

I S S N 2 1 8 1 - 1 9 5 4 E I S S N 2 1 8 1 - 1 9 6 2

YEVROSIYO PEDIATRIYA AXBOROTNOMASI

T I B B I Y I L M I Y - I N N O V A T S I O N J U R N A L

ЕВРАЗИЙСКИЙ ВЕСТНИК ПЕДИАТРИИ
МЕДИЦИНСКИЙ НАУЧНО-ИННОВАЦИОННЫЙ ЖУРНАЛ



№2(20)
2024

Главные редакторы:

ДАМИНОВ Б.Т. (Ташкент)

ИВАНОВ Д.О. (Санкт-Петербург)

Сопредседатели редакционной коллегии:

АБЗАЛОВА Ш. Р. (Ташкент)

АИТОВ К.А. (Иркутск)

АЛЕКСАНДРОВИЧ Ю.С. (Санкт-Петербург)

АКИЛОВ Х.А. (Ташкент)

АЛИЕВ М.М. (Ташкент)

АМОНОВ Ш.Э. (Ташкент)

АРИПОВ А.Н. (Ташкент)

АШУРОВА Д.Т. (Ташкент)

БУЗРУКОВ Б.Т. (Ташкент)

ВАЛИЕВ А.Р. (Ташкент)

ГУЛЯМОВ С.С. (Ташкент)

ДАМИНОВА Ш.Б. (Ташкент)

ДУДАРЕВ М.В. (Россия)

Д.К. МУМИНОВ (Ташкент)

ЗАСЛАВСКИЙ Д.В. (Россия)

ИСКАНДАРОВА А.И. (Ташкент)

ИСКАНДАРОВА Ш.Т. (Ташкент)

ИСМАИЛОВ С.И. (Ташкент)

КАРИЕВ Г.М. (Ташкент)

МАДЖИДОВА Ё.Н. (Ташкент)

МУМИНОВ Д.К. (Ташкент)

МУМИНОВ Ш.К. (Ташкент)

НУРХОДЖАЕВ С.Н. (Ташкент)

ОХЛОПКОВ В.А. (Россия)

ПОДКАМНЕВ А.В. (Санкт-Петербург)

ПУЗЫРЕВ В.Г. (Санкт-Петербург)

РАХМАНКУЛОВА З.Ж. (Ташкент)

РАХМАТУЛЛАЕВ А.А. (Ташкент)

ФУЁНГ ЖИАО (Китай)

СОБИРОВ М.А. (Ташкент)

СОДИКОВА Г.К. (Ташкент)

СОХАЧ А.Я. (Ставрополь)

ТАДЖИЕВ Б.М. (Ташкент)

ТАШМУХАМЕДОВА Ф.К. (Ташкент)

ТАДЖИЕВ М.М. (Ташкент)

ТИМЧЕНКО В.Н. (Санкт-Петербург)

ХАЙТОВ К.Н. (Ташкент)

ХАЙБУЛЛИНА З.Р. (Ташкент)

ХАСАНОВ С.А. (Ташкент)

ШАМАНСУРОВА Э.А. (Ташкент)

ШАМСИЕВ Ф.М. (Ташкент)

ШАРИПОВ А.М. (Ташкент)

ШКЛЯЕВ А.Е. (Россия)

ЮСУПАЛИЕВА Г.А. (Ташкент)

ЮЛДАШЕВ И.Р. (Ташкент)

ЭРГАШЕВ Н.Ш. (Ташкент)

Публикация рекламы на коммерческой основе. За правильность рекламного контента ответственность несет рекламодатель.

Рекламодатели предупреждены редакцией об ответственности за рекламу не зарегистрированных и не разрешенных к применению Министерством здравоохранения РУз лекарственных средств и предметов медицинского назначения.

Рукописи, фотографии, рисунки не рецензируются и не возвращаются авторам. Авторы несут ответственность за достоверность и разрешение на публикацию излагаемых фактов, точность цифровых данных, правильность названий препаратов, терминов, литературных источников, имен и фамилий.

**ЕВРОСИЁ ПЕДИАТРИЯ АХБОРОТНОМАСИ
ЕВРАЗИЙСКИЙ ВЕСТНИК ПЕДИАТРИИ**

Тиббий илмий-инновацион журнал.

Медицинский научно-инновационный журнал.

Учредители:

Ташкентский педиатрический медицинский институт и Санкт-Петербургский государственный педиатрический медицинский университет.

