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CLINICAL AND DIAGNOSTIC FEATURES OF RECURRENT BRONCHITIS IN CHILDREN AND OPTIMIZATION OF THERAPEUTIC AND PREVENTIVE MEASURES

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Abstract

Recurrent bronchitis is one of the most common respiratory disorders in childhood and represents a significant challenge in pediatric healthcare due to its high incidence and the risk of progression to chronic respiratory diseases. Frequent episodes of bronchial inflammation can negatively affect the physical development and overall health status of children. Early detection of clinical manifestations and accurate diagnostic assessment play an essential role in preventing complications and improving treatment outcomes.

The aim of this study is to investigate the clinical and diagnostic features of recurrent bronchitis in children and to analyze approaches for optimizing therapeutic and preventive measures. The research focuses on identifying major clinical symptoms, evaluating diagnostic criteria, and determining risk factors that contribute to repeated episodes of bronchial inflammation in pediatric patients. Particular attention is given to the role of modern diagnostic methods, including clinical examination, laboratory analysis, and instrumental assessment, in improving the accuracy of diagnosis.

In addition, the study evaluates therapeutic strategies used in the management of recurrent bronchitis and proposes optimized preventive approaches aimed at reducing the frequency of disease recurrence. These strategies include timely medical intervention, strengthening of the immune system, environmental risk reduction, and implementation of preventive healthcare programs.

The results of this research highlight the importance of a comprehensive diagnostic approach and individualized treatment strategies for children with recurrent bronchitis. Optimization of therapeutic and preventive measures can significantly decrease recurrence rates, improve respiratory function, and enhance the overall quality of life in pediatric patients.

Keywords: Recurrent bronchitis, pediatric respiratory diseases, clinical diagnosis, bronchial inflammation, respiratory infections, preventive medicine, pediatric pulmonology.

Introduction

Recurrent bronchitis is considered one of the most common respiratory disorders in childhood and represents an important problem in pediatric medicine due to its high prevalence and potential long-term consequences. The disease is characterized by repeated episodes of inflammation of the

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bronchial mucosa, usually occurring several times during a year, and is often associated with viral or bacterial respiratory infections. Recurrent inflammatory processes in the bronchial tree may lead to functional disturbances of the respiratory system and, in some cases, contribute to the development of chronic pulmonary diseases if adequate therapeutic and preventive measures are not applied in time.

Children are particularly vulnerable to respiratory diseases due to the anatomical and physiological characteristics of their respiratory system. The bronchial tree in children has a relatively narrow lumen, immature mucociliary clearance mechanisms, and increased reactivity of the bronchial mucosa. These factors create favorable conditions for the persistence and recurrence of inflammatory processes. In addition, the immune system of young children is not fully developed, which reduces resistance to infectious agents and increases the likelihood of repeated respiratory infections. As a result, recurrent bronchitis is frequently observed in pediatric populations, especially among preschool and early school-age children.

The clinical presentation of recurrent bronchitis may vary depending on the age of the child, the severity of the inflammatory process, and the presence of associated risk factors. The most common clinical manifestations include persistent or recurrent cough, sputum production, wheezing, shortness of breath, and general symptoms such as fatigue and mild fever. During exacerbations, children may experience respiratory discomfort and reduced physical activity. In many cases, the symptoms may resemble those of other respiratory disorders, including bronchial asthma or acute respiratory infections, which complicates the diagnostic process and requires careful clinical evaluation.

Accurate diagnosis of recurrent bronchitis in children requires a comprehensive approach that includes clinical assessment, laboratory investigations, and instrumental diagnostic methods. Clinical examination remains the primary diagnostic step and includes evaluation of respiratory symptoms, auscultation findings, and medical history analysis. Particular attention is paid to the frequency and duration of bronchitis episodes, as well as to environmental and hereditary factors that may contribute to disease recurrence. Laboratory tests such as blood analysis can help identify inflammatory markers and possible infectious agents. Instrumental diagnostic methods, including chest radiography and pulmonary function testing, provide additional information about the condition of the respiratory system and help exclude other pulmonary pathologies.

The development of recurrent bronchitis is influenced by a variety of endogenous and exogenous factors. Viral respiratory infections are considered one of the leading causes of repeated bronchial inflammation in children. Other contributing factors include allergic predisposition, exposure to environmental pollutants, passive smoking, unfavorable living conditions, and frequent contact with infectious agents in collective environments such as kindergartens and schools. Nutritional deficiencies and weakened immune responses may also play a significant role in increasing susceptibility to recurrent respiratory diseases.

Despite the considerable progress achieved in pediatric pulmonology, recurrent bronchitis continues to pose diagnostic and therapeutic challenges. Repeated episodes of bronchial inflammation may negatively affect lung function and increase the risk of chronic respiratory disorders later in life. Therefore, early identification of clinical and diagnostic features of recurrent bronchitis is essential for developing effective therapeutic strategies and preventive interventions.

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Modern treatment approaches for recurrent bronchitis in children are aimed not only at eliminating acute inflammatory symptoms but also at preventing further recurrences. Therapeutic management may include anti-inflammatory medications, bronchodilators, mucolytic agents, and supportive therapy designed to improve airway clearance and reduce bronchial irritation. Equally important are preventive measures, which involve strengthening the immune system, reducing exposure to environmental risk factors, and promoting healthy lifestyle habits.

