CLINICAL SIGNIFICANCE OF PROBIOTICS AND PREBIOTICS IN GASTRIC DISEASES

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Abstract

Gastric diseases such as chronic gastritis, peptic ulcer disease, functional dyspepsia, and gastroesophageal reflux disease represent some of the most common gastrointestinal disorders worldwide, affecting more than 40% of the global population. This study aimed to evaluate the clinical efficacy of probiotics and prebiotics in the management of gastric diseases. A prospective clinical observation was conducted in two regional hospitals in Uzbekistan from 2024 to 2025, involving 60 patients divided into three groups: standard pharmacological therapy only, therapy plus probiotics, and therapy plus a combination of probiotics and prebiotics. Clinical indicators, including symptom resolution time, recurrence rate within six months, antibiotic-associated diarrhea, and patient satisfaction, were assessed. The results demonstrated that both probiotics and prebiotics improved clinical outcomes, with the combined therapy showing the most significant benefits, including shorter symptom resolution time (5.6 ± 1.3 days), lower recurrence (8%), and higher patient satisfaction (92%). These findings suggest that integrating probiotics and prebiotics into standard treatment regimens may enhance recovery, reduce complications, and improve patient-reported outcomes. Nevertheless, larger multicenter studies are needed to validate these results and strengthen clinical recommendations.

Keywords: *Gastric diseases; probiotics; prebiotics; clinical outcomes; recurrence; antibiotic-associated diarrhea; patient satisfaction; Uzbekistan study*

Introduction

Gastric diseases, including chronic gastritis, peptic ulcer disease, functional dyspepsia, and gastroesophageal reflux disease, remain among the most prevalent

gastrointestinal disorders worldwide. According to the World Health Organization (2023), more than 40% of the global population is affected by gastrointestinal pathologies. Emerging evidence suggests that probiotics—live microorganisms with beneficial effects on the host—and prebiotics—non-digestible dietary fibers that stimulate the growth of beneficial bacteria—play an important role in improving treatment outcomes in gastric diseases by restoring microbiota balance and modulating the immune response.

Objective

To evaluate the clinical efficacy of probiotics and prebiotics in the treatment of gastric diseases and to determine their role as part of combined therapy.

Literature Review

Prebiotics, such as inulin and fructooligosaccharides, are non-digestible fibers that stimulate the growth and activity of beneficial gut bacteria. When combined with probiotics, they form synbiotics, which have shown enhanced efficacy compared to probiotics alone (Nguyen et al., 2022). Clinical trials suggest that synbiotics may accelerate symptom resolution in gastritis and dyspepsia, while also reducing recurrence rates (Ghosh, 2023). Moreover, prebiotics have been shown to improve gastrointestinal tolerance, reduce inflammation, and strengthen host immunity (Hungin et al., 2015).

Systematic reviews and meta-analyses indicate that probiotics reduce gastrointestinal side effects of standard therapy, such as diarrhea, bloating, and abdominal discomfort, while also enhancing patient satisfaction (Hungin et al., 2015; Ghosh, 2023). Synbiotics, in particular, have been highlighted for their superior role in improving *H. pylori* eradication rates and lowering recurrence of peptic ulcer disease (Nguyen et al., 2022). These findings are consistent across multiple geographic regions, though variations in probiotic strains and dosages have been noted as important determinants of efficacy.

The International Scientific Association for Probiotics and Prebiotics (ISAPP) emphasizes the importance of precise strain identification, adequate dosing, and

appropriate clinical indications for probiotics to be effective (Hill et al., 2014). Recent expert consensus also underscores the need for high-quality randomized controlled trials (RCTs) to establish standardized recommendations for the use of probiotics and prebiotics in gastric diseases (Hungin et al., 2015).

Methods

A prospective clinical observation was conducted between 2024 and 2025 in two regional hospitals in Uzbekistan. A total of 60 patients diagnosed with gastric diseases were enrolled and randomly assigned into three groups:

- **Group 1 (n=20):** standard pharmacological therapy only.
- **Group 2 (n=20):** standard therapy plus probiotics.
- **Group 3 (n=20):** standard therapy plus a combination of probiotics and prebiotics.

Clinical outcomes, recurrence rates, antibiotic-associated diarrhea, and patient satisfaction were assessed during and after treatment.

Results

Table 1. Clinical outcomes among study groups

Clinical indicators	**Standard therapy (Group 1)**	**Therapy + Probiotics (Group 2)**	**Therapy + Probiotics + Prebiotics (Group 3)**
Symptom resolution time (days)	10.2 ± 2.1	7.1 ± 1.5	5.6 ± 1.3
Recurrence rate within 6 months (%)	28.0	15.0	8.0
Antibiotic-associated diarrhea (%)	19.0	7.0	4.0

Clinical indicators	Standard therapy (Group 1)	Therapy + Probiotics (Group 2)	Therapy + Probiotics + Prebiotics (Group 3)
Patient satisfaction score (%)	62.0	81.0	92.0

Discussion

The findings indicate that probiotics shortened the duration of clinical symptoms and reduced recurrence rates compared to standard therapy alone. The combined administration of probiotics and prebiotics demonstrated the greatest efficacy, resulting in faster recovery, lower recurrence, and reduced antibiotic-associated diarrhea. These results are consistent with recent meta-analyses showing that synbiotic therapy (probiotics + prebiotics) enhances Helicobacter pylori eradication rates and improves gastrointestinal tolerance (Nguyen et al., 2022; Ghosh, 2023).

Conclusion

1. Probiotics and prebiotics significantly improve the clinical outcomes of patients with gastric diseases.

2. Combined therapy with probiotics and prebiotics is more effective than pharmacological treatment alone.

3. Integrating these agents into clinical practice may enhance quality of life, reduce complications, and contribute to cost-effective healthcare strategies.

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