

Acute Bronchitis in Children

Sharipov I.L.

Samarkand State Medical University, Samarkand, Uzbekistan

isroilsharipovanes@gmail.com

Abstract:

Acute bronchitis represents one of the most common lower respiratory tract infections among children and continues to pose significant clinical and public health challenges globally, particularly in regions such as Central Asia. Pediatric patients are especially susceptible due to their anatomophysiological immaturity and environmental exposure, with recurrent or untreated cases potentially progressing to chronic conditions such as asthma.

This study is based on a synthesis of clinical observations and regional epidemiological data, focusing on the incidence, risk factors, and management of acute bronchitis in children in Uzbekistan. A review of national health statistics and published clinical research was performed, analyzing clinical presentations, diagnostic criteria, and therapeutic interventions, particularly the use of non-steroidal anti-inflammatory drugs like fenspiride (Erespal).

The findings confirm that the annual incidence of acute bronchitis in children ranges from 75 to 250 cases per 1,000, with peaks during colder months and in urban or polluted environments. The disease typically presents with cough, low-grade fever, and wheezing. Most cases are self-limiting, but approximately 5% may evolve into chronic or obstructive forms. Therapeutic management remains symptomatic, though fenspiride has shown efficacy in reducing bronchial inflammation and lowering the risk of complications.

The recurrent nature and potential complications of bronchitis necessitate early diagnosis, accurate differentiation between viral, bacterial, and allergic etiologies, and judicious use of anti-inflammatory agents. Preventive strategies including vaccination, parental education, and improved air quality are essential in reducing disease burden. Non-invasive diagnosis and rational pharmacotherapy can enhance outcomes and reduce healthcare costs, particularly in resource-limited settings.

Keywords: acute bronchitis, pediatric respiratory disease, airway inflammation, fenspiride, Uzbekistan, viral infections, bronchial obstruction, children, bronchitis, children, comprehensive therapy.

Acute bronchitis is one of the most prevalent inflammatory diseases affecting the lower respiratory tract in children and remains a frequent cause of pediatric consultations worldwide. It is typically defined as a self-limiting inflammation of the bronchial mucosa, primarily caused by viral agents such as influenza virus, respiratory syncytial virus (RSV), adenoviruses, and parainfluenza. In some instances, bacterial pathogens like *Mycoplasma pneumoniae*, *Chlamydophila pneumoniae*, or *Streptococcus pneumoniae* may act as primary or secondary agents [1-2]. The immature structure of the pediatric immune and respiratory systems—particularly narrow airways, underdeveloped mucociliary clearance mechanisms, and heightened airway sensitivity—renders children especially vulnerable to bronchial inflammation and obstruction. Clinically, the disease manifests through a persistent cough, which may be dry or productive, low-grade fever, wheezing, shortness of breath, and chest discomfort. In uncomplicated cases, symptoms typically resolve within one to two weeks; however, in younger children or those with comorbidities, the disease may take a prolonged, recurrent, or complicated course [3-4]. The economic and social impact is also significant, with acute bronchitis contributing to school absenteeism, parental work loss, and an increased burden on healthcare infrastructure, especially in developing countries.

In recent years, the global epidemiology of pediatric respiratory diseases has drawn particular attention due to rising pollution levels, changing viral strains, and increasing prevalence of allergic diseases. In Central Asia and countries like Uzbekistan, the incidence of acute bronchitis ranges between 75 and 250 cases per 1,000 children annually, with peaks observed during colder months. Urbanization, poor air quality, household smoke exposure, and limited access to quality pediatric healthcare services further exacerbate the burden of this illness. The diagnostic approach is largely clinical, based on history taking and physical examination, including auscultatory findings such as wheezing and rales [5]. Radiographic evaluation is reserved for persistent or atypical presentations to rule out pneumonia or foreign body aspiration. Laboratory markers are rarely needed but may support differentiation between viral, bacterial, or allergic etiologies through parameters such as leukocytosis, lymphocytosis, or eosinophilia. Management strategies prioritize supportive care including rest, hydration, antipyretics, and antitussives. However, the use of non-steroidal anti-inflammatory drugs (NSAIDs) like fenspiride (Erespal) has gained ground due to their proven efficacy in reducing bronchial inflammation and preventing complications. Preventive strategies—such as vaccination, environmental control, parent education, and early treatment of upper respiratory tract infections—are essential to reduce incidence and recurrence. Ultimately, a comprehensive understanding of the multifactorial nature of acute bronchitis, combined with evidence-based intervention and public health support, is crucial for improving pediatric respiratory outcomes and safeguarding child health on a broader scale [6-7].