In recent years, increasing attention has been given to the optimization of therapeutic and preventive strategies for recurrent bronchitis in pediatric patients. Implementation of comprehensive diagnostic protocols and individualized treatment plans can significantly improve clinical outcomes and reduce the frequency of disease recurrence. Preventive healthcare programs, vaccination strategies, and early rehabilitation measures may also contribute to improving respiratory health among children.

Therefore, the aim of this study is to analyze the clinical and diagnostic features of recurrent bronchitis in children and to develop approaches for optimizing therapeutic and preventive measures. Understanding the key factors involved in the development and recurrence of bronchial inflammation will contribute to improving diagnostic accuracy, enhancing treatment effectiveness, and reducing the overall burden of respiratory diseases in pediatric populations.

Materials and Methods

This study was conducted to investigate the clinical and diagnostic characteristics of recurrent bronchitis in children and to evaluate possible approaches for optimizing therapeutic and preventive strategies. The research was carried out in a pediatric clinical setting where children with recurrent respiratory symptoms were examined and observed during a defined study period. The study included pediatric patients aged between 3 and 12 years who were diagnosed with recurrent bronchitis according to established clinical criteria. In total, 120 children participated in the investigation. Among them, 80 children had a confirmed history of recurrent bronchitis, while 40 children without chronic respiratory diseases were included as a control group for comparative analysis.

The diagnosis of recurrent bronchitis was established on the basis of clinical manifestations and medical history data, particularly the presence of repeated bronchial inflammation episodes occurring three or more times within one year. Children with previously diagnosed bronchial asthma, congenital respiratory system anomalies, chronic pulmonary diseases, or severe systemic disorders were excluded from the study to ensure the accuracy of the clinical analysis.

All participants underwent a comprehensive clinical examination performed by pediatric specialists. The evaluation included detailed collection of medical history, assessment of respiratory symptoms, and physical examination of the respiratory system. Particular attention was paid to the frequency and duration of coughing episodes, the presence of sputum production, wheezing during breathing, and signs of respiratory distress. During the physical examination, auscultation of lung sounds was performed to detect possible abnormalities such as dry or moist rales, which are commonly associated with bronchial inflammation. In addition, general clinical parameters such as body temperature and respiratory rate were measured.

Laboratory investigations were carried out to evaluate inflammatory processes and to assess the overall physiological condition of the children. Blood samples were analyzed using standard laboratory techniques. The complete blood count was used to determine leukocyte levels and detect

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possible inflammatory responses in the body. Additional laboratory indicators were evaluated to identify potential infectious factors contributing to bronchial inflammation.

Instrumental diagnostic methods were also used to obtain more detailed information about the condition of the respiratory system. Chest radiography was performed in order to visualize structural changes in the lungs and bronchi and to exclude other pulmonary diseases that may present with similar clinical symptoms. Lung function was assessed using spirometry, which allowed evaluation of airway patency and detection of possible functional impairments associated with bronchial inflammation. Pulse oximetry was additionally used to determine oxygen saturation levels in peripheral blood, providing important information about respiratory efficiency.

Environmental and behavioral risk factors were also considered during the investigation. Information regarding exposure to tobacco smoke, air pollution, frequent respiratory infections, and living conditions was collected through interviews with parents or guardians. These factors were analyzed in order to determine their potential contribution to the recurrence of bronchial inflammation in children.

All collected clinical and diagnostic data were recorded and systematically analyzed. Quantitative indicators were expressed as mean values with standard deviations, while qualitative variables were presented as percentages. Comparative analysis between children with recurrent bronchitis and the control group was performed in order to identify significant differences in clinical manifestations and diagnostic findings. Statistical processing of the obtained data was carried out using standard medical statistical methods, and the level of statistical significance was set at $p < 0.05$.

Results

The analysis of clinical and diagnostic data revealed several characteristic features of recurrent bronchitis in children included in the study. A total of 120 children participated in the investigation, including 80 patients with recurrent bronchitis and 40 children without chronic respiratory diseases who served as the control group. The results demonstrated that recurrent bronchitis was more frequently observed in children of preschool and early school age, which may be associated with the increased exposure to respiratory infections and the incomplete development of immune defense mechanisms.

The most common clinical manifestation among children with recurrent bronchitis was persistent or recurrent cough. The majority of patients experienced prolonged coughing episodes lasting more than 7–10 days during each exacerbation. Wheezing during breathing and sputum production were also frequently observed symptoms. Some children demonstrated mild respiratory distress and fatigue during acute episodes of the disease. Fever was reported in a smaller proportion of patients and was usually associated with infectious exacerbations.

The distribution of the main clinical symptoms observed among children with recurrent bronchitis is presented in Table 1.

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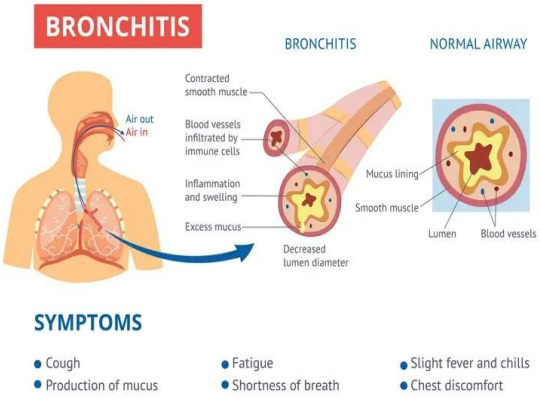
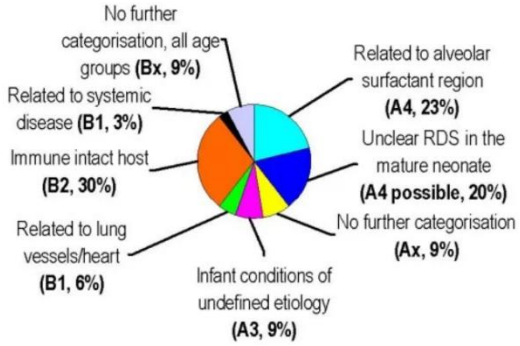
Table 1. Frequency of Clinical Symptoms in Children with Recurrent Bronchitis

Clinical symptom	Number of patients (n=80)	Percentage (%)
Persistent cough	72	90%
Wheezing during breathing	54	67.5%
Sputum production	48	60%
Shortness of breath	26	32.5%
Fever during exacerbation	22	27.5%

The results indicate that cough and wheezing were the most dominant symptoms, reflecting inflammatory processes in the bronchial tree and partial airway obstruction.





Laboratory findings demonstrated moderate inflammatory responses in a considerable number of patients. Increased leukocyte levels and elevated inflammatory markers were observed during acute exacerbations of bronchitis. These changes reflected the presence of infectious or inflammatory processes within the respiratory tract.

Instrumental diagnostic methods also provided valuable information regarding the functional state of the respiratory system. Chest radiography in most patients showed signs of bronchial wall thickening and increased bronchial markings, which are typical indicators of inflammatory changes in the bronchi. Spirometry results revealed mild functional disturbances of airway patency in some children with frequent exacerbations.

A comparative analysis between the study group and the control group demonstrated that children with recurrent bronchitis had significantly higher frequencies of respiratory symptoms and inflammatory indicators. Environmental factors were also found to play an important role in the recurrence of bronchial inflammation. Exposure to passive smoking, frequent viral infections, and unfavorable environmental conditions were identified as major contributing risk factors.

The diagnostic process used in the evaluation of children with suspected recurrent bronchitis is summarized in the following clinical diagnostic algorithm.

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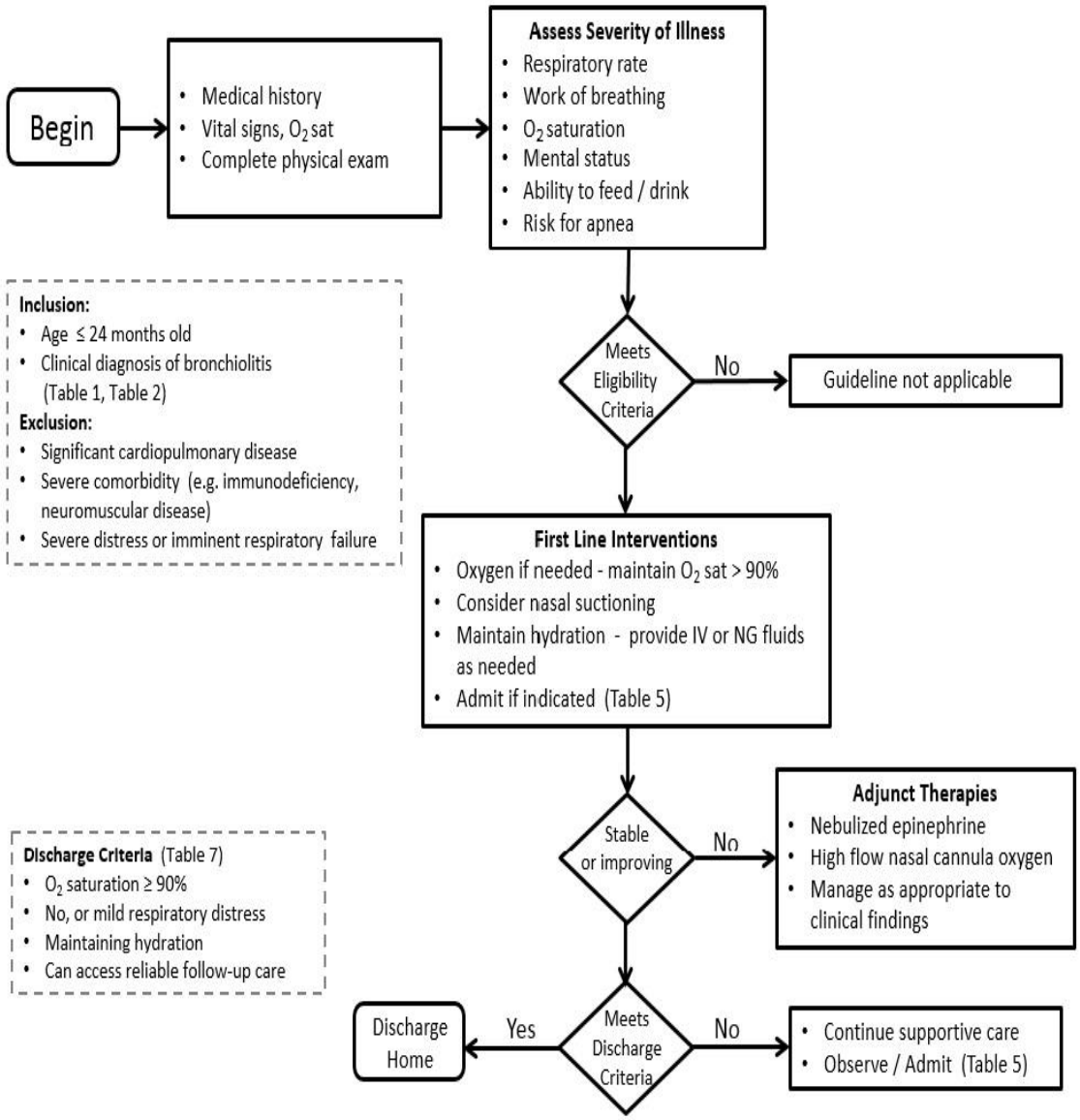

The obtained results confirm that recurrent bronchitis in children is characterized by a combination of typical clinical symptoms, moderate inflammatory laboratory indicators, and functional respiratory changes detected through instrumental examination. These findings highlight the importance of comprehensive clinical assessment and early diagnostic evaluation in order to identify the disease and implement appropriate therapeutic interventions.

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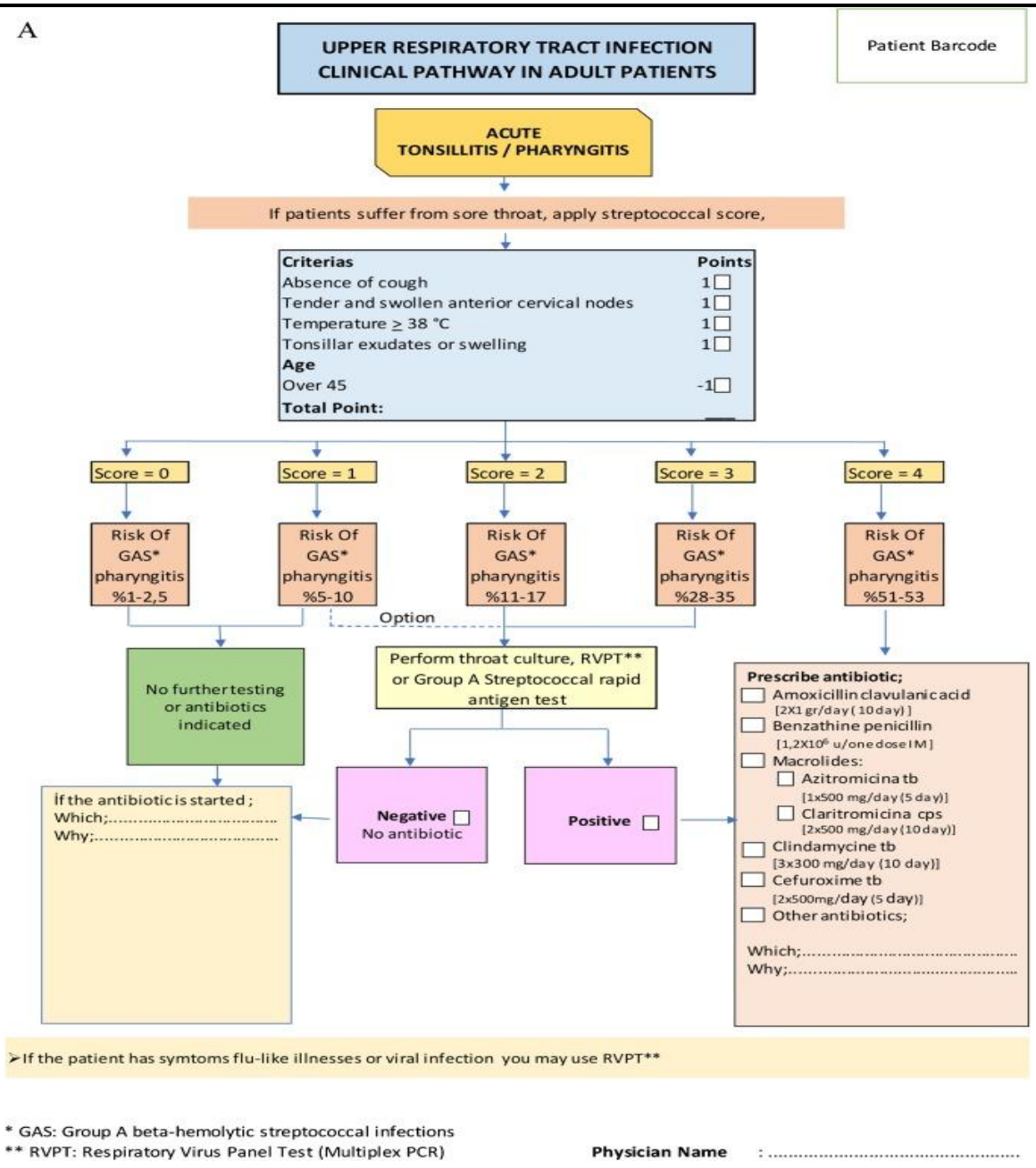

Discussion

The results of the present study demonstrate that recurrent bronchitis remains one of the most common respiratory disorders observed in pediatric populations. The findings indicate that repeated episodes of bronchial inflammation are strongly associated with both biological and environmental factors that influence the susceptibility of children to respiratory infections. The high prevalence of persistent cough and wheezing among the examined patients confirms that inflammation and irritation of the bronchial mucosa play a central role in the clinical manifestation of recurrent bronchitis.

