EURASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES
Innovative Academy Research Support Center
IF = 9.2
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EVALUATION OF THE EFFECTIVENESS OF H2 HISTAMINE RECEPTOR BLOCKERS IN THE RATIONAL PHARMACOTHERAPY OF GASTROINTESTINAL TRACT DISEASES

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https://doi.org/10.5281/zenodo.19483762

ARTICLE INFO

Received: 01st April 2026
Accepted: 08th April 2026
Online: 09th April 2026

KEYWORDS

Gastrointestinal tract, H2 histamine blockers, pharmacotherapy, ulcer disease, gastritis, efficacy.

ABSTRACT

Gastrointestinal tract diseases (gastritis, gastric, and duodenal ulcers) are widespread worldwide and have serious socio-economic consequences. This study evaluated the effectiveness of H2 histamine receptor blockers in pharmacotherapy. The clinical status, complaints, laboratory tests, and endoscopic findings of patients were analyzed to assess treatment outcomes. The results demonstrated that H2 blockers effectively reduce gastric acid secretion, accelerate the healing process of ulcers, and alleviate clinical symptoms. The findings confirm the effectiveness of H2 blockers in the treatment of gastrointestinal tract diseases and support their use in rational pharmacotherapy.

ОЦЕНКА ЭФФЕКТИВНОСТИ Н2-ГИСТАМИНОВЫХ РЕЦЕПТОРНЫХ БЛОКАТОРОВ В РАЦИОНАЛЬНОЙ ФАРМАКОТЕРАПИИ ЗАБОЛЕВАНИЙ ЖЕЛУДОЧНО-КИШЕЧНОГО ТРАКТА

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https://doi.org/10.5281/zenodo.19483762

ARTICLE INFO

Received: 01st April 2026
Accepted: 08th April 2026
Online: 09th April 2026

KEYWORDS

Желудочно-кишечный тракт, Н2-гистаминоблокаторы, фармакотерапия, язвенная болезнь, гастрит, эффективность.

ABSTRACT

Заболевания желудочно-кишечного тракта (гастрит, язвы желудка и двенадцатиперстной кишки) широко распространены во всем мире и имеют серьезные социально-экономические последствия. В данном исследовании оценивалась эффективность Н2-гистаминоблокаторов в фармакотерапии. Для анализа результатов лечения учитывались клиническое состояние пациентов, их жалобы, данные лабораторных исследований и эндоскопии. Результаты показали, что Н2-блокаторы эффективно снижают секрецию желудочного сока, ускоряют заживление язв и уменьшают клинические

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симптомы. Полученные данные подтверждают эффективность H2-гистаминоблокаторов в лечении заболеваний желудочно-кишечного тракта и обосновывают их использование в рациональной фармакотерапии.

OSHQOZON-ICHAK TRAKTI KASALLIKLARINI RATSIONAL FARMAKOTERAPIYASIDA H2 GISTAMIN RETSEPTOR BLOKATORLARINING SAMARADORLIGINI BAHOLASH

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https://doi.org/10.5281/zenodo.19483762

ARTICLE INFO

Received: 01st April 2026
Accepted: 08th April 2026
Online: 09th April 2026

KEYWORDS

Oshqozon-ichak trakti, H2 gistamin blokatorlari, farmakoterapiya, yara kasalligi, gastrit, samaradorlik.

ABSTRACT

Oshqozon-ichak trakti kasalliklari (gastrit, oshqozon va 12 barmoq ichak yarasi) dunyo bo‘ylab keng tarqalgan va jiddiy ijtimoiy-iqtisodiy oqibatlarga ega. Ushbu tadqiqotda H2 gistamin retseptor blokatorlarining farmakoterapiyada samaradorligi baholandi. Ishda bemorlarning klinik holati, shikoyatlari, laborator tekshiruvlari va endoskopik ma’lumotlari asosida davolash natijalari tahlil qilindi. Natijalar H2 blokatorlarining oshqozon shirasini sekretsiyasini samarali kamaytirishi, yara jarayonini tezlashtirishi va klinik simptomlarni kamaytirishi bilan bog‘liq ekanligini ko‘rsatdi. Tadqiqot natijalari oshqozon-ichak trakti kasalliklarini davolashda H2 blokatorlarining samaradorligini tasdiqlaydi va ularni ratsional farmakoterapiyada qo‘llashni asoslaydi.

Introduction. Gastrointestinal diseases constitute one of the most prevalent and clinically significant groups of pathological conditions in modern medicine. Their etiopathogenesis is highly complex, encompassing a dynamic interaction between genetic predisposition, environmental factors, the microbiome, immune mechanisms, and socio-behavioral determinants. The gastrointestinal tract is not only responsible for digestion and absorption but also performs essential endocrine, immune, and neuroregulatory functions; therefore, disturbances at any of these levels may lead to long-term pathological alterations.

