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CLINICAL AND LABORATORY DIAGNOSTICS OF CHRONIC BRONCHITIS IN CHILDREN

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Abstract
The relevance of chronic bronchitis in children increases every year, which is associated with many factors affecting the health of the small population. Children, especially young children, are most susceptible to this disease due to the anatomy of the respiratory tract and the immaturity of the immune system. Chronic bronchitis, being a long-term inflammation of the bronchial tree, increases the risk of developing serious complications such as bronchial asthma and pulmonary infections. Against the backdrop of a deteriorating environmental situation, an increase in the number of allergenic factors, as well as the widespread spread of viral and bacterial infections, the incidence of chronic bronchitis among children is reaching alarming levels.

Keywords: Chronic bronchitis, etiological factors, clinical and laboratory diagnostics, sputum analysis.

Introduction

Chronic bronchitis in children is a serious problem that requires a comprehensive approach to diagnosis and treatment. The disease is characterized by long-term inflammation of the bronchial tree, which can lead to difficulty breathing, frequent coughing episodes and sputum production. The main causes of its occurrence are often associated with external and internal factors.

One of the most common causes is exposure to tobacco smoke, both passive and active, which leads to inflammation of the bronchi. Allergic reactions to dust, pollen and animal hair can also contribute to the development of chronic bronchitis. In addition, frequent viral infections of the upper respiratory tract weaken the body's defense mechanisms, opening the way for bacteria [2, 14, 17].

Some children have a predisposition to allergies and asthma, making them more vulnerable. It is important to note that adverse environmental conditions such as air pollution and high humidity can make the situation worse.

The pathogenesis of chronic bronchitis in children is a complex process affecting various aspects of the immune system and the respiratory tract. The development of chronic bronchial

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inflammation is based on recurring infections, allergic reactions, and chronic exposure to environmental agents such as tobacco smoke or polluted air [2, 5, 18].

The initial stage of pathogenesis is an inflammatory reaction, which leads to swelling of the mucous membrane and increased mucus production. These changes disrupt normal bronchial patency and contribute to the development of obstruction. Children, especially those predisposed to allergic diseases, have increased reactivity of the respiratory tract, which can aggravate the course of the disease.

Without proper treatment, the process can progress, causing changes in the structure of the bronchial tree, such as tissue remodeling, which makes it difficult for the respiratory system to continue to function.

The clinical symptoms of this disease are varied and may vary depending on the child's age and the severity of the pathology. The main signs are chronic cough, which is often productive, and the release of mucous or mucopurulent sputum. Children may also complain of shortness of breath, especially with physical activity, and wheezing heard when auscultating the lungs. External manifestations of the disease, such as cyanosis of the skin and loss of appetite, may indicate progression of the condition [1, 6, 16].

Symptoms tend to worsen during cold weather or when exposed to allergens. It is important to pay attention to the duration and nature of the cough, especially if it persists for more than three months a year for two consecutive years.

Laboratory diagnostics of chronic bronchitis in children is an important set of measures that facilitate early detection and effective treatment of this disease. The main objective of diagnostics is to study the causes that contribute to the development of chronic inflammation of the bronchi, as well as to assess the functional state of the respiratory organs.

The key methods in laboratory diagnostics are sputum analysis, general blood analysis and spirometry. Sputum analysis allows to identify pathogenic microorganisms and the nature of the inflammatory process, while general blood analysis helps to determine the presence of inflammation and its intensity. When examining sputum, attention is paid to its color, consistency, quantity, and the presence of pathological impurities such as pus or blood. Visually assessing sputum is not enough; it is necessary to conduct laboratory tests that will identify pathogens, as well as determine the level of inflammatory cells such as eosinophils and neutrophils [3, 10, 12].

Sputum analysis results can help identify both acute and chronic processes that characterize bronchitis and ultimately contribute to the development of an individualized treatment strategy aimed at improving the patient's quality of life and preventing complications.

