

Causes of Pneumonia in Children and Modern Solutions for Prevention

Sanakulov Abdulatif Burkhanovich

Assistant, Department of Pediatrics, Faculty of Medicine, Samarkand State Medical University

Abstract: Pneumonia in children is an acute or less common chronic infectious and inflammatory disease of the respiratory tract, which occurs with damage to the lung tissue (parenchyma) against the background of bacterial, viral, fungal or parasitic infection. The disorder is accompanied by severe symptoms of cough, shortness of breath and general intoxication. Clinical manifestations appear especially in the first years of life. In older patients, except for severe forms of the disease, the symptoms are not so obvious.

Pulmonologists and pediatricians are involved in determining the causes of the pathological process. The treatment of the pathological process is also the competence of these specialists. Depending on the form and severity of the disorder, therapy can be outpatient or inpatient, in a hospital setting.

Key points: Diagnosis, Treatment, Prognosis Prevention, Causes of pneumonia in children, Pneumonia is an infectious disease.

In most cases, the pathological process develops as a result of damage to the bacterial flora, but different options are possible. According to our experts, the probability of damage is much higher in the first 3 years of life. According to statistics, lung damage in this age group occurs in 20 people per 1000 of the population at an early age. Community-acquired pneumonia is the most common form of the disease. After 3 years, the disease falls to 5 people per 1000 children, which is still a lot. In general, the incidence of pneumonia is almost 1.5% of the total mass of respiratory diseases in children.

Determining the causes and etiology of the inflammatory process is the work of a pediatrician or a pediatric pulmonologist (this is a specialized specialist).

Pathogenesis of the disease

The pathogenesis of lung tissue damage is always infectious. What infections can cause disease is a complicated question. There are more than a hundred different pathogens that can cause a pathological condition. The disease develops as a result of the influence of the following agents:

mycoplasma;

pneumococcus;

enterobacteria;

coli;

legionella;

Staphylococcus aureus;

streptococci.

These agents account for more than 80% of all clinical cases.

Respiratory tract and lung infections of viral and fungal origin are extremely rare. But it is worth noting that the non-bacterial forms of the disorder are more severe and the aggressiveness of the pathological process is higher.

The causes of pneumonia in children are not only related to the direct damage of certain agents. The main role in the development of the disorder is a decrease in local and general immunity. The penetration of bacteria or viruses is not yet a guarantee of a pathological process. It all depends on the quality of the body's defenses and the intensity of the immune system. A decrease in local and general immunity develops as a result of the influence of a group of factors:

various infectious diseases, regardless of the location of the main focus;

diseases of the respiratory tract and respiratory organs that occur in a chronic form over a long period of time;

respiratory tract infections, especially those that develop frequently;

violation of personal hygiene rules;

lung lesions.

And this is not a complete list. Determining the causes of the pathological process or disorder is the work of a pulmonologist or pediatrician. They diagnose the pathological condition and prescribe the necessary treatment.

Factors that increase the risk of developing pathology

Increased risk factors do not cause the disease in the first place. They cannot afford it. Risk factors create the necessary conditions for the development of the pathological process. Therefore, they play an important role and require mandatory consideration and subsequent correction as part of high-quality prevention.

Risk factors include:

infancy: the pathological process is common in newborns and patients under 2 years of age, in addition, this condition often causes complications;

heart diseases, especially dangerous and severe: congenital heart defects, as well as arrhythmia, ischemic processes (although in the first years, in the first months, these types of disorders are not so common);

violation of the pulmonary system, respiratory tract, the pathological process is accompanied by a decrease in the level of protective forces of the bronchopulmonary system, which is full of pneumonia, including repeated;

general weakening of the patient's immunity.

Morbidity is much higher in patients treated in hospital. The development of pneumonia in the hospital is potentially more dangerous. The disease appears suddenly and becomes more severe, because the causative agents are initially significantly aggressive and easily adapt to antibiotics and drugs. They develop resistance to therapy, which is especially dangerous (this applies not only to children, but also to adult patients).

Classification and forms of the pathological process

Pneumonia in a child is the general name of a group of pathological conditions united by their origin and approximate course. The division and classification of disorders into types is carried out on several grounds.

The first is the origin of the pathological process. Depending on the specific pathogen, three forms of the disease are distinguished:

bacterial pneumonia (bacteria of the pyogenic flora and others may be to blame): especially frequent, accompanied by characteristic symptoms, the course is relatively mild, but complications develop if there is no adequate therapy;

it develops as a result of viral infection of the respiratory tract, lungs, influenza viruses, parainfluenza and other types of pathological processes;

fungal infection, along with atypical symptoms, the presence of a fungal infection is usually characterized by a severe and clear clinical picture.