In recent decades, advances in molecular biology, microbiome research, immunology, and clinical gastroenterology have enabled researchers to reassess traditional concepts and identify novel mechanistic pathways underlying gastrointestinal pathology [1]. Peptic ulcer disease and

chronic gastritis significantly impair patients' quality of life, reduce work capacity, and may lead to severe complications, including bleeding, perforation, and malignant transformation. From a pathophysiological perspective, these conditions are associated with excessive gastric acid secretion, insufficient functioning of mucosal protective mechanisms, and infection with Helicobacter pylori. Regulation of these mechanisms can contribute to slowing down or even halting the progression of ulcerative processes. H2 histamine receptor blockers are effective agents that inhibit gastric acid secretion, and their therapeutic efficacy has been confirmed by both clinical and endoscopic outcomes. These drugs are characterized by their ability to rapidly reduce gastric acidity, accelerate ulcer healing, alleviate dyspeptic symptoms, and protect the gastric mucosa.

In addition, it is important to highlight the historical background of the discovery of H2 histamine receptor blockers. The identification of histamine H_2 receptors in gastric parietal cells and the synthesis of selective antagonists in the early 1970s represented a major breakthrough in this therapeutic field. The first H_2 receptor antagonist, cimetidine, developed by Sir James Black and his colleagues, marked a new era in treatment by introducing a rational pharmacological approach to suppress gastric acid secretion.

Subsequently, newer H_2 blockers such as ranitidine, famotidine, and nizatidine were developed, demonstrating improved safety profiles and enhanced efficacy compared to earlier agents. Despite the later introduction of proton pump inhibitors, H_2 receptor antagonists have retained their clinical relevance due to their effectiveness, cost-efficiency, and favorable safety profile in specific patient populations [1].

Materials and Methods. The study was conducted between 2023 and 2025 at the gastroenterology department in Tashkent. A total of 60 patients (30 males and 30 females, aged 18–65 years) were included in the study. Patients were selected based on the presence of peptic ulcer disease, chronic gastritis, and dyspeptic symptoms. All patients underwent a comprehensive evaluation, including collection of clinical history and assessment of presenting complaints. Laboratory investigations included complete blood count, biochemical analysis (gastric acidity and pepsinogen levels), and testing for Helicobacter pylori. Endoscopic examinations were performed to assess the condition of the gastric and duodenal mucosa. Patients were divided into two groups for treatment: group I (n=30): received an H2 histamine receptor blocker (ranitidine 150 mg twice daily) for 6 weeks. Group II (n=30): received standard pharmacotherapy, including antacids and prokinetic agents.

Treatment outcomes were evaluated by comparing clinical symptoms, endoscopic findings, and laboratory parameters before the initiation of therapy and after 6 weeks of treatment. Statistical analysis was performed using Student's t-test and the chi-square (χ^2) test. In addition, a subgroup of patients with genetic predisposition was also included in the

observation. This is because genetic susceptibility plays a crucial role in a number of gastrointestinal disorders, particularly inflammatory bowel diseases (IBD), celiac disease, hereditary colorectal cancers, pancreatic disorders, and functional motility disturbances. Genome-wide association studies have identified multiple susceptibility loci, including NOD2, IL23R, ATG16L1, and MUC19, which influence immune responses, epithelial barrier integrity, and autophagy pathways. The interaction between these genetic factors and environmental influences such as infections, dietary habits, and microbiome dysbiosis determines individual vulnerability to disease.

For instance, in celiac disease, the HLA-DQ2 and HLA-DQ8 haplotypes provide the molecular basis for gluten antigen presentation, rendering the adaptive immune system highly sensitive to gliadin peptides. Furthermore, hereditary gastrointestinal cancers are frequently associated with mutations in genes such as APC, MLH1, BRCA1, STK11, and others, which disrupt genomic stability and the regulation of the cell cycle. These genetic factors do not act independently; rather, they shape the host's immune and metabolic landscape, thereby creating a permissive environment for the development and progression of subsequent pathological processes [2].

Analysis and Discussion. The results of the study demonstrated that H2 histamine receptor blockers have high clinical efficacy in the treatment of gastrointestinal diseases. The rapid reduction of dyspeptic symptoms can be explained by their effective inhibition of gastric acid secretion. This significantly improves patients' quality of life and helps prevent disease-related complications. Endoscopic findings revealed that H2 blockers accelerate ulcer healing, protect the gastric mucosa, and reduce inflammatory processes. These findings are consistent with laboratory results, which showed a decrease in gastric acidity and stabilization of pepsinogen levels, occurring in parallel with clinical improvement.