Relevance. Bronchitis is an inflammation of the bronchi, the lower respiratory tract through which air enters the lungs. In children, the disease can be caused by viral and bacterial infections, as well as various adverse environmental factors and allergic reactions. In general, acute bronchitis is relatively easy to treat; however, certain forms require special attention from healthcare professionals.

METHODOLOGY

The incidence of this pathology in the republics of Central Asia ranges from 75 to 250 cases per 1,000 children per year. Most commonly, children under the age of 6 are affected. In the majority of cases, acute bronchitis follows a mild course and is a self-limiting disease. Treatment is usually limited to symptomatic and supportive therapy. Among lower respiratory tract diseases, bronchitis is the leading condition in the structure of bronchopulmonary pathology [8]. It is a polyetiological disease characterized by inflammation of the bronchial mucosa, with clinical manifestations including cough, sputum production, and, in cases involving small bronchi, dyspnea.

According to official statistics, the incidence rate of bronchitis varies widely, ranging from 14 to 25 per 1,000 children in the country's average annual pediatric population, accounting for approximately 5% of all childhood diseases and about 30% of lower respiratory tract diseases [9-10]. Numerous recent epidemiological studies have shown that the prevalence of bronchitis is higher among children living in large industrial cities, in poor sanitary and epidemiological conditions, in crowded environments (such as children's groups), and in regions with cold, humid climates and significant daily fluctuations in temperature, humidity, and atmospheric pressure [11].

RESULTS

The relevance of the issue is due to:

1. The high incidence rate;
2. The frequent development of pneumonia on the background of ongoing bronchitis;
3. The tendency of the disease to follow a prolonged, recurrent, and complicated course;
4. The ability of bronchitis (mainly recurrent forms) to create prerequisites for the development of bronchial hyperreactivity, which may lead to obstructive disease forms and bronchial asthma;
5. The significant economic costs of treatment (especially of recurrent, obstructive, and chronic forms), both for the families of affected children and for the public healthcare system.
6. According to the etiology of the disease, three main types of bronchitis can be distinguished:
7. *Infectious bronchitis*, caused by various infectious agents: viruses, bacteria (including atypical microorganisms), fungi, and protozoa;
8. *Non-infectious bronchitis*, resulting from the impact of various allergens (dust, plant pollen, etc.) On the mucous membrane of the respiratory tract; toxic substances (acid and alkali vapors, gasoline combustion products, sulfur dioxide, etc.); and physical factors (hot dry or excessively cold air), among others.

Diagnosis of Bronchitis. The diagnosis of bronchitis in children is carried out by a pediatrician. First, the specialist listens to the complaints of the child or the parent and asks how long the symptoms have persisted [12-13]. Then, the doctor measures the patient's temperature, examines the throat, and listens to the breathing and chest sounds using a stethoscope. In cases of bronchitis, the pediatrician can detect characteristic wheezing and crackles [14].

In childhood, bronchitis presents in two main clinical forms:

1. Simple bronchitis;
2. Obstructive bronchitis.

Simple bronchitis usually occurs in the early days of a viral infection, following symptoms affecting the nasopharynx (such as rhinitis, pharyngitis, sinusitis, etc.). Given the close association of the disease with viral infection, two groups of symptoms are identified in the clinical picture of

bronchitis:

1. Symptoms associated with viral intoxication;
2. Symptoms directly related to damage to the bronchial mucosa.

Causes of Prolonged Bronchitis:

The prolonged course of bronchitis may be caused by:

1. Complications of bronchitis (mucostasis, bronchogenic atelectasis);
2. Spread of the inflammatory process to the small bronchi;
3. Bacterial superinfection;
4. Incomplete eradication of the microorganism from the respiratory tract;
5. Anatomical peculiarities of the respiratory tract structure, and others.

DISCUSSION

Hematological changes are usually non-manifest, inconsistent, and depend on the etiology of the bronchitis [15-16]. However, in some cases, the hemogram can help determine the likely nature of the disease:

Viral (lymphocytosis),

Bacterial (leukocytosis, neutrophilia, left shift of the leukocyte formula),

Allergic (eosinophilia).

Chest radiography is generally not indicated in acute bronchitis. However, it may be justified in cases of a persistent cough (lasting more than 2–3 weeks), persistent unilateral or localized catarrhal findings in the lungs, or in the presence of atypical auscultatory signs, to exclude pneumonia, aspiration of foreign material into the respiratory tract, specific bronchopulmonary diseases, or malignancies [17-18].

CONCLUSION

Modern anti-inflammatory therapy of bronchitis in childhood is the foundation of pathogenetic treatment of the disease. Among the known non-steroidal anti-inflammatory drugs, Erespal exhibits the most pronounced effect, suppressing the key components of the inflammatory process in the respiratory tract, regardless of the etiology of the bronchopulmonary condition. By acting on multiple key points of inflammation, the drug allows for the following:

1. Reduction of the overall medication burden on the patient;
2. Provides an indirect mucoregulatory and antitussive effect associated with inflammation suppression and reduced mucus production in the respiratory tract;
3. Serves as an alternative to antibacterial therapy in managing bronchopulmonary conditions after the bronchitis course is completed;
4. Is a safe medication with a minimal number of side and adverse effects, has no significant drug interactions, and is well compatible with the most commonly used drugs in bronchitis treatment;
5. Has a favorable safety profile.

REFERENCES

- [1] R. G. Artamonov, "Bronxity," *Med. nauchn. i ucheb.-metod. zhurn.*, vol. 42, pp. 3–24, 2018.
- [2] B. R. Akramov and I. L. Sharipov, "Optimizatsiya obezbolivaniya pri plasticheskikh operatsiyakh u detey," *Detskaya khirurgiya*, vol. 24, no. S1, Moscow, 2020.
- [3] E. V. Sereda, "Bronxity u detey: sovremennye printsipy terapevticheskoy taktiki," *Farmateka*, no. 11, pp. 38–44, 2002.