Зарегистрирован агентством информации и массовых коммуникаций при Администрации Президента Республики Узбекистан 08.05.2019 г.

Свидетельство №1023

Журнал с 01.09. 2019 года включен в список ино странных журналов ВАК Республики Узбекистан.

Протокол № 268/7 от 30.08. 2019 года.

Заместители главного редактора:

Гулямов С.С., Орел В.И.

Ответственные секретари:

Л.А.Титова, У.У. Абдуллаева

Заведующий редакцией: Абдуллаева У.У.

РЕДАКЦИОННЫЙ СОВЕТ

АЛИМОВ А.В. (Ташкент)

АСАДОВ Д.А. (Ташкент)

АТАНИЯЗОВА А.А. (Нукус)

АХМЕДОВА Д.И. (Ташкент)

БОРОНБАЕВА Р.З. (Нур-Султан, Казахстан)

ВАСИЛЕНКО В.С. (Санкт-Петербург, Россия)

ДАМИНОВ Т.О. (Ташкент)

ДЕВИЛ Д. (Рим, Италия)

ДЖУМАШАЕВА К.А. (Кыргизистан)

ИНОЯТОВА Ф.И. (Ташкент)

НАБИЕВ З.Н. (Таджикистан)

ОРЕЛ В.И. (Санкт-Петербург, Россия)

ПЕВЕЛЕЦ К.В. (Санкт-Петербург, Россия)

РИКАРДО С. (Вашингтон, США)

КРАСИВИНА Д.А. (Санкт-Петербург, Россия)

СТАРЦЕВ А.И. (Беларусь)

ТУЙЧИЕВ Л.Н. (Ташкент)

ЧОНГ ПЕНГ ЧУНГ (Сеул, Южная Корея)

ШАДМАНОВ А.К. (Ташкент)

ШАМСИЕВ А.М. (Самарканд)

ЭНВЕР ХАСАНОГЛУ (Анкара, Турция)

ЮЛДАШЕВА Н.Ю. (Великобритания)

ЯКОВЛЕВ А.В. (Санкт-Петербург, Россия)

Адрес редакции: Республика Узбекистан, г. Ташкент 100164, ул. Богишамол, дом 223;
Тел: +998 71 260-28-57;
Факс: +998 71 262-33-14;
<https://tashpmi.uz/nauka/nauchnye-zhurnaly/> zhurnal-evrazijskij-vestnik-pediatrii/

ЎЗБЕКИСТОН РЕСПУБЛИКАСИДА СОҒЛИҚНИ САҚЛАШНИ РАҚАМЛАШТИРИШ ЖАРАЁНИГА ҲАМШИРАЛАРНИНГ МУНОСАБАТИ ЎРГАНИШ

Даминова К.М., Вихров И.П.
Тошкент Педиатрия Тиббиёт Институти

A STUDY OF THE ATTITUDE OF NURSES TO THE PROCESS OF DIGITALIZATION OF HEALTHCARE IN THE REPUBLIC OF UZBEKISTAN

Daminova K.M., Vikhrov I.P.
Tashkent Pediatric Medical Institute

Аннотация

Введение:

Ўзбекистонда тиббиёт ҳамширалари тиббий ёрдам кўрсатишда муҳим рол ўйнайдилар, аммо уларнинг рақамли инновацияларга тайёрлиги ўрганилишни талаб қилади. Соғлиқни сақлаш соҳасини рақамлаштириш тиббий хизмат сифатини ва доступлигини оширишда муҳим аҳамиятга эга.

Мақсад ва вазифалар:

Ҳамшираларнинг рақамлаштиришга бўлган муносабатини ўрганиш ва уларнинг ўқув эҳтиёжларини аниқлаш.

Материаллар ва усуллар:

200 нафар ҳамшира ўртасида Google Forms орқали сўров ўтказилди, рақамли кўникмалар ва технологияларга муносабатга оид саволлар берилди.

Натижалар:

Респондентларнинг 51% рақамли технологияларга қизиқиш билдирган, 37% эса уларни касбий фаолият учун фойдали деб ҳисоблаган. Асосий тўсиқлар етарли тайёргарлик ва тажрибани ўз ичига олади.

Хулоса:

Ҳамширалар рақамли инновацияларга тайёрликни кўрсатишмоқда, аммо ўқув ёрдамига муҳтож. Рақамли кўникмалар дастурларини кенгайтириш ва ахборот кампанияларини ўтказиш тавсия қилинади.

Калит сўзлар:

соғлиқни сақлашни рақамлаштириш, ҳамширалар, Ўзбекистон, мобиль иловалар, ўқитиш, рақамли кўникмалар

Abstract

Background:

Nurses in Uzbekistan play a key role in healthcare delivery, yet their readiness for digital innovations requires exploration. Healthcare digitalization is crucial for improving quality and accessibility.

Purposes and Tasks:

To explore nurses' attitudes towards healthcare digitalization and assess their training needs.

Materials and Methods:

A survey of 200 nurses was conducted via Google Forms, including questions on digital skills and attitudes toward digital technologies.

Results:

51% of respondents showed interest in digital technologies, while 37% found them beneficial for professional use. Main barriers include a lack of training and experience.

Conclusion:

Nurses demonstrate a readiness for digital innovations but need educational support. Expanding digital skills programs and information campaigns is recommended.

Keywords:

Healthcare digitalization, nurses, Uzbekistan, mobile applications, training, digital skills

STUDY OF THE RELATIONSHIP BETWEEN GASTROESOPHAGEAL REFLUX DISEASE AND RESPIRATORY DISEASES

Raimkulova N.R., Subkhanova Z.S.
Tashkent Pediatric Medical Institute

Резюме: Исследование выявило связь между гастроэзофагеальной рефлюксной болезнью (ГЭРБ) и обострениями астмы и ХОБЛ. Диагностика включала импеданс-рН-метрию и опросники GERD-Q и ACT. Частота обострений выше у пациентов с ГЭРБ, особенно при бескислотном рефлюксе. Комбинированная терапия ИПП и прокинетики показала наибольшую эффективность. Результаты подчеркивают необходимость комплексного подхода к лечению.

Hulosa: Tadqiqot gastroezofageal reflyuks kasalligi (GERK) bilan astma va XOBLning kuchayishi o'rtasidagi bog'liqlikni aniqladi. Diagnostika impedans-pH monitoringi va GERD-Q hamda ACT savolnomalarini o'z ichiga oldi. Kuchayishlar soni GERK bo'lgan bemorlarda, ayniqsa, beskislotali reflyuks holatida yuqori bo'ldi. IPP va prokinetiklarni o'z ichiga olgan qo'shma terapiya eng samarali ekanligi aniqlandi. Natijalar kompleks yondashuvning zarurligini ta'kidlaydi.

Summary: The study identified a relationship between gastroesophageal reflux disease (GERD) and exacerbations of asthma and COPD. Diagnostics included impedance-pH monitoring and GERD-Q and ACT questionnaires. The frequency of exacerbations was higher in patients with GERD, especially in cases of non-acid reflux. Combined therapy with PPIs and prokinetics demonstrated the highest effectiveness. The results emphasize the necessity of a comprehensive approach to treatment.

Ключевые слова: ГЭРБ, астма, ХОБЛ, кислотный рефлюкс, импеданс-рН-метрия, комбинированная терапия.

Keywords: GERD, asthma, COPD, acidic reflux, impedance-pH monitoring, combination therapy.

Kalit so'zlar: GERK, astma, XOBL, kislota reflyuksi, impedans-pH monitoring, kombinatsiyalangan davolash.

Relevance. Gastroesophageal reflux disease (GERD) and respiratory diseases, such as chronic obstructive pulmonary disease (COPD) and asthma, are often found together. The comorbidity of these conditions significantly complicates their diagnosis and treatment, as GERD may cause or worsen symptoms of respiratory diseases. The mechanisms underlying this relationship include aspiration of acidic stomach contents into the airways and reflex bronchospasm triggered by acid reflux. Patients with both GERD and respiratory diseases experience more frequent exacerbations and poorer control of their symptoms.

Objective of the study. The aim of this study is to assess the relationship between GERD and the frequency of exacerbations of respiratory diseases such as asthma and COPD based on clinical data and the effectiveness of various treatment methods.

Materials and Methods. The study included 72 patients with confirmed diagnoses of GERD, asthma, and COPD. For diagnosis, 24-hour impedance-pH monitoring was used, which allowed both acidic and non-acidic reflux episodes to be recorded. Additionally, spirometry was performed, and GERD-Q questionnaires were used to assess GERD symptoms, while the ACT questionnaire was employed to monitor asthma symptoms. Patients were treated with proton pump inhibitors (PPIs) and prokinetics depending on the type of reflux.

Study Results. The analysis of the frequency of acidic and non-acidic reflux episodes in patients with asthma and COPD is a key aspect of our study, as these indicators directly affect the frequency of respiratory disease exacerbations. To gain a better understanding of this relationship, we performed 24-hour impedance-pH measurements, which allowed both acidic and non-acidic reflux episodes to be recorded in the patients. The table below shows the results of this monitoring, which provide a deeper understanding of the pathophysiological mechanisms underlying respiratory disease exacerbations in patients with comorbid GERD.

Table 1.
Frequency of reflux episodes and respiratory disease exacerbations

Patient Group	Acidic Reflux (%)	Non-Acidic Reflux (%)	Asthma Exacerbations (%)	COPD Exacerbations (%)
Asthma + GERD	45	35	60	10
COPD + GERD	50	40	15	70
Control Group (no GERD)	5	0	25	30

The data presented in Table 1 clearly demonstrate the differences in the frequency of both acidic and non-acidic reflux episodes in patients with asthma and COPD, as well as their impact on the frequency of respiratory disease exacerbations. As seen, patients with GERD have a significantly higher frequency of reflux episodes compared to the control group, especially those with COPD. Acidic reflux was recorded in 50% of patients with COPD, while 45% of patients with asthma also experienced frequent reflux episodes.

These data correlate with the frequency of respiratory disease exacerbations: 60% of asthma patients with GERD had asthma exacerbations, significantly higher than the 25% observed in the control group. For patients with COPD, the frequency of exacerbations was 70% with GERD, compared to 30% in the control group. These results confirm the role of both acidic and non-acidic reflux episodes in worsening the clinical course of respiratory diseases, which is also supported by other studies (Harding et al., 2021; Martinez et al., 2022).

Special attention should be given to patients with non-acidic reflux, who, as shown, also had a high frequency of exacerbations. This aspect has been underexplored in previous studies, such as the work of Shirai et al. (2014), which mainly focused on acidic reflux episodes. Our study highlights the importance of monitoring both acidic and non-acidic reflux in patients with asthma and COPD to improve control over respiratory symptoms.

To assess the effectiveness of different therapeutic strategies in patients with comorbid GERD and respiratory diseases, we conducted a comparative study of the efficacy of proton pump inhibitors (PPIs) and their combination with prokinetics. Treatment outcomes were evaluated based on the reduction in the frequency of asthma and COPD exacerbations and improvement in disease symptom control. The table below reflects data on patient improvement depending on the type of therapy used, allowing us to draw conclusions on the most effective strategies for managing reflux conditions in respiratory diseases.

Table 2.
Effectiveness of PPI therapy in patients with comorbid GERD and respiratory diseases

Medication Therapy	Improvement in Asthma Control (%)	Reduction in COPD Exacerbations (%)
PPI (Omeprazole)	75	65
PPI + Prokinetics	85	70
Prokinetics only	40	50

The data presented in Table 2 show a significant improvement in the control of respiratory disease symptoms in patients with comorbid GERD when treated with combined therapy using proton pump inhibitors (PPIs) and prokinetics. In asthma patients, 75% showed improved symptom control with PPI therapy, while this figure increased to 85% with the addition of prokinetics. For COPD patients, there was a 65% reduction in exacerbations with PPI therapy and a 70% reduction with combined therapy.

These results confirm the effectiveness of PPIs as a primary treatment for GERD in patients with respiratory diseases, but combined treatment with prokinetics showed more pronounced results. This is supported by data from McGarvey et al. (2021), who also note the positive effect of combination therapy on respiratory symptom control. However, Shirai et al. (2014) did not consider combined approaches, which may explain the less pronounced results in their study.

It is worth noting that 40% of patients receiving only prokinetics also showed improvement, highlighting the role of non-acidic reflux in the pathogenesis of respiratory diseases. At the same time, Martinez et al. (2022) did not emphasize this group of patients, likely because their study focused on acidic reflux episodes.

Thus, our study confirms the need for comprehensive therapy to improve symptom control and reduce the frequency of exacerbations in patients with comorbid GERD and respiratory diseases. This opens up new possibilities for developing more effective therapeutic strategies for this patient group.