The results observed in Group II indicate that treatment without H2 blockers is less effective. This finding confirms the necessity of incorporating these agents as a key component of rational pharmacotherapy. In comparison with global literature, Malfertheiner P. et al. (2009) reported that H2 blockers accelerate ulcer healing by approximately 50–70%. In addition, H2 receptor antagonists are characterized by low toxicity and good patient tolerability, which makes them preferable in clinical practice.

However, caution is required when prescribing H2 blockers in patients with hepatic or renal insufficiency; therefore, the development of an individualized treatment regimen is essential.

Results. Group I (H2 blocker treatment): Dyspeptic symptoms were reduced in 80% of patients. Endoscopic examinations revealed a significant decrease in inflammation and erosive changes in the gastric and duodenal mucosa. Laboratory parameters showed a 40% reduction in gastric acidity, and pepsinogen levels stabilized.

Group II (standard therapy): Dyspeptic symptoms were reduced in

40% of patients. The ulcer healing process was slower, and endoscopic improvements were less pronounced compared to Group I. Changes in gastric acidity and pepsinogen levels were minimal. These findings are consistent with global literature: meta-analyses by Malfertheiner et al. (2009) reported that H2 blockers accelerate ulcer healing by 50–70%. Furthermore, the low toxicity of H2 blockers and their good patient tolerability make them preferable in clinical practice. Notably, in patients treated with H2 blockers, the rapid reduction of symptoms and improvement in mucosal condition were statistically significant ($p < 0.05$).

In addition, the high pharmacokinetic and pharmacodynamic efficacy of these agents depends on the internal environment of the gastrointestinal tract, including gastric and intestinal secretions, HCl levels, and the microbiota. The intestinal microbiome is now recognized as a central determinant in the etiopathogenesis of gastrointestinal diseases. A healthy microbiota is crucial for nutrient metabolism, immune regulation, colonization resistance, maintenance of mucosal integrity, and neurochemical balance. Dysbiosis- a shift in microbial diversity, abundance, or metabolic function- can drive inflammation, metabolic disturbances, and compromise mucosal barrier function. Reduced populations of Bifidobacteria and Lactobacillus, combined with overgrowth of Clostridioides difficile, Escherichia coli, Klebsiella, or other pathobionts, lead to the production of toxic metabolites, epithelial apoptosis, and impaired secretion of antimicrobial peptides [3].

Conclusions. H2 histamine receptor blockers demonstrate high clinical and pathophysiological efficacy in the management of gastrointestinal diseases. A six-week course of treatment significantly reduces dyspeptic symptoms and accelerates ulcer healing. Endoscopic and laboratory evaluations confirm the effectiveness of H2 blockers in protecting the mucosa and controlling gastric acidity. H2 blockers represent a key component of rational pharmacotherapy and provide enhanced therapeutic outcomes when used in combination with standard therapy. Although newer proton pump inhibitors surpass H2 antagonists in potency, H2 blockers continue to play an important role in specific clinical contexts. They are particularly valuable for patients requiring moderate acid suppression, those undergoing polypharmacy, or situations where proton pump inhibitors are contraindicated. Their pharmacological specificity — selective receptor blockade without broad systemic effects — ensures an optimal benefit–risk balance. The ongoing evolution of acid-suppressive therapy highlights the importance of understanding the pharmacodynamic characteristics and clinical applications of each drug class. From this perspective, H2 receptor blockers are not merely historical agents but remain essential tools in evidence-based gastrointestinal pharmacotherapy [5].

The findings of this study provide a scientific basis for designing individualized treatment regimens and can be applied in clinical practice.

References:

1. Malfertheiner P., Chan F.K., McColl K.E.L. Peptic ulcer disease. Lancet. 2009;374:1449–1461.
2. Numonova G.D. Etiopathogenesis of gastrointestinal diseases. Multidisciplinary Journal of Science and Technology. 2025; Uzbekistan, ASMI.
3. Sobirjonov I.T. Specificity of treatment of peptic ulcer disease with H2 histamine blocker drugs. Multidisciplinary Journal of Science and Technology. 2025; Uzbekistan, ASMI.
4. Sachs G., Shin J.M. The pharmacology of H2-receptor antagonists. Aliment Pharmacol Ther. 2008;27:3–8.
5. Vakil N., et al. Gastroesophageal reflux disease: epidemiology and clinical features. Am J Gastroenterol. 2006;101:60–74.
6. Lanza F.L., et al. Guidelines for prevention of NSAID-induced ulcers. Am J Gastroenterol. 2009;104:728–738.
7. Baron T.H., et al. Peptic ulcer disease and H. pylori. N Engl J Med. 2010;362:1597–1608.