What differs from viral pneumonia in children, bacterial and fungal infections is damage caused by a chemical factor. This condition is called aspiration pneumonia, it does not develop often in children, but it is still possible.

A specific diagnosis is determined on the basis of laboratory, bacteriological and serological tests.

The second basis of classification involves division by origin, but is more general. There is community-acquired pneumonia and hospital-acquired pneumonia. Community-acquired pneumonia, or SAP, often develops in young patients. However, it is not that heavy. Hospital forms are provoked by agents characterized by increased resistance to drugs. These options are much heavier. As a rule, there are difficulties in treating disorders. Nosocomial forms require a special approach to correction.

Division into groups is carried out taking into account the localization of the lesion. The following types of pathological process are distinguished:

alveolar pneumonia affecting the alveoli, the final areas of the lung structures (X-rays do not always allow diagnosing this form of disorder);

focal pneumonia with changes in a small lesion (up to one centimeter in diameter) often occurs without any symptoms or with non-specific clinical signs;

segmental pneumonia covering the entire segment is the usual, most common form with a clear clinical picture;

interstitial pneumonia: characterized by diffuse, that is, widespread damage to lung structures.

All forms of pneumonia in humans are serious and can cause complications.

The next classification option takes into account the course of the pathological process. Allocation:
acute pneumonia in children;

chronic damage (if not treated in time, occurs in conditions of reduced immunity).

Depending on the spread, the disease can be unilateral (left-sided, right-sided) or bilateral. As a rule, left-sided pneumonia prevails in a child. It develops due to the anatomy of respiratory structures, but there may be changes. Right-sided pneumonia is very rare in children.

The basic classification methods described above are equally widely used. They allow to determine the degree of the disease, as well as to evaluate the clinical picture. This is very important, because it allows to determine methods of treatment of the pathological process in the shortest possible time.

Symptoms of pneumonia in children

Symptoms of pneumonia in children are determined by the individual parameters of the pathological process. As a rule, the disease is characterized by the following symptoms:

cough, first dry, then with a large amount of sputum (often it is difficult to clear, then special mucolytic drugs are required);

pains in the chest and back, in the projection of the affected lung and in the specific center of the inflammatory process;

shortness of breath, signs of respiratory failure due to damage to the patient's lower respiratory tract;

temperature, regardless of the cause of the pathological process, high body temperature, fever are typical clinical signs of pneumonia.

There are signs of general intoxication of the body. Headache, weakness, drowsiness. On the other hand, among pneumonia in children, low symptomatic forms of the disorder are enough. The complete or predominant absence of symptoms indicates a small lesion or an atypical course of the disease. Special diagnostics are usually required to identify such forms of disorder. It is carried out under the supervision of a doctor.

The clinical presentation of aspiration and other forms of pneumonia is approximately the same. The differences are small.

Important!

The absence or lack of clinical manifestations does not always indicate a mild form of pneumonia. This is incorrect. In some cases, there is a combination of an atypical course of the disease and the characteristics of the patient's body. In children of the first three months, the clinic is usually clear and noticeable, but not always. The question of the course of the disease can be determined only by conducting special examinations. radiography.

Hidden pneumonia in a child is dangerous because valuable time is lost. Symptoms of latent pneumonia, even in the acute phase of the disease, require urgent evaluation.

Complications of the pathological condition

Complications of a pathological condition are the result of insufficient or untimely, illiterate treatment of the disorder. Possible respiratory problems, further spread of the disease, etc.

Pneumonia in children is accompanied by more complications than in adult patients. This is due to insufficient development of local, general immunity. General weakness of a young patient's body. Complications often include diffuse spread of the inflammatory process. Simply put, there is the spread of infection through lung tissue. The development of a lung abscess, damage to the pleura and surrounding tissues (especially with an infiltrative inflammatory process) is possible. Acute respiratory failure can develop, which can lead to asphyxia and death. A small number of patients have signs of pulmonary edema (fluid accumulation with the development of asphyxiation symptoms). According to our data, complications appear mainly in the first week from the beginning of the pathological process and within 1-2 weeks after the complete end of the disease. In such moments, you should pay maximum attention.

Focal pneumonia in children is less dangerous in terms of complications, but this does not change the essence.

Diagnosis of pneumonia in children

Diagnosis is carried out urgently. The exam program includes:

verbal questioning of the patient or his parents (depