

**EFFECTIVENESS OF MAGNETIC THERAPY IN PATIENTS WITH
DUODENAL ULCER ASSOCIATED WITH
INTESTINAL DYSBIOSIS**



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ABSTRACT

Duodenal ulcer associated with *Helicobacter pylori* infection remains one of the major clinical problems in contemporary gastroenterology. Long-term eradication therapy and irrational antibiotic administration frequently result in intestinal dysbiosis, leading to disturbances of intestinal microbiocenosis, decreased immune resistance, and deterioration of patients' quality of life. The present study aimed to evaluate the therapeutic efficacy of magnetic therapy combined with *Ganoderma lucidum* extract in patients suffering from duodenal ulcer and intestinal dysbiosis.

A total of 200 patients were enrolled and divided into three clinical groups receiving standard eradication therapy, eradication therapy combined with magnetic therapy, and complex therapy including magnetic therapy together with *Ganoderma lucidum* extract. Clinical manifestations, microbiological parameters, immunological indicators, and psychoemotional status were assessed before and after treatment.

The findings demonstrated that combined therapy significantly improved intestinal microbiocenosis by increasing bifidobacteria and lactobacilli while reducing pathogenic flora and *Candida* species. Moreover, magnetic therapy enhanced microcirculation and regenerative processes, whereas *Ganoderma lucidum* exhibited pronounced immunomodulatory and antioxidant activity. Patients receiving complex therapy showed marked regression of abdominal pain, flatulence, nausea, and diarrhea, accompanied by normalization of psychoemotional status and improvement of overall quality of life.

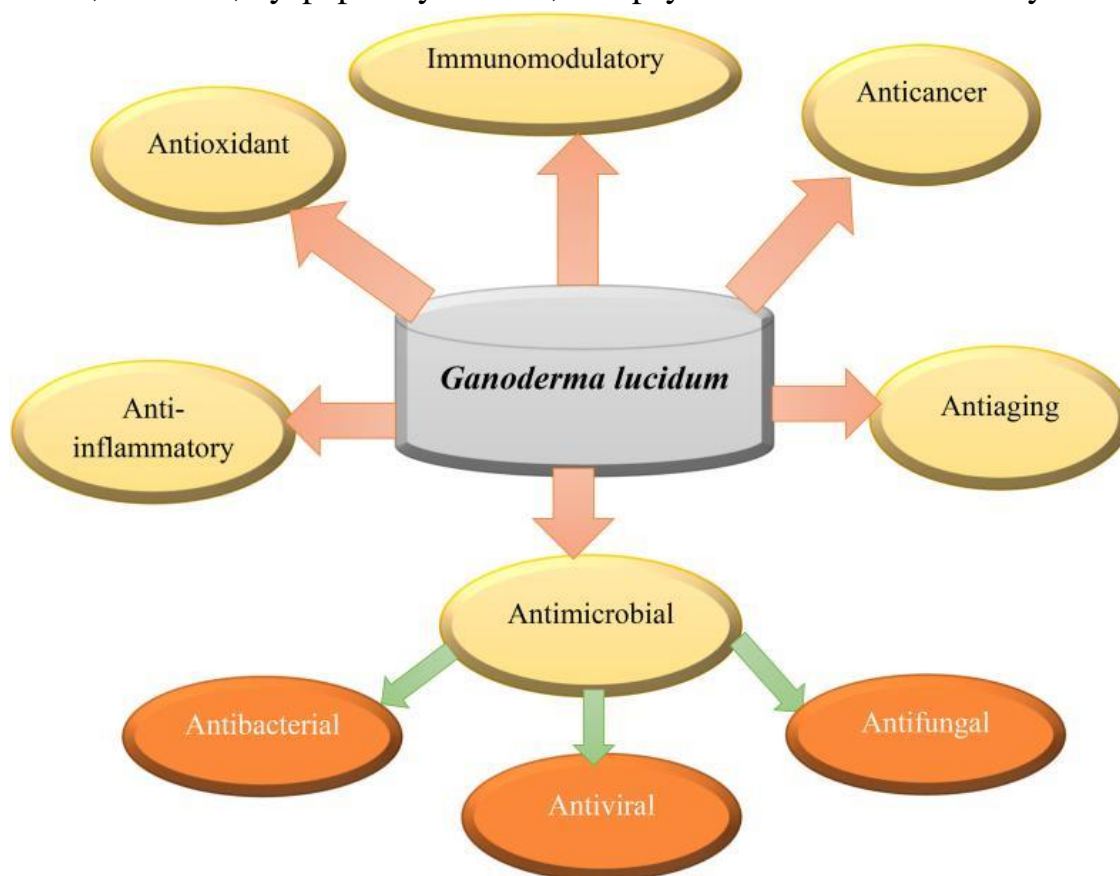
The obtained results confirm that magnetic therapy and *Ganoderma lucidum* extract represent promising adjunctive methods in the комплекс management of gastroenterological diseases complicated by intestinal dysbiosis.

Keywords: *Helicobacter pylori*, duodenal ulcer, intestinal dysbiosis, magnetic therapy, *Ganoderma lucidum*, microbiocenosis, probiotics, immunity, gastroenterology.

INTRODUCTION

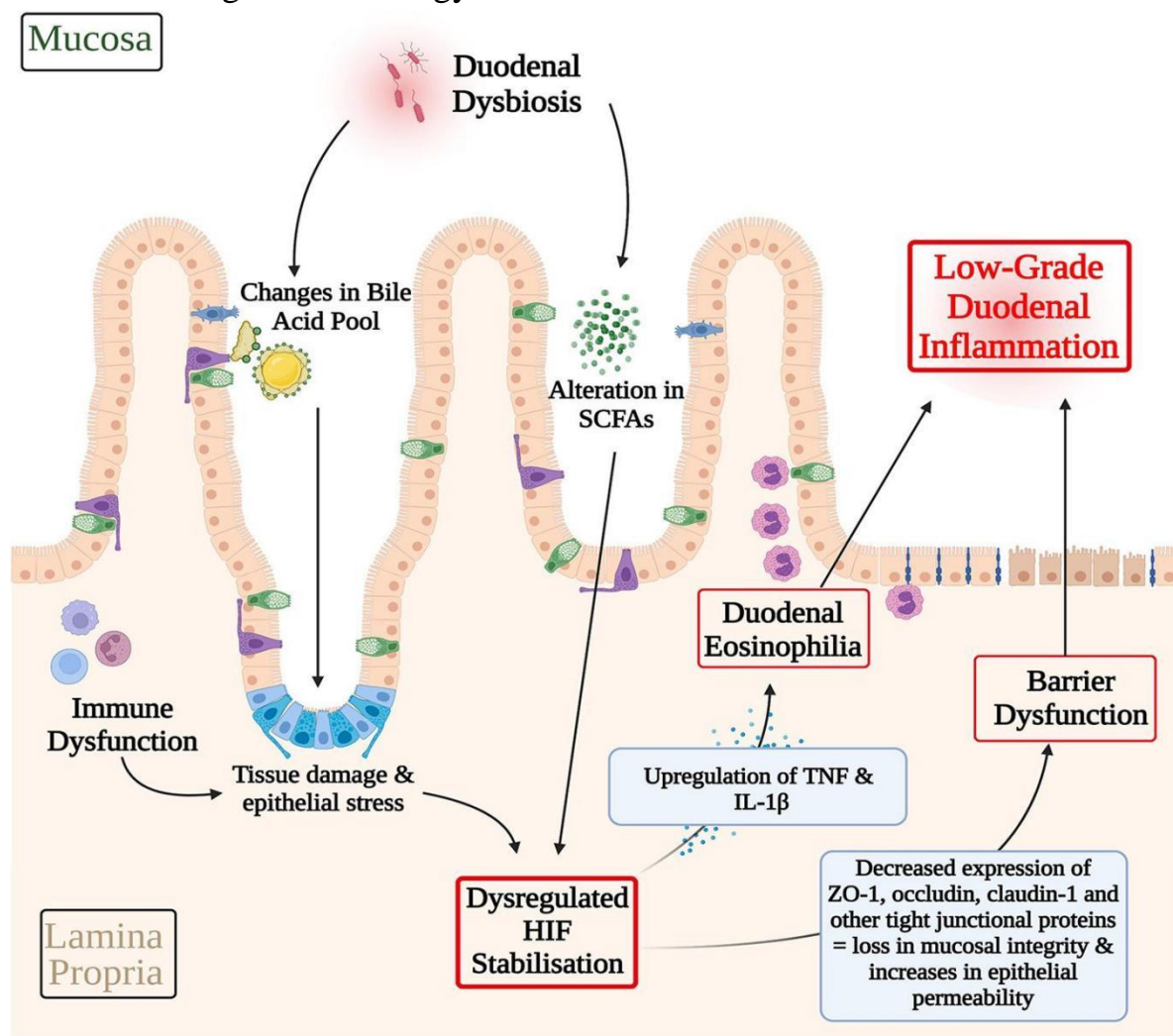
Duodenal ulcer disease is among the most prevalent chronic disorders of the gastrointestinal tract and constitutes an important medical and social problem worldwide. According to epidemiological data reported by the World Health Organization, approximately 8–10% of the global population suffers from peptic ulcer disease, with *Helicobacter pylori* infection recognized as one of the principal etiological factors responsible for mucosal inflammation and ulcerogenesis.