Spirometry in chronic bronchitis in children is an important tool for assessing lung function and diagnosing respiratory disorders. Chronic bronchitis, a common respiratory disease in children, is often accompanied by prolonged cough, sputum production, and difficulty breathing. Spirometry allows for objective measurement of vital capacity, forced expiratory volume and expiratory flow rate, which is key for monitoring a child’s condition [2, 9, 13].

The study is conducted in a calm environment using a special device - a spirometer. The results of the stenographic analysis help doctors determine the degree of airway obstruction and evaluate the effectiveness of the treatment. Regular spirometry in children with chronic bronchitis also allows for the detection of functional changes at early stages and timely adjustment of therapy.

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An allergological study is also an important aspect, which helps to exclude the allergic nature of the disease. The combination of these methods provides a comprehensive approach, allowing doctors to accurately establish a diagnosis and prescribe adequate treatment, which is extremely important for the health of children [1, 8, 14].

One of the main complications is the development of bronchospasm, leading to difficulty breathing and wheezing. Advanced cases can cause an exacerbation, which requires immediate medical attention and the prescription of anti-inflammatory drugs.

In addition, children with chronic bronchitis often have impaired lung function, which affects their physical activity and overall health. Frequent colds and respiratory infections can also be a consequence of a weakened immune system. To avoid such complications, it is important to provide the child with proper living conditions, including fresh air and avoidance of allergens.

Prevention of chronic bronchitis in children is an important task that requires a comprehensive approach. One of the key aspects is the creation of favorable conditions for the child's health. To do this, it is necessary to ensure a normal microclimate in the room: maintain optimal temperature and humidity, regularly ventilate the rooms and avoid household allergens [2, 11].

It is also important to develop a healthy lifestyle. It is recommended to involve children in physical education, which helps strengthen the immune system and improve respiratory function. A healthy and balanced diet, rich in vitamins and minerals, is important for maintaining the overall health of the body.

No less important is the prevention of infectious diseases, such as influenza and acute respiratory viral infections, which can provoke the development of bronchitis. Vaccination, compliance with hygiene standards and health monitoring can significantly reduce the risks [3, 7, 15].

Treatment of chronic bronchitis includes the prescription of anti-inflammatory drugs, mucolytics and, in some cases, bronchodilators. In addition to drug therapy, physical activities are no less important: treatment in the fresh air, breathing exercises and adherence to a daily routine. Parental awareness and active participation in the recovery process play an equally important role in alleviating the child's condition.

Conclusions

Thus, chronic bronchitis is a multifactorial disease requiring an individualized approach to diagnosis and therapy. Early recognition and adequate treatment of chronic bronchitis in children contribute to improving the quality of life and preventing possible complications.

References

1. Середа Е.В., Селимзянова Л.Р, Кустова О.В. и др. Хронический бронхит при врожденных и наследственных заболеваниях органов дыхания у детей. Современные технологии диагностики и терапевтическая тактика. Рос. педиатр. журн. 2012; 4: 36-40.

2. Хронические заболевания легких у детей. Под ред. Н.Н.Розиновой, Ю.Л.Ми-зерницкого. М.: Практика, 2011.

3. Дронов И.А., Шахназарова МД. Роль макролидных антибиотиков в лечении острого бронхита и внебольничной пневмонии у детей. Фарматека. 2016; 314 (1): 10-4.

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

4. Sabirovna I. N. et al. ETIOPATHOGENETIC AND DIAGNOSTIC CRITERIA FOR GILBERT'S SYNDROME //Web of Medicine: Journal of Medicine, Practice and Nursing. – 2024. – Т. 2. – №. 1. – С. 34-37.
5. Umarova T. A., Kudratova Z. E., Baxromova M. AUTOIMMUNE DISEASES: NEW SOLUTIONS IN MODERN LABORATORY DIAGNOSTICS //International Conference on Modern Science and Scientific Studies. – 2024. – С. 78-81.
6. Nabiyeva F. S. et al. CREATION OF OPTIMUM CONDITIONS FOR PROPAGATION OF SACCHAROMYCES CEREVISIAE YEAST //Journal of new century innovations. – 2023. – Т. 23. – №. 1. – С. 85-91.
7. Ибрагимова Н. С., Рашидов А. ДИАГНОСТИКА ПЕРВИЧНЫХ ИММУНОДЕФИЦИТОВ //TADQIQOTLAR. UZ. – 2024. – Т. 30. – №. 3. – С. 153-158.
8. Бердиярова Ш. Ш. и др. УЗЛОВОЙ ЗОБ И ЕГО КЛИНИКО-ЛАБОРАТОРНАЯ ДИАГНОСТИКА //TADQIQOTLAR. UZ. – 2024. – Т. 49. – №. 3. – С. 38-45.
9. Dushanova G. A., Nabiyeva F. S., Rahimova G. O. FEATURES OF THE DISTRIBUTION OF HLA-ANTIGENS AMONG PEOPLE OF THE UZBEK NATIONALITY IN THE SAMARKAND REGION //Open Access Repository. – 2023. – Т. 10. – №. 10. – С. 14-25.
10. Berdiyarova Sh.Sh., Ahadova M.M., Ochilov S.A. COMPLICATIONS OF TREATMENT OF ACUTE HEMATOGENOUS OSTEOMYELITIS, LITERATURE REVIEW, Galaxy International Interdisciplinary Research Journal 293-298
11. Бердиярова Ш.Ш., Юсупова Н.А., Ширинов Х.И. Клинико-лабораторная диагностика внебольничных пневмоний у детей, Вестник науки и образования, 80-83
12. Umarova T. A., Kudratova Z. E., Muhsinovna R. M. THE MAIN PURPOSE OF LABORATORY DIAGNOSIS IN RHEUMATIC DISEASES //International Conference on Modern Science and Scientific Studies. – 2024. – С. 82-85.
13. Sabirovna I. N., Shekhrozovna B. F. PRIMARY IMMUNODEFICIENCY CONDITIONS //Web of Medicine: Journal of Medicine, Practice and Nursing. – 2024. – Т. 2. – №. 1. – С. 59-61.
14. Давлатов С. С., Сайдуллаев З. Я., Даминов Ф. А. Миниинвазивные вмешательства при механической желтухе опухолевого генеза периампулярной зоны //Сборник Научно-практической конференций молодых ученных СамМИ. – 2010. – Т. 2. – С. 79-80.
15. Sabirovna I. N., Bobomurodovna B. D., Fakhriddinovna U. G. RISK FACTORS, CLINICAL AND LABORATORY FEATURES AND PREVENTION OF OXALATE NEPHROPATHY IN CHILDREN //JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH. – 2024. – Т. 3. – №. 1. – С. 136-141.
16. Isomadinova L. K., Daminov F. A. GLOMERULONEFRIT KASALLIGIDA SITOKINLAR AHAMIYATI //Journal of new century innovations. – 2024. – Т. 49. – №. 2. – С. 117-120.
17. Nabiyeva F. S., Ibragimova N. S., Diamatova D. N. 2-TIP QANDLI DIABET KECHISHINING O'ZIGA XOS XUSUSIYATLARI //TADQIQOTLAR. UZ. – 2024. – Т. 31. – №. 1. – С. 28-32.
18. Даминов Ф. А., Исомадинова Л. К., Рашидов А. ЭТИОПАТОГЕНГЕТИЧЕСКИЕ И КЛИНИКО-ЛАБОРАТОРНЫЕ ОСОБЕННОСТИ САЛЬМОНЕЛИОЗА //TADQIQOTLAR. UZ. – 2024. – Т. 49. – №. 3. – С. 61-67.

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