunoregulatory index. The study of the immunological parameters of the patients of the 1st and 3rd groups revealed the restoration of only the immunoregulatory subpopulation of  $T\mu$ -lymphocytes. At the immunoregulatory index did not change significantly. The final assessment of the effectiveness of the treatment showed the benefits complex therapy. So, at the end of the course of treatment, a significant improvement was noted 10% of patients in the 1st, 40% - in the 2nd group; improvement in 46.7% of patients 1st, 43.3% 2nd and 43.3% - 3rd group. 43.3% of patients in 1st, 16.7% - 2nd and 56.6% finished without treatment effect.

- 3rd group. The values of the Pearson criterion in the distribution of treatment results in the two main groups versus the comparison group were, respectively,  $\chi^2 = 10.2$ ;  $p = 0.038$   $\chi^2 = 16.2$ ;  $p = 0.014$ . Long-term results of treatment showed that, on average, the achieved positive treatment effects persisted for 3 months in 40% in group 1, in 66.7% in group 2 th group. Exacerbation of the disease after 3 months was noted in 28.6% of patients with 1st and 33.3% - 3rd group. In the 2nd group for the specified period of exacerbation of the inflammatory process was not observed. After 6 months, the positive effect persisted in 23.3% of patients 1 th; 46.7% - 2nd group. Exacerbation of the disease after 6 months occurred in 47.6% of pain 1st, 13.3% - 2nd and 57.1% - 3rd groups. After 12 months, the positive effect persisted. It was found in 13.3% of patients in the 1st and 35% in the 2nd groups. Exacerbation of the inflammatory process Res 12 months was observed in 66.7% of patients in the

1st, and 66.7% in the 3rd and 20% in the 2nd groups. Bole high efficiency of treatment based on long-term results is verified reliably by the values of the Pearson  $\chi^2$  criterion for two main groups versus the control with were set integrally over 12 months of observation (respectively for groups 1 and 2 -  $\chi^2 = 23.8$   $p = 0.026$  and  $\chi^2 = 28.5$ ;  $p = 0.011$ ).

Thus, the results of the studies carried out made it possible to identify a number of positions. the positive effects of magnetotherapy in combination with the extract of ganoderma lucidum in the influence on various links in the pathogenesis of the studied pathology. The vasotropic effect plays an important role in the realization of the therapeutic effect of magnetotherapy. The result of the improvement in regional hemodynamics, which was observed in the majority of the surveyed, was a decrease in inflammation in the gastric mucosa, which, to a certain extent, contributed to the improvement of digestion. The most pronounced effect was observed in patients with initial intestinal dysbiosis. Complex treatment potentiates and prolongs the analgesic and anti-inflammatory effects, has an immunocorrective effect, promotes the growth of saccharolytic microflora, restores the dynamic balance of the intestinal microflora and biotope, improves the functional state of the intestine, positively affects the psycho-emotional state of patients with DU with concomitant DC.

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