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ЎЗБЕКИСТОН РЕСПУБЛИКАСИДА СОҒЛИҚНИ САҚЛАШНИ РАҚАМЛАШТИРИШ ЖАРАЁНИГА ҲАМШИРАЛАРНИНГ МУНОСАБАТИ ЎРГАНИШ

Даминова К.М., Вихров И.П.
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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

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

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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

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PATHOGENETIC MECHANISMS LINKING GASTROESOPHAGEAL REFLUX DISEASE WITH RESPIRATORY DISEASES

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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-pH-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‘rinishlarini 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-pH-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.

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Materials and Methods. We studied gastric content aspiration, vagal reflex activation, and inflammatory changes in the airways to understand their role in provoking bronchospasm and worsening the clinical state of patients. The study involved 68 patients: 38 with asthma and 30 with COPD, all of whom were diagnosed with GERD. To diagnose reflux, 24-hour impedance-pH monitoring was used. Patients underwent spirometry to assess bronchospasm and functional changes in the lungs, as well as tests to detect inflammation markers, such as C-reactive protein (CRP) and interleukins IL-6 and IL-8. Aspiration of gastric contents into the respiratory tract was confirmed by determining pepsin levels in bronchoalveolar lavage.

Results of Own Research. To better understand the impact of gastric content aspiration on the exacerbation of respiratory symptoms, we conducted studies using impedance-pH monitoring to record episodes of aspiration. Data presented in Table 1 show the frequency of aspiration episodes in patients with asthma and COPD, as well as the frequency of symptom exacerbations caused by aspiration.

Table 1.

Frequency of Aspiration Episodes and Clinical Exacerbations

Patient Group	Aspiration Frequency (%)	Symptom Exacerbations (%)
Asthma + GERD	42	41
COPD + GERD	60	50
Control Group (without GERD)	5	10

The results presented in Table 1 clearly demonstrate a relationship between the frequency of gastric content aspiration and respiratory symptom exacerbations in patients with GERD and respiratory pathology. In patients with COPD, the frequency of aspiration was 60%, higher than that in asthma patients (42%), which correlated with a higher frequency of exacerbations in COPD patients. The control group, which did not have significant aspiration episodes, had a much lower level of exacerbations, confirming the hypothesis that aspiration influences the worsening of symptoms in patients with asthma and COPD.

Another aspect of the study focused on the activation of the vagal reflex in patients with GERD. Hyperactivity of the vagal reflex can lead to bronchospasm and the exacerbation of respiratory symptoms. To assess the impact of the vagal reflex on respiratory symptoms, heart rate variability was measured, along with blood acetylcholine levels.

Table 2.

Impact of Vagal Reflex Activation on Respiratory Symptoms

Patient Group	Vagal Hyperactivity Frequency (%)	Bronchospasms (%)
Asthma + GERD	66	66
COPD + GERD	63	60
Control Group (without GERD)	10	15

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Data in Table 2 indicate that the majority of patients with asthma and GERD (66%) and COPD (63%) experienced vagal reflex hyperactivity, which correlated with an increased frequency of bronchospasms. This confirms the pathogenetic role of the vagal reflex in intensifying respiratory symptoms in GERD. The control group, which showed minimal vagal reflex activity, had a low frequency of bronchospasms, indicating no significant impact of the vagus on respiratory symptoms in patients without GERD.

Inflammatory changes in the respiratory tract are an important link in the pathogenesis of comorbid conditions in GERD. To assess the inflammatory status in patients, levels of C-reactive protein (CRP), interleukins IL-6, and IL-8 were measured.

Table 3.

Inflammatory Markers in Patients with GERD and Respiratory Diseases

Patient Group	Elevated CRP Levels (%)	Elevated IL-6 Levels (%)	Elevated IL-8 Levels (%)
Asthma + GERD	55	55	50
COPD + GERD	40	40	35
Control Group (without GERD)	10	10	5

The results presented in Table 3 show that patients with asthma and GERD exhibit higher levels of inflammatory markers (CRP, IL-6, and IL-8) compared to patients with COPD. This confirms the presence of a significant inflammatory process in asthma patients, consistent with findings from other studies. In patients with COPD, inflammatory markers were also elevated but to a lesser extent, suggesting more moderate inflammatory changes in COPD combined with GERD.

Discussion. Our study results confirm the importance of pathogenetic mechanisms linking GERD with respiratory diseases. Gastric content aspiration and vagal reflex activation play key roles in the pathogenesis of bronchospasm and inflammatory processes in the respiratory tract. Our data show that gastric content aspiration most often occurs at night, worsening respiratory symptoms, especially in COPD patients. This aligns with findings from other studies, such as that of Harding et al. (2021), which also indicates a link between aspiration and COPD exacerbations.

Of the 68 patients participating in our study, 34 (50%) were confirmed to have gastric content aspiration into the airways. Aspiration was most common at night, leading to worsening respiratory symptoms, such as nighttime coughing and dyspnea episodes, observed in 28 (41%) patients.

Among COPD patients, aspiration was recorded in 18 (60%) patients, while in asthma patients it was observed in 16 (42%).

Regarding the vagal reflex, our results confirm its significant role in the development of bronchospasm, especially in patients with acid reflux. Vagal reflex hyperactivity was identified in a considerable number of patients, emphasizing the need for reflux control to reduce bronchospasm. This is consistent with findings from Heaney & Samuels (2020), who also highlight the role of the vagal reflex in the pathogenesis of respiratory symptoms in GERD patients.

Vagal reflex hyperactivity was identified in 44 (65%) GERD patients, as evidenced by increased heart rate variability and elevated blood acetylcholine levels. Patients with active vagal reflex had more frequent bronchospasm episodes, especially at night. In 25 (66%) asthma patients with acid reflux, more frequent and severe dyspnea attacks were observed, indicating the vagal reflex's significant role in the pathogenesis of respiratory symptoms.

Finally, our data confirm the presence of significant inflammatory changes in GERD patients, especially in those with asthma. GERD patients had significantly elevated levels of inflammatory markers in their blood, such as C-reactive protein (CRP), IL-6, and IL-8. Elevated CRP levels were recorded in 50% of patients, indicating the presence of chronic airway inflammation. Inflammatory changes were particularly pronounced in asthma patients: 55% of asthma patients showed elevated levels of IL-6 and IL-8. In COPD patients, inflammatory processes were less pronounced, but 40% also had elevated levels of these cytokines.

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Elevated CRP, IL-6, and IL-8 levels indicate chronic airway inflammation, consistent with the results of Shirai et al. (2014). Notably, inflammatory changes were also observed in COPD patients, but to a lesser degree, suggesting further research is needed to develop more effective treatment methods.

Conclusion. Thus, our study demonstrates that gastric content aspiration, vagal reflex activation, and inflammatory changes in the respiratory tract are key pathogenetic mechanisms linking GERD with respiratory diseases, such as asthma and COPD. These mechanisms lead to a worsening of patients' clinical conditions by provoking bronchospasm and intensifying inflammation. Comprehensive treatment aimed at reflux control and reducing inflammatory changes can significantly improve clinical outcomes in patients with comorbid GERD and respiratory diseases.

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