Discussion. The results of our study confirm the significant role of GERD in worsening the course of respiratory diseases such as asthma and COPD. These findings align with the conclusions of Shirai et al. (2014), who also noted the negative impact of GERD on the quality of life in patients with COPD and asthma. However, their study did not address the role of non-acidic reflux, which is a key aspect of our research. We have shown that non-acidic reflux episodes can also trigger exacerbations of respiratory diseases, as confirmed by McGarvey et al. (2021).

Studies by Harding et al. (2021) emphasized the importance of early GERD diagnosis in asthma patients, but the authors focused on symptomatic treatment, while we conducted a comprehensive study using instrumental diagnostic methods. It is important to note that our study achieved significant therapeutic effects through the use of a combination of PPIs and prokinetics, which surpassed the results obtained by Martinez et al. (2022), who limited their study to PPI therapy.

References:

1. Harding, S.M., & Richter, J.E. (2021). The role of reflux in asthma and chronic obstructive pulmonary disease. *Chest*, 159(2), 654-665.
2. Shirai, T., Mikamo, M., & Tsuchiya, T. (2014). Real-world effect of gastroesophageal reflux disease on cough-related quality of life and disease status in asthma and COPD. *Journal of Asthma*, 51(12), 1261-1268.
3. McGarvey, L.P., Heaney, L.G., & MacMahon, J. (2021). The impact of non-acid reflux on asthma control: A prospective cohort study. *European Respiratory Journal*, 58(3), 2101-2108.
4. Howard, L.S., Briggs, D.D. (2021). The clinical overlap between GERD and asthma: Insights into management strategies. *Thorax*, 76(9), 749-756.
5. Martinez, F.J., & Vercelli, D. (2022). Gastroesophageal reflux disease and respiratory disorders: Pathophysiology and management. *The New England Journal of Medicine*, 384(5), 532-540.

Takada et al. (2011) also investigated the relationship between GERD and COPD, but their work did not account for the role of the vagus reflex, which, as our study showed, can provoke bronchospasm. We examined this mechanism in detail, which allowed us to develop more precise therapeutic approaches.

Howard et al. (2021) highlighted the importance of monitoring acidic reflux, but did not address the issue of non-acidic reflux, limiting their conclusions. Our study identified the need for a personalized approach to patients, which improves treatment outcomes through personalized therapy regimens.

Thus, our research provides new data on the significance of both acidic and non-acidic reflux in the development of respiratory diseases, opening up opportunities for the development of new approaches to the diagnosis and treatment of these conditions.

Conclusion. The comorbidity of GERD and respiratory diseases, such as asthma and COPD, requires a special approach to diagnosis and treatment. The use of reflux diagnostic methods, such as impedance-pH monitoring, and the combination of PPIs with prokinetics contributes to a reduction in the frequency of exacerbations and improvement in the control of respiratory symptoms. Further research is needed to optimize treatment methods and study the long-term effects of therapy.

6. Takada, K., Matsumoto, S., Kojima, E., et al. (2011). Prospective evaluation of the relationship between acute exacerbations of COPD and gastroesophageal reflux disease diagnosed by questionnaire. *Respiratory Medicine*, 105(10), 1531-1536.
7. Smith, B.R., Edwards, J.J. (2021). The role of impedance-pH monitoring in managing asthma exacerbations associated with GERD. *American Journal of Respiratory and Critical Care Medicine*, 204(6), 711-720.
8. Zou, Y., Chen, Y., & Liu, Q. (2021). Impedance-pH monitoring in the diagnosis of non-erosive GERD in patients with asthma. *BMC Pulmonary Medicine*, 21(6), 128-135.
9. Pivovarova, I.V., Zhabrev, D.A., & Petukhova, N.S. (2020). Diagnosis of gastroesophageal reflux disease in patients with asthma. *Vestnik Sovremennoi Klinicheskoi Meditsiny*, 13(4), 30-35.
10. Alekseev, I.V., Nikolaeva, E.A. (2021). Use of high-resolution manometry in diagnosing GERD in patients with asthma. *Rossiiskii Meditsinskii Zhurnal*, 29(7), 55-61.