One of the most notable findings of this study is the predominance of cough as the primary clinical symptom among children with recurrent bronchitis. Persistent cough was observed in the majority of the patients and often served as the first sign of bronchial inflammation. This observation is consistent

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with previous clinical studies that describe cough as a protective reflex aimed at clearing mucus and inflammatory secretions from the respiratory tract. However, prolonged coughing episodes may also indicate ongoing irritation and inflammation of the bronchial mucosa, which may lead to structural and functional changes in the airway if recurrent episodes are not properly managed.

The presence of wheezing and sputum production among many patients suggests partial obstruction of the bronchial lumen and increased mucus secretion during inflammatory processes. These manifestations are typical indicators of airway hyperreactivity and impaired mucociliary clearance. In children, the anatomical characteristics of the bronchial tree, including narrower airways and relatively immature defense mechanisms, may contribute to the development of these symptoms during respiratory infections. Such physiological features make children more vulnerable to recurrent inflammatory processes in the bronchi.

Laboratory findings obtained in this study also support the inflammatory nature of recurrent bronchitis. The detection of increased leukocyte levels and other inflammatory indicators during exacerbation periods reflects the activation of immune responses against infectious agents. These results correspond with the concept that viral respiratory infections play a leading role in the development of recurrent bronchial inflammation in children. In many cases, repeated viral infections can lead to persistent irritation of the bronchial epithelium and contribute to recurrent episodes of bronchitis.

Instrumental diagnostic examinations provided additional insights into the functional state of the respiratory system. Radiological findings indicating bronchial wall thickening and increased bronchial markings are typical signs of chronic inflammatory processes affecting the bronchial tree. Although these changes were not severe in most patients, they suggest that repeated inflammatory episodes may gradually influence the structural condition of the airways. Spirometric evaluation in some patients revealed mild disturbances in airway patency, which may reflect temporary functional impairment caused by bronchial inflammation and mucus accumulation.

Environmental factors were also identified as significant contributors to the recurrence of bronchitis in children. Passive exposure to tobacco smoke was one of the most important risk factors identified during the study. Tobacco smoke contains numerous toxic substances that can irritate the bronchial mucosa and reduce the effectiveness of mucociliary clearance mechanisms. As a result, children exposed to passive smoking may have an increased risk of respiratory infections and inflammatory airway conditions.

In addition to passive smoking, frequent viral infections and unfavorable environmental conditions such as air pollution may further increase the susceptibility of children to recurrent bronchitis. Children attending kindergartens or schools are often exposed to large numbers of respiratory pathogens, which increases the likelihood of repeated infections. These factors highlight the importance of preventive strategies aimed at improving environmental conditions and reducing exposure to respiratory irritants.

The findings of the present study emphasize the importance of comprehensive diagnostic evaluation in children with recurrent bronchitis. Accurate assessment of clinical symptoms, laboratory indicators, and instrumental diagnostic findings allows healthcare professionals to differentiate recurrent bronchitis from other respiratory disorders, particularly bronchial asthma. Early

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identification of the disease enables timely therapeutic intervention and reduces the risk of progression to chronic respiratory conditions.

Optimization of therapeutic and preventive strategies is an essential component of effective management of recurrent bronchitis in children. Treatment approaches should focus not only on relieving acute inflammatory symptoms but also on preventing further recurrences. The use of anti-inflammatory medications, mucolytic agents, and bronchodilators may help reduce airway irritation and improve bronchial drainage. In addition, supportive measures such as adequate hydration, respiratory physiotherapy, and strengthening of immune defense mechanisms may contribute to faster recovery and improved respiratory health.

Preventive strategies also play a crucial role in reducing the frequency of recurrent bronchitis episodes. Avoidance of passive smoking, improvement of indoor air quality, and reduction of environmental pollutants are important preventive measures. Furthermore, strengthening the immune system through balanced nutrition, adequate physical activity, and appropriate vaccination programs may significantly reduce susceptibility to respiratory infections in children.

Overall, the results of this study confirm that recurrent bronchitis in children is a multifactorial condition influenced by clinical, environmental, and immunological factors. Effective management of the disease requires an integrated approach that combines accurate diagnosis, appropriate treatment, and comprehensive preventive strategies. Implementation of these measures may contribute to reducing the recurrence rate of bronchial inflammation and improving the long-term respiratory health of pediatric patients.

Conclusion

Recurrent bronchitis is a significant respiratory condition in pediatric populations and remains an important challenge for healthcare systems due to its high frequency and potential impact on children's respiratory health. The results of this study demonstrate that recurrent bronchitis in children is characterized by a combination of typical clinical symptoms, inflammatory laboratory indicators, and functional respiratory changes identified through instrumental diagnostic methods. Persistent cough, wheezing, and sputum production were found to be the most common clinical manifestations among affected children.

