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Features of the Course and Treatment of Obstructive Bronchitis in Early Childhood

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Abstract: Obstructive bronchitis - a spasm of the bronchi or blockage of the mucous membrane - occurs more often in children than in adults. This is explained by the peculiarities of the anatomical structure, the immaturity of the immune system, and the beginning of active socialization.

Keywords: Obstructive bronchitis, causes, symptoms, types, diagnosis, treatment, complications, prevention

Oxygen is delivered to the main respiratory organ - the lungs - through a complex system of respiratory tracts. Air enters the trachea through the nasopharynx, a vertical tube that divides before entering the lungs and forms two main bronchi. In turn, the main bronchi form a network of "roads" for the movement of air within the lungs.

Bronchi are sections of the respiratory tract located within the lungs.

If the bronchi are in order, air flows freely into the lungs, providing the body with oxygen. If their lumen narrows or is filled with mucus, breathing becomes difficult, and tissues and organs do not receive enough oxygen.

Mucus in the bronchi limits the access of oxygen to the lung tissue

Obstructive bronchitis is an inflammation of the bronchi, in which their lumen narrows and the movement of air through them is impaired.

Bronchitis

With obstructive bronchitis, the lumen of the bronchi narrows and it becomes difficult for a person to breathe.

Causes of narrowing of the bronchial lumen:

spasm of the bronchial walls,

swelling of the mucous membrane,

excessive mucus production.

Obstructive bronchitis is more common in children than in adults - this is due to narrowing of the airways, the inability to cough up mucus effectively, the immaturity of the immune system, and the onset of socialization (i.e., active exposure to bacteria and viruses).). The disease can develop at any age, but most often occurs in children between six months and 5 years of age. Obstructive bronchitis is one of the leading causes of hospitalization in infants and young children.

In the International Classification of Diseases (ICD-10), obstructive bronchitis is coded J44 ("Other chronic obstructive pulmonary disease"). In the new edition of the International Classification of Diseases (ICD-11), obstructive bronchitis is coded CA20.Y ("Other specified bronchitis").

Reasons.

As a rule, the cause of obstructive bronchitis in children is a viral infection. Premature babies and children during the period of adaptation to kindergarten are especially susceptible to pathology. Less often, the disease is caused by bacterial and fungal infections. Also, obstructive bronchitis can be provoked by a number of genetic and autoimmune pathologies.

Possible causes of obstructive bronchitis in children:

respiratory viral infections;

herpes viral infections (cytomegalovirus, Epstein-Barr virus);

fungal infections;

bacterial infections (respiratory tract infection with mycoplasma or chlamydia);

allergy;

genetic diseases (cystic fibrosis).

The risk of developing obstructive bronchitis depends on the state of the immune system and a number of other factors, including physiological and anatomical characteristics, chronic diseases, and environmental influences.

Factors contributing to the development of obstructive bronchitis in children:

weakened immune system;

premature birth;

bronchopulmonary dysplasia (immaturation of the lungs at birth);

frequent and prolonged respiratory infections;

untreated infections;

chronic inflammation of the tonsils (adenoiditis, tonsillitis);

dental infections;

parasitic infections;

external aggressive environmental influences (passive smoking, polluted or too dry air);

the beginning of socialization: visiting clubs, sections, kindergarten.

Symptoms of obstructive bronchitis in children

One of the main symptoms of obstructive bronchitis is a tiring paroxysmal cough, accompanied by strong contractions of the diaphragm, abdominal, and shoulder muscles, and whistling during exhalation.

In this case, the cough may not be constant, but episodic: it may occur 1-3 times a day, under certain conditions, for example, after physical activity, on the street or during sleep.

Symptoms of obstructive bronchitis in children:

a) paroxysmal cough, often occurring at night and worsening after physical activity or crying;
b) when coughing - yellowish or green sputum;
c) noisy, rapid, and shallow breathing;
d) shortness of breath, difficulty breathing (visible by the retraction of the intercostal spaces during breathing, burning of the wings of the nose);
e) fatigue;
f) chest pain;

g) anxiety;

h) signs of hypoxia: pallor, marble skin pattern, cyanosis of the nasolabial region, increased heart rate.

With obstructive bronchitis, cyanosis and a marbled appearance of the skin may occur - these are signs that the body is not getting enough oxygen.

Obstructive bronchitis can have a different course. With rapid development, suddenly, without symptoms of acute respiratory infections, a sharp cough appears and breathing becomes difficult. Slowly - in the initial stages, the disease is accompanied by classic symptoms of a respiratory infection: fever, nasal congestion. In some cases, obstructive bronchitis in children occurs without a cough or with a slight cough.

The disease is not always accompanied by an increase in body temperature - therefore, parents do not immediately consult a doctor, considering the cough as a residual phenomenon of a previous viral infection.

If you have a paroxysmal cough, which is accompanied by noisy breathing during exhalation and increased fatigue in the child, you should consult a doctor.

How does obstructive bronchitis develop in children?

Normally, the bronchial mucosa constantly produces a small amount of mucus. Mucus, when it enters the respiratory tract with air, traps and neutralizes pathogens. It is removed from the bronchi by the ciliated epithelium - microscopic villi that line the walls of the respiratory tract. Their vibrations move the mucus upward, into the pharynx.

If inflammation develops, more mucus is secreted, it becomes more viscous and it becomes more difficult for the epithelial cilia to lift it up. At the same time, the mucous membrane of the bronchi swells, and their walls spasm under the influence of viral components. Swelling of the mucous membrane occurs in response to the active growth of the pathogen: more blood and lymph flow to it to fight the infection.

As a result, the outflow of mucus and the movement of air in the bronchi are significantly hindered - obstruction occurs.

Types of obstructive bronchitis in children

Obstructive bronchitis in children is classified according to a number of parameters, such as the duration of the disease and its location, nature, and possible complications.

Types of obstructive bronchitis according to the origin of the disease:

a) viral,

b) bacterial,

c) mushroom,

d) Caused by genetic diseases (cystic fibrosis).

Types of obstructive bronchitis by prevalence:

a) inflammation of the main bronchi - large airways located at the entrance to the lungs;

b) inflammation of the small branches of the bronchi (medium bronchi, small bronchi);

c) Inflammation of the bronchioles (bronchiolitis) - the ends of the bronchial branches that lead to the alveoli of the lungs, most often occurs in infants and children under 2 years of age.

Types of obstructive bronchitis according to the clinical course:

Acute - symptoms of the disease (cough, sputum production, shortness of breath, wheezing or chest discomfort) do not last more than 14 days. As a rule, this form goes away within 5-7 days with adequate prescribed treatment;

Recurrent - occurs several times a year (2-3 times or more), including immediately after recovery, develops in children with immature lungs and herpes viral infections: cytomegalovirus, Epstein-Barr virus;

Chronic - lasts more than 8 weeks, this form of bronchitis in children is much less common than in adults;

Long-term - a wet cough lasts more than 4 weeks (in the absence of signs or symptoms of other diseases), often periods of improvement are accompanied by new exacerbations.

Types of obstructive bronchitis according to the occurrence of complications:

Without complications;

With the development of pneumonia with or without bronchiectasis (dilation of the bronchi);

With the development of respiratory and (or) heart failure.

Diagnosis of obstructive bronchitis in children

Diagnosis of obstructive bronchitis in children is carried out by a pediatrician. At the appointment, the doctor examines the child, listens to and beats his lungs. Based on the sounds produced during the examination, the specialist can determine whether there is inflammation and how much it obstructs the movement of air and mucus in the bronchi. The doctor assesses the child's skin color and the nature of respiratory movements. Analyzes the symptoms and history of the disease, assesses the effectiveness of treatment.

During the physical examination, the doctor will also perform pulse oximetry, which can determine the oxygen saturation of the blood and measure the heart rate.

All of this allows us to make an initial diagnosis and prescribe treatment to alleviate the child's condition until the results of other studies are ready.

An X-ray or CT scan is performed to assess the condition of the bronchi and the risk of pneumonia (pneumonia).

To determine the cause of the inflammation that led to the obstruction, the doctor will prescribe a clinical blood test and a bacterial examination of sputum.