Although eradication therapy has considerably reduced the prevalence of *Helicobacter pylori*, prolonged antibiotic use frequently disrupts the physiological intestinal microbiota. Such alterations contribute to the development of intestinal dysbiosis characterized by decreased populations of beneficial microorganisms, proliferation of opportunistic pathogens, impaired metabolic activity, and suppression of immune function. Clinically, these disturbances manifest as abdominal discomfort, meteorism, diarrhea, dyspeptic syndrome, and psychoemotional instability.



In recent years, increasing attention has been directed toward non-pharmacological therapeutic approaches capable of enhancing treatment effectiveness while minimizing adverse effects. Among these methods, magnetic therapy occupies an important place due to its anti-inflammatory, analgesic, regenerative, and immunomodulatory properties. Simultaneously, biologically active natural compounds derived from medicinal mushrooms, particularly *Ganoderma lucidum*, have gained scientific interest because of their high content of polysaccharides, triterpenoids, amino acids, and antioxidant substances capable of modulating immune responses and restoring intestinal homeostasis.

Therefore, the development of combined therapeutic approaches incorporating magnetic therapy and natural biologically active compounds represents a promising direction in modern gastroenterology.



AIM OF THE STUDY

To evaluate the clinical, microbiological, and immunological effectiveness of magnetic therapy combined with *Ganoderma lucidum* extract in patients with *Helicobacter pylori*-associated duodenal ulcer complicated by intestinal dysbiosis.

ANALYSIS

The conducted study demonstrated that complex therapy including magnetic therapy and *Ganoderma lucidum* extract produced significantly better therapeutic outcomes in patients with *Helicobacter pylori*-associated duodenal ulcer complicated by intestinal dysbiosis compared with standard eradication therapy alone.

The obtained clinical results showed that prolonged antibacterial treatment negatively affected intestinal microbiocenosis by reducing beneficial microflora, particularly bifidobacteria and lactobacilli, while simultaneously promoting the growth of opportunistic microorganisms and *Candida* species. These microbiological alterations contributed to worsening gastrointestinal symptoms, including abdominal pain, meteorism, nausea, diarrhea, and dyspeptic disorders.

Application of magnetic therapy positively influenced microcirculatory processes, tissue trophism, and mucosal regeneration. Owing to its anti-inflammatory and analgesic effects, magnetic therapy accelerated ulcer healing, reduced inflammatory manifestations, and improved patients' general functional status. In addition, magnetic fields stimulated local blood circulation and metabolic activity, which enhanced reparative processes in the gastrointestinal mucosa.

Ganoderma lucidum extract demonstrated pronounced immunomodulatory, antioxidant, and adaptogenic properties. The biologically active polysaccharides and triterpenoids contained in the mushroom contributed to normalization of immune parameters, suppression of oxidative stress, and restoration of intestinal microbial balance. The extract also promoted increased colonization by beneficial intestinal bacteria while inhibiting pathogenic microflora.

The most significant therapeutic improvements were observed in the group receiving combined therapy consisting of eradication treatment, magnetic therapy, and *Ganoderma lucidum* extract. In this group, regression of abdominal pain syndrome, flatulence, diarrhea, and psychoemotional disturbances occurred more rapidly than in the comparison groups. Furthermore, quality-of-life indicators improved considerably, confirming the synergistic effect of the proposed комплекс treatment approach.

The study findings support the concept that non-pharmacological physiotherapeutic methods together with natural biologically active compounds can

substantially enhance the effectiveness of conventional gastroenterological treatment while minimizing adverse consequences associated with prolonged antibiotic therapy.

1. Helicobacter pylori-associated duodenal ulcer is frequently accompanied by intestinal dysbiosis resulting from prolonged eradication therapy and disturbances of intestinal microbiocenosis.

2. Standard antibacterial therapy alone does not fully restore intestinal microflora and may contribute to immune dysfunction and gastrointestinal complications.

3. Magnetic therapy exerts anti-inflammatory, regenerative, analgesic, and microcirculatory effects, thereby improving mucosal healing and reducing clinical symptoms.

4. Ganoderma lucidum extract possesses significant immunomodulatory and antioxidant activity, contributing to restoration of intestinal homeostasis and normalization of microbiological indicators.

5. Combined therapy including magnetic therapy and Ganoderma lucidum extract demonstrated superior clinical, microbiological, and psychoemotional outcomes compared with conventional treatment alone.

6. The комплекс therapeutic approach improved patients' quality of life, accelerated recovery, and reduced manifestations of intestinal dysbiosis.

7. Magnetic therapy together with Ganoderma lucidum extract may be recommended as a promising adjunctive treatment strategy in modern gastroenterological practice for patients with duodenal ulcer complicated by intestinal dysbiosis.

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