The findings also indicate that recurrent bronchitis is influenced by multiple risk factors, including frequent viral respiratory infections, passive exposure to tobacco smoke, environmental pollution, and insufficiently developed immune defense mechanisms in children. These factors contribute to repeated inflammatory processes in the bronchial tree and increase the likelihood of disease recurrence.

Comprehensive clinical evaluation, supported by laboratory and instrumental diagnostic methods, plays a crucial role in the early detection and accurate diagnosis of recurrent bronchitis. Early identification of the disease allows for the timely implementation of therapeutic measures and helps prevent potential complications or progression to chronic respiratory disorders.

Optimization of therapeutic and preventive strategies is essential for improving clinical outcomes in children with recurrent bronchitis. Effective management should include appropriate anti-inflammatory and symptomatic treatment, as well as preventive interventions aimed at strengthening the immune system and reducing exposure to environmental risk factors. Preventive healthcare

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programs, improved living conditions, and parental awareness are also important components in reducing the recurrence rate of bronchial inflammation.

In conclusion, the integration of accurate diagnostic approaches, effective treatment strategies, and comprehensive preventive measures can significantly reduce the frequency of recurrent bronchitis episodes and improve the overall respiratory health and quality of life of children.

References

1. World Health Organization (WHO). (2023). Global surveillance, prevention and control of chronic respiratory diseases: A comprehensive approach. Geneva: World Health Organization.
2. Kliegman, R., St. Geme, J., Blum, N., Shah, S., & Tasker, R. (2020). Nelson Textbook of Pediatrics. 21st ed. Philadelphia: Elsevier.
3. Gern, J. E., & Busse, W. W. (2019). Relationship of viral infections to recurrent respiratory diseases in children. The Journal of Allergy and Clinical Immunology, 143(3), 895–906.
4. Alisherovna, K. S. S. F. N., Amanaliyevich, O. N., & Polatovich, K. S. (2025). MECHANISMS OF IONIZING RADIATION-INDUCED DAMAGE TO CELLS AND DNA. SHOKH LIBRARY, 1(13).
5. Alisherovna, F. N. (2025). TIRIK ORGANIZMLAR UCHUN TERMODINAMIKA QONUNLARI. TERMOGRAFIYA VA UNING DIAGNOSTIKADA ROLI. Global Science Review, 13(12), 1215-1219.
6. Alisherovna, F. N. (2025). ELEKTROMIYOGRAFIYA (EMG) VA MUSHAKLARNING BIOELEKTRIK FAOLLIGI. Modern education and development, 40(2), 145-152.
7. Nodira, F. (2018). Professionally significant qualities and skills of a teacher of foreign languages. Достижения науки и образования, 1(7 (29)), 83-85.
8. Djalilova, G., Fayziyeva, M., Salima, N., Nodira, M., Rano, N., & Viktoriya, I. Ecology and Congenital Malformations. International Journal of Health Sciences, 6(S1), 324-333.
9. Otajonov, I. O., & Urinov, A. M. (2024). Assessment of Quality of Life Indicators of Patients with Cirrhosis of the Liver.
10. Otajonov, I. O. (2023). ANALYSIS OF MICRONUTRIENTS IN BABY FOOD RATION IN THE PRESENCE OF COMPLICATIONS AFTER RICKETS.
11. Отажонов, И. О. (2021). Сурункали буйрак касаллиги бўлган беморлар ҳаёт сифати кўрсаткичлари. Инфекция, иммунитет и фармакология, (2), 222-232.
12. Отажонов, И. О. (2011). Ҳозирги тараққиёт даврида талабалар овқатланишини гигиеник асослаш. Тиббиёт фанлари номзоди илмий даражасини олиш учун диссертацияси.
13. Отажонов, И. О. (2020). Оценка психологического состояния больных с хронической болезнью почек. Главный редактор–ЖА РИЗАЕВ, 145.
14. Садирходжаева, А. А., & Ашурова, Д. Т. (2019). Особенности состояния кардиологических маркёров в ранней диагностики диабетической кардиомиопатии у детей с сахарным диабетом 1 типа. Austrian Journal of Technical and Natural Sciences, (3-4), 3-7.
15. Садирходжаева, А. А., Ашурова, Д. Т., & Шарапов, Б. У. (2019). ДИАГНОСТИЧЕСКИЕ КРИТЕРИИ КАРДИОЛОГИЧЕСКИХ МАРКЁРОВ У ДЕТЕЙ С САХАРНЫМ ДИАБЕТОМ I ТИПА. Новый день в медицине, (2), 50-52.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

16. Ашурова, Д. Т., & Садирходжаева, А. А. (2018). Особенности клинической симптоматики поражения сердечно-сосудистой системы при СД 1 типа у детей. Проблемы науки, (2 (26)), 69-73.
17. Шарипова, З. У., Ашурова, Д. Т., & Турсунова, О. А. (2017). Эффективность ступенчатой антибактериальной терапии в лечении пневмонии у детей. Молодой ученый, (16), 102-104.
18. Турсунова, О. А., & Шарапов, Б. У. (2017). ИЗУЧЕНИЕ ЧАСТОТЫ ЗАБОЛЕВАЕМОСТИ ГЕМОРРАГИЧЕСКИМ ВАСКУЛИТОМ У ДЕТЕЙ. In INTERNATIONAL INNOVATION RESEARCH (pp. 236-239).
19. Садирходжаева, А. А. (2025). ОСОБЕННОСТИ ПАРАМЕТРОВ ГЕМОСТАЗА И ЭНДОТЕЛИАЛЬНОЙ ДИСФУНКЦИИ У ДЕТЕЙ С СД 1 ТИПА ПЕРЕНЕСШИХ COVID-19 ИНФЕКЦИЮ. Medical journal of Uzbekistan, 1(6), 150-154.
20. Shaxzod, E. (2025). —ISKRA-1" APPARATI TUZILISHI VA UNDA TEKSHIRISH USULLARI (Doctoral dissertation, DIGITIZATION IS THE FUTURE OF MEDICINE).
21. Shaxzod, E. (2025). ELEKTR QURILMALAR VA ELEKTR XAVFSIZLIGINI TA ‘MINLOVCHI BINOLARNING TASNIFI (Doctoral dissertation, DIGITIZATION IS THE FUTURE OF MEDICINE).
22. Shaxzod, E. (2025). YUQORI CHASTOTALI ELEKTR TOKI BILAN TA ‘SIR E ‘TUVCHI TIBBIY QURILMALAR (Doctoral dissertation, DIGITIZATION IS THE FUTURE OF MEDICINE).
23. Shaxzod, E. (2025). QURILMALARGA XIZMAT KO_ RSATISH STANDARTLARINI O_ RGANISH (Doctoral dissertation, DIGITIZATION IS THE FUTURE OF MEDICINE).
24. Shaxzod, E. (2025). ULTRA YUQORI CHASTOTALI ELEKTROMAGNIT MAYDON BILAN DAVOLASH TEXNIKALARI (Doctoral dissertation, DIGITIZATION IS THE FUTURE OF MEDICINE).
25. Shaxzod, E. (2025). NANOMATERIALLARNI XARAKTERLASH TEXNOLOGIYALARI VA NANOTEXNOLOGIYA SOHASIDAGI ZAMONAVIY TADQIQOTLAR (Doctoral dissertation, “INNOVATIVE EDUCATION: DEVELOPMENT AND INTERNATIONAL EXPERIENCE”).
26. ABDURAKHMONOV, S., ESANOV, S., ULUGBERDIYEV, A., & ABDURAZZOKOV, J. (2025). MODERN GENERATION DEVICES IN COMPUTER TOMOGRAPHY. DENTOPR APPARATUS CAPABLE OF SIMULTANEOUSLY VISUALIZING BOTH SOFT AND HARD TISSUES. SCIENCE, 4(2-4), 9-11.
27. Абдурахмонов, С. А., Эсанов, Ш. Ш., Улугбердыев, А. Ш., ЭСАНОВ, Я., & АБДУРАЗАКОВ, Х. (2024). Автоматизация процесса управления системой здравоохранения. Оптимизация управленческих решений в автоматизированных системах управления с использованием стилей линейного программирования. МОЛОДОЙ УЧЕНЫЙ Учредители: ООО" Издательство Молодой ученый", (45), 16-18.
28. Shaxzod, E. (2025, November). Коррозиябардош қопламаларни металлургик бойитиш жараёнларида қўлланилиши. International scientific and scientific-technical conference on.
29. Абдурахмонов, С. А. (2024). Воздействие физических полей на биологические объекты. Молодой ученый, (42 (541)), 46.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

30. Islomjon, I., & Fazliddin, A. (2025). Efficiency of Mobile Apps in Healthcare: A Case Study of MED-UZ AI. Modern American Journal of Medical and Health Sciences, 1(2), 19-24.
31. Ermetov, E. Y., Arzikulov, F., & Norbutayeva, M. (2025). ELECTRONIC HEALTH SYSTEMS (EHR). Western European Journal of Medicine and Medical Science, 3(01), 12-20.
32. Арзикулов, Ф. Ф., & Мустафакулов, А. А. (2021). Программное обеспечение, измеряющее мощност генератора энергии ветра. October, 20(2025), 22.
33. Мустафакулов, А. А., Джуманов, А. Н., & Арзикулов, Ф. (2021). Альтернативные источники энергии. Academic research in educational sciences, 2(5), 1227-1232.
34. Куланов, Б. Я., & Саодуллаев, А. С. (2021). Развитие альтернативных источников энергетики Узбекистана. In НАУКА, ОБРАЗОВАНИЕ, ИННОВАЦИИ: АКТУАЛЬНЫЕ ВОПРОСЫ И СОВРЕМЕННЫЕ АСПЕКТЫ (pp. 29-32).
35. Арзикулов, Ф. Ф., & Мустафакулов, А. А. (2020). Возможности использования возобновляемых источников энергии в узбекистане. НИЦ Вестник науки.
36. Arzikulov, F., & Makhsudov, V. (2025). How to calculate operations on matrices using Excel. Modern American Journal of Engineering, Technology, and Innovation, 1(2), 119-132.
37. Ermetov, E. Y., Arzikulov, F., Safarov, U., Olimov, A., & Izbasarov, I. (2025). PROTECTION OF MEDICAL DATA BY BLOCKCHAIN. Western European Journal of Medicine and Medical Science, 3(01), 52-56.
38. Мусаев, Ш., Арзикулов, Ф. Ф., Олимов, О. Н., Норматова, Д. А., & Сатторова, М. А. (2021). Свойства кристаллов кварца. Science and Education, 2(10), 201-215.
39. Mustafakulov, A. A., Arzikulov, F. F., & Dzhumanov, A. (2020). Use of alternative energy sources in the mountainous areas of the Jizzakh region of Uzbekistan. Internauka: electron. scientific. zhurn,(41 (170)).
40. Mustafakulov, A. A., Arzikulov, F. F., & Djumanov, A. (2020). Ispolzovanie Alternativno'x Istochnikov Energii V Gorno'x Rayonax Djizakskoy Oblasti Uzbekistana. Internauka: elektron. nauchn. jurn, 41, 170.
41. Мустафакулов, А. А. (2020). Рост кристаллов кварца на нейтронно-облученных затравках. Инженерные решения, (11), 4-6.
42. Shomurodov, K. E., & Isomov, M. M. (2021). Cytokine profile of blood plasma and oral fluid in pregnant women with odontogenic inflammatory diseases. Central Asian Journal of Medical and Natural Science, 2(3), 118-122.
43. Шомуродов, К. Э., & Исомов, М. М. (2020). Мониторинг стационарной и амбулаторной реабилитации беременных женщин с воспалительными заболеваниями ЧЛО. Стоматология, 1, 34-37.
44. Shomurodov, K. E., Kuryazova, Z. K., Isomov, M. M., Mukimov, I. I., & Fayziyev, B. R. (2017). Improvement of surgical treatment of fractures of the inferior orbit wall. J Stomatologiya2017, 2, 78-80.
45. Isomov, M. M., Shomurodov, K. E., Olimjonov, K. J., & Azimov, I. M. (2020). Features of etiopathogenesis and the course of inflammatory processes of periapical tissues in women during pregnancy. Journal Biomedicine and Practice, 833-838.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

46. Isomov, M. M. (2020). Features of etiopathogenesis and the course of inflammatory processes of periapical tissues in women during pregnancy (review of literature)/Isomov MM, Shomurodov KE, Olimjonov KJ, Azimov IM. Biomedicine and practice.–2020.–№ SI-2, 833-838.
47. Bush, A., & Pavord, I. (2021). Pediatric bronchial diseases and inflammatory airway conditions. The Lancet Respiratory Medicine, 9(6), 593–604.
48. Martinez, F. D. (2018). Early-life respiratory infections and the development of chronic respiratory disease. American Journal of Respiratory and Critical Care Medicine, 198(9), 1091–1098.
49. Taussig, L. M., & Landau, L. I. (2017). Pediatric Respiratory Medicine. 3rd ed. Philadelphia: Elsevier.
50. Weinberger, M., & Fischer, A. (2020). Differential diagnosis of recurrent bronchitis and asthma in children. Pediatric Pulmonology, 55(7), 1733–1742.
51. Midulla, F., Nicolai, A., & Ferrara, M. (2019). Recurrent respiratory infections in childhood: Clinical and diagnostic aspects. Italian Journal of Pediatrics, 45(1), 1–9.
52. Global Initiative for Asthma (GINA). (2022). Global Strategy for Asthma Management and Prevention. Updated report.
53. Papadopoulos, N. G., et al. (2020). Environmental risk factors for respiratory diseases in children. Allergy, 75(5), 1122–1135.
54. Shamsiev, A. M., & Karimov, H. Y. (2019). Pediatric respiratory diseases and their clinical features. Journal of Pediatric Medicine of Uzbekistan, 2(1), 45–51.
55. Tursunov, R. A., & Abdullaeva, N. S. (2021). Clinical aspects of respiratory infections in children. Medical Journal of Uzbekistan, 3(2), 67–72.
56. Mamatkulov, B. M., & Ismailova, D. Z. (2020). Prevention of respiratory diseases among children in Central Asia. Central Asian Medical Journal, 4(1), 28–34.
57. Karimov, F. M. (2018). Pediatric Pulmonology. Tashkent: Medical Publishing House.
58. Yuldashev, R. S., & Akhmedov, A. A. (2022). Risk factors of recurrent respiratory diseases in children. Uzbek Medical Journal, 1(3), 52–58.
59. Rahmatov, O. R., & Saidov, S. M. (2017). Environmental impact on respiratory health in children. Public Health of Uzbekistan, 2(4), 41–47.
60. Sharipova, N. A., & Khasanov, B. T. (2020). Diagnosis and treatment of pediatric bronchial diseases. Tashkent Medical Academy Scientific Journal, 5(2), 74–80.
61. American Academy of Pediatrics (AAP). (2021). Respiratory infections and bronchial diseases in children. Pediatrics, 147(4), e2021051482.
62. European Respiratory Society (ERS). (2022). Clinical guidelines for respiratory diseases in children. European Respiratory Journal, 59(1), 2102419.

Web of Medicine: Journal of Medicine, Practice and Nursing
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