Differential diagnosis

Symptoms similar to obstructive bronchitis can develop against the background of gastroesophageal reflux, in which the contents of the stomach are thrown into the esophagus and irritate the receptors, which can provoke coughing attacks. In addition, coughing can be caused by the ingress of a foreign body into the bronchi, heart failure or bronchial asthma.

To understand why treatment of obstructive bronchitis does not bring relief or to identify other causes of worsening of the condition, additional examinations are performed: ultrasound of the stomach if reflux disease is suspected; X-ray or endoscopic examination of the bronchi to exclude foreign bodies and abnormalities in the structure of the respiratory tract; electrocardiography, echocardiography, and consultation with a cardiologist if heart failure is suspected.

Treatment of obstructive bronchitis in children

It is necessary to start treatment of obstructive bronchitis as soon as possible to prevent the development of hypoxia, which is when the heart, brain and other systems and organs do not receive enough oxygen. Depending on the age and health of the child, as well as the severity of the symptoms, the doctor will decide on treatment at home or hospitalization. Obstructive bronchitis in children under one year of age is treated in a hospital.

The main goal of therapy is to eliminate spasm and swelling of the bronchi in order to restore mucus movement and lung ventilation. For this, inhalation of drugs (bronchodilators,

glucocorticosteroids) is used through a nebulizer - a device that most effectively delivers substances to the bronchi and bronchioles. If a nebulizer is not available, syrups or tablets are used.

Nebulizer

A nebulizer is a device that converts a medicinal liquid solution into a fine powder under high air pressure.

At a temperature above 38.5 ° C or with a runny nose, symptomatic treatment is prescribed to alleviate the child's condition (antipyretics, vasoconstrictors).

If the disease is caused by a bacterial infection, antibiotic therapy is prescribed.

Antibiotics are not prescribed for obstructive bronchitis unless a blood test shows bacterial inflammation.

If the child's condition is severe, additional measures are taken - mucus is removed from the bronchi using special devices ("cough cleaners"), and oxygen is additionally supplied through nasal cannulas (tubes attached to the nose).

For obstructive bronchitis, regardless of the cause of inflammation, it is recommended to drink plenty of fluids: a large amount of fluid helps reduce the viscosity of sputum and facilitates its discharge. Mineral water; If the child is small or refuses to drink due to poor health, drinking is prescribed - in this case, the liquid is given to the child from a spoon or a syringe without a needle in small portions at short intervals.

Percussion massage helps remove mucus - light, rapid strokes on the child's back and chest.

It is very important to take care of the air quality in the house - ventilate it regularly and install a humidifier. If you are prone to respiratory infections, it is recommended to carry out wet cleaning more often and, if possible, reduce the number of dusty items (decorative pillows, soft toys).

Prognosis of obstructive bronchitis in children

With adequate treatment, inflammation and obstructive syndrome disappear within 5-7 days. After treatment, a dry cough can last up to 1 month.

About a third of all cases of recurrent obstructive bronchitis lead to the development of bronchial asthma.

Complications of obstructive bronchitis in children

If not adequately treated, obstructive bronchitis can become chronic or recurrent and lead to a number of respiratory pathologies.

Possible complications of obstructive bronchitis in children:

pneumonia - inflammation of the lung tissue (the risk of this complication is higher in children under 3 years old, premature babies, and children who are often sick);

hypoxia - a condition in which insufficient oxygen reaches tissues and organs;

heart failure - a condition in which the heart cannot pump enough blood;

bronchial asthma.

Prevention of obstructive bronchitis in children

If a child is often and seriously ill with respiratory infections, it is recommended to reduce the number and intensity of contact with infections: if possible, change the kindergarten to short-term groups, do not go shopping and museums with the child, especially in the cold season, try to travel less by public transport.

Regularly ventilate and wet clean the children's room, store toys in closed containers, and books in closed cabinets. If the child is allergic to fungi and mold, it is recommended to remove houseplants from the room (spores can accumulate on the floor and provoke an allergic reaction).

It is important to treat oropharyngeal pathologies in a timely manner: respiratory diseases, tonsillitis, dental infections. Adherence to the schedule of preventive vaccinations helps protect the body and reduce the risk of obstruction.

Strengthening the immune system plays an important role - to effectively resist bacteria and viruses, the child needs to sleep well, eat a varied diet, exercise a lot, and walk in the fresh air every day. To further protect the body, the doctor may recommend vitamin supplements.

List of used literature:

1. Gasiorowska J., Czerwionka-Szaflarska M. Can obstructive bronchitis be a risk factor for bronchial asthma in infants and young children? // Pol Merkur Lekarski, 2009. vol. 26(151). pp. 77–81prevention
2. Kedrinskaya A. G., Obraztsova G. I., Nagornaya I. I. Cardiovascular lesions in children with obesity //POPULATION. – 2015. – Т. 69. – №. 74. – С. 980.
3. Ашурова М. Ж., Гарифулина Л. М. Минеральная плотность костей и уровень Витамина Д У ДЕТЕЙ с ожирением //Children's Medicine of the North-West. – 2020. – Т. 8. – №. 1. – С. 44-44.
4. Гарифулина Л. М., Ашурова М. Д., Тураева Д. Х. Характер питания и качество жизни детей с экзогенно-конституциональным ожирением //Достижения науки и образования. – 2019. – №. 10 (51). – С. 46-49.
5. Гарифулина Л. М., Ашурова М. Ж., Гойибова Н. С. Состояние здоровья детей с различными типами ожирения //Молодежь и медицинская наука в XXI веке. – 2018. – С. 35-37.
6. Гарифулина Л. М., Ашурова М. Д., Гойибова Н. С. Совершенствование терапии метаболического синдрома у подростков при помощи применения α-липоевой кислоты //Наука, техника и образование. – 2018. – №. 10 (51). – С. 69-72.
7. Ашурова М. БОЛАЛАР ВА ЎСМИРЛАРДА СЕМИЗЛИК ВА Д ВИТАМИНИ ДЕФИЦИТИ //Журнал гепато-гастроэнтерологических исследований. – 2020. – Т. 1. – №. 3. – С. 66-71.
8. Сорокман Т. В., Попелюк М. А. В., Ушакова Е. Ю. Прогностические критерии развития метаболического синдрома у детей //Здоровье ребенка. – 2016. – №. 2 (70). – С. 29-32.
9. Жамшедовна А. М., Гарифулина Л. М. Болалар ва ўсмирларда семизлик ва д витамини дефицити, муаммога замонавий қарашлар //Журнал гепато-гастроэнтерологических исследований. – 2022. – Т. 3. – №. 2.
10. Жамшедовна А. М., СЕМИЗЛИК Г. ВА Д ВИТАМИНИ ДЕФИЦИТИ, МУАММОГА ЗАМОНАВИЙ ҚАРАШЛАР //ЖУРНАЛ ГЕПАТО-ГАСТРОЭНТЕРОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ. – 2022. – Т. 3. – №. 2.
11. Ишкабулова Г. Д. и др. Влияние димефосфона на основные функции почек новорожденных, рожденных от матерей с хроническим пиелонефритом с сочетанным ОПГ-гестозом //Вестник науки и образования. – 2018. – №. 14-2 (50). – С. 51-55.
12. Ашурова М. Ж., Гарифулина Л. М. Болалар ва ўсмирларда семизлик ва Д витамини дефицити, муаммога замонавий қарашлар //YfcS^ VXbSea § VSdecapeXca^ aV [jXd][h [dd^ XWaUS[\. – 2020. – С. 8.
13. Кудратова Г. Н. и др. Болаларда ўткир панкератитни учраши ва клиник кечиши //Научно-практический журнал “Доктор ахборотномаси. – 2021. – Т. 3. – С. 100.
14. Жамшедовна А. М., Гарифулина Л. М. Samarqand viloyatidagi semizligi bor bolalarda vitamin d statusini baholash //Журнал гепато-гастроэнтерологических исследований. – 2023. – Т. 4. – №. 2.

15. Jamshedovna A. M., Maratovna G. L. Vitamin d level and bone mineral density status in obese and overweight children //Вестник науки и образования. – 2020. – №. 10-4 (88). – С. 98-100.