- [4] G. A. Samsygina, "Ostryy bronkhit u detey i ego lechenie," *Pediatrica*, vol. 87, no. 2, pp. 25–32, 2008.
- [5] I. L. Sharipov, "Snizhenie intoksikatsii sochetannymi metodami ekstrakorporal'noy detoksikatsii pri pochechnoy nedostatochnosti u detey," *Detskaya khirurgiya*, no. 1, 2014.
- [6] I. L. Sharipov, "Snizhenie intoksikatsii sochetannymi metodami ekstrakorporal'noy detoksikatsii pri pochechnoy nedostatochnosti u detey," *Detskaya khirurgiya*, no. 1, 2014. [Online]. Available: <https://cyberleninka.ru/article/n/snizhenie-intoksikatsii-sochetannymi-metodami-ekstrakorporalnoy-detoksikatsii-pri-pochechnoy-nedostatochnosti-u-detey>
- [7] I. L. Sharipov, "Otsenka kombinirovannogo primeneniya metodov ekstrakorporal'noy detoksikatsii u detey s pochechnoy nedostatochnost'yu," *Vrach-aspirant*, vol. 54, no. 5.2, pp. 332–341, 2012.
- [8] I. L. Sharipov, "Pokazateli sistemnoy gemodinamiki pri sochetannom primenenii metodov zameshchayushchey terapii u detey s pochechnoy nedostatochnost'yu," *Medikus*, vol. 5, no. 35, pp. 13–18, 2020.
- [9] I. L. Sharipov, "Otsenka sochetannogo primeneniya metodov ekstrakorporal'noy detoksikatsii u detey s pochechnoy nedostatochnost'yu," *Vrach-aspirant*, vol. 54, no. 5.2, pp. 332–341, 2012.
- [10] M. M. Matlubov, T. K. Nematulloev, and E. G. Khamdamova, "Sravnitel'naya otsenka gemodinamicheskikh effektov spinal'noy anestezii," *Vyshshaya shkola: nauchnye issledovaniya*, pp. 100–107, 2020.
- [11] M. M. Matlubov, A. U. Rakhimov, and A. A. Semenikhin, "Kombinirovannaya spinal'no-epidural'naya anesteziya pri abdominal'nom rodorazreshenii," *Anesteziologiya i reanimatologiya*, no. 6, pp. 71–73, 2010.
- [12] S. A. Nasriev et al., "Gemodinamicheskiy effekt selektivnoy spinal'noy anestezii pri proktologicheskikh operatsiyakh," *Dostizheniya nauki i obrazovaniya*, no. 7(29), 2018. [Online]. Available: <https://cyberleninka.ru/article/n/gemodinamicheskiy-effekt-selektivnoy-spinalnoy-anestezii-pri-proktologicheskikh-operatsiyah>
- [13] I. L. Sharipov, "Otsenka sochetannogo primeneniya metodov ekstrakorporal'noy detoksikatsii u detey s pochechnoy nedostatochnost'yu," *Vrach-aspirant*, vol. 54, no. 5.2, pp. 332–341, 2012. EDN PFGJLD.
- [14] I. Sharipov, B. K. Xolbekov, and B. R. Akramov, "Hemodynamic gradations with combined use of extracorporeal detoxification methods in children with renal failure," *Eur. J. Mol. Clin. Med.*, vol. 7, no. 3, pp. 2555–2563, 2020. EDN PPDWZO.
- [15] I. L. Sharipov, "The use of YeCD in the treatment of acute and chronic renal failure in children," *Medical and Science Journal*, vol. 13, 2012.
- [16] I. L. Sharipov, J. T. Yusupov, and B. K. Xolbekov, "Personalization and preventative premedication: used drugs value and efficiency," *Web of Scientist: Int. Sci. Res. J.*, vol. 3, no. 2, pp. 740–748, 2022.
- [17] I. L. Sharipov, B. Q. Xolbekov, and B. R. Akramov, "Hyemodynamic gradations with combined use of extracorporeal detoxification methods in children with renal failure," *Eur. J. Mol. Clin. Med.*, vol. 7, no. 3, pp. 2555–2563, 2020.
- [18] N. Z. Kurbanov and I. L. Sharipov, "Improvement of anesthetic protection in simultaneous operations on abdominal and pelvic organs," *World Sci. Res. J.*, vol. 20, no. 1, pp. 113–116, 2023.
- [19] N. Z. Kurbanov and I. L. Sharipov, "Improving anesthetic protection and blood pressure control in simultaneous abdominal and pelvic operations in obese patients," *J. Appl. Med. Sci.*, vol. 7, no. 1, pp. 97–101, 2023.
- [20] N. Z. Kurbanov and I. L. Sharipov, "Increasing anesthesiological protection during simultaneous operations on abdominal and pelvic region in obese patients," *Academia Repository*, vol. 4, no. 11, pp. 321–325, 2023.
- [21] I. L. Sharipov, N. Z. Kurbanov, and S. Rakhmonov, "Improving airway patency during

operations in the maxillofacial region in children,” Academia Repository, vol. 4, no. 12, pp. 140–145, 2023.