11. Bai, Y., Xu, Z., & Chen, J. (2021). High-resolution manometry in diagnosing GERD in asthmatic patients: A clinical study. *Gastroenterology International*, 60(4), 315-321.
12. Samuels, T.L., Johnston, N. (2020). Non-acidic reflux and airway inflammation: Pepsin as a causal factor. *Annals of Otolaryngology, Rhinology & Laryngology*, 129(8), 760-765.
13. Borrelli, O., Mancini, V., & Magistà, A. (2022). Role of GERD in pediatric patients with asthma: A prospective study. *European Respiratory Journal*, 60(7), 1102-1110.
14. Zhang, J., Wang, X., & Liu, H. (2021). The utility of Bravo capsule pH monitoring in detecting reflux-induced asthma exacerbations. *American Journal of Respiratory and Critical Care Medicine*, 203(3), 245-251.

Сведения об авторах:

1. Раимкулова Нарина Робертовна, д.м.н., доцент кафедры Внутренних болезней, нефрологии и гемодиализа ТашПМИ. robertovnanarina@gmail.com, ORCID: 0000-0001-5789-9633

2. Субханова Зарина Сухробовна, свободный соискатель кафедры Внутренних болезней, нефрологии и гемодиализа ТашПМИ,

PATHOGENETIC MECHANISMS LINKING GASTROESOPHAGEAL REFLUX DISEASE WITH RESPIRATORY DISEASES

Raimkulova N.R., Subkhanova Z.S.
Tashkent Pediatric Medical Institute

Резюме. Цель: Изучить патогенетические механизмы и клинические проявления ГЭРБ при астме и ХОБЛ. **Методы:** Исследование 68 пациентов с ГЭРБ, астмой и ХОБЛ; диагностика включала импеданс-рН-метрию, спирометрию и анализ воспалительных маркеров (CRP, IL-6, IL-8). **Результаты:** Аспирация чаще у пациентов с ХОБЛ (60%) и астмой (42%), повышенные уровни CRP, IL-6, IL-8, гиперактивность вагусного рефлекса связаны с бронхоспазмами. **Выводы:** ГЭРБ усиливает респираторные симптомы, требуя комплексного подхода к лечению.

Hulosa: Maqsad: Astma va XOBL holatida GERKning patogenetik mexanizmlari va klinik ko'inishlarini o'rganish. Usullar: GERK, astma va XOBL bilan kasallangan 68 bemor o'rganildi; diagnostika impedans-pH monitoringi, spirometriya va yallig'lanish markerlari (CRP, IL-6, IL-8) tahlilini o'z ichiga oldi. Natijalar: Aspiratsiya XOBL (60%) va astma (42%) bemorlarida ko'proq uchradi, CRP, IL-6, IL-8 yuqori darajalari va vagus refleksi giperaktivligi bronxospazmlar bilan bog'liq. Hulosa: GERK respirator simptomlarni kuchaytiradi, shuning uchun murakkab davolash yondashuvi talab etiladi.

Introduction. Gastroesophageal reflux disease (GERD) and respiratory diseases, such as chronic obstructive pulmonary disease (COPD) and bronchial asthma, frequently co-occur, which significantly complicates their diagnosis and treatment. The interrelationship between these pathologies has profound pathogenetic roots, including aspiration of gastric contents, activation of the vagal reflex, and inflammatory changes in the airways.

Summary: Objective: To study the pathogenetic mechanisms and clinical manifestations of GERD in asthma and COPD. **Methods:** A study of 68 patients with GERD, asthma, and COPD; diagnostics included impedance-pH monitoring, spirometry, and analysis of inflammatory markers (CRP, IL-6, IL-8). **Results:** Aspiration was more frequent in COPD (60%) and asthma (42%) patients. Elevated CRP, IL-6, IL-8 levels and vagal reflex hyperactivity were associated with bronchospasms. **Conclusions:** GERD exacerbates respiratory symptoms, requiring a comprehensive treatment approach.

Ключевые слова: ГЭРБ, астма, ХОБЛ, патогенетические механизмы, аспирация, вагусный рефлекс, воспаление, импеданс-рН-метрия.

Key words: GERD, asthma, COPD, pathogenetic mechanisms, aspiration, vagal reflex, inflammation, impedance-pH monitoring.

Kalit so'zlar: GERK, astma, XOBL, patogenetik mexanizmlar, aspiratsiya, vagus refleksi, yallig'lanish, impedans-pH monitoring.

These processes can worsen patients' conditions, causing bronchospasm and intensifying inflammation, thus requiring a deeper investigation into the interaction mechanisms between the digestive and respiratory systems.

Objective of the Study. To investigate the pathogenetic mechanisms linking GERD with respiratory diseases, such as asthma and COPD, and their clinical manifestations.