16. Гарифулина Л., Ашурова М., Холмурадова З. Изменения сердечно-сосудистой системы у подростков при ожирении и Артериальной гипертензии //Журнал проблемы биологии и медицины. – 2018. – №. 1 (99). – С. 33-35.

17. Holmuradovna T. D., Maratovna G. L., Jamshedovna A. M. OBESITY AS A RISK FACTOR FOR HEPATOBILIARY SYSTEM DAMAGE IN CHILDREN //Galaxy International Interdisciplinary Research Journal. – 2022. – Т. 10. – №. 6. – С. 454-462.

18. Zhamshedovna A. M., Maratovna G. L. VITAMIN D LEVEL AND CONDITION OF MINERAL BONE DENSITY IN CHILDREN WITH OBESITY AND OVERWEIGHT //European Journal of Interdisciplinary Research and Development. – 2022. – Т. 4. – С. 84-86.

19. Ашурова М. УРОВЕНЬ ВИТАМИНА Д И СОСТОЯНИЕ МИНЕРАЛЬНОЙ ПЛОТНОСТИ КОСТЕЙ У ДЕТЕЙ С ОЖИРЕНИЕМ //Евразийский журнал академических исследований. – 2024. – Т. 4. – №. 5. – С. 167-170.

20. Исламова Д. С., Ашурова М. Ж. Особенности Желчевыделительной Системы У Детей Старшего Возраста И Её Влияние На Их Здоровье //Miasto Przyszłości. – 2024. – Т. 52. – С. 212-214.

21. Юсупова М. М. и др. Факторы риска у полиморбидных детей //Тюменский медицинский журнал. – 2011. – №. 2. – С. 31-32.

22. Гарифулина Л., Ашурова М. Комплексная клинико-метаболическая оценка состояния детей с ожирением и артериальной гипертензией //Журнал проблемы биологии и медицины. – 2017. – №. 2 (94). – С. 31-34.

23. Ашурова М. ОЖИРЕНИЕ И ДЕФИЦИТ ВИТАМИНА Д У ДЕТЕЙ И ПОДРОСТКОВ //Журнал гепато-гастроэнтерологических исследований. – 2020. – Т. 1. – №. 3. – С. 66-71.

24. Maratovna G. L., Zhamshedovna A. M., Salimovna G. N. Characteristic of the cardiovascular system in children and adolescents at obesity in accompanience of arterial hypertension //CUTTING EDGE-SCIENCE. – 2020. – С. 33.

25. Жамшедовна А. М., Гарифулина Л. М. SEMIZLIGI BOR BOLALARDA VITAMIN D DEFITSITI HOLATLARINI ANIQLASH //ЖУРНАЛ ГЕПАТО-ГАСТРОЭНТЕРОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ. – 2022. – Т. 3. – №. 1.

26. Maratovna G. L., Salimovna G. N., Zhamshedovna A. M. FEATURES OF KIDNEY DAMAGE IN CHILDREN WITH OBESITY //Galaxy International Interdisciplinary Research Journal. – 2022. – Т. 10. – №. 6. – С. 445-453.

27. Jamshedovna A. M., Maratovna G. L. SEMIZLIGI BOR BOLALARDA VITAMIN “D” DEFITSITI HOLATLARINI ANIQLASH //T [a_XW [i [S US S_S^[ůe YfcS^. – С. 99.

28. Ашурова М. Ж. Абдусалямов А. А. Лекарственная безопасность с позиций педиатра стационара //Тюменский медицинский журнал. – 2011. – №. 2. – С. 21.

29. Гарифулина Л., Ашурова М., Атаева М. Некоторые метаболические показатели у детей с ожирением и артериальной гипертензией //Журнал вестник врача. – 2012. – Т. 1. – №. 2. – С. 54-55.

30. Рустамов М. и др. Антибиотикотерапия в педиатрии с точки зрения концепции изолированных пространств //Журнал вестник врача. – 2012. – Т. 1. – №. 3. – С. 134-144.

31. Гарифулина Л., Ашурова М. Комплексная клинико-метаболическая оценка состояния детей с ожирением и артериальной гипертензией //Журнал проблемы биологии и медицины. – 2017. – №. 2 (94). – С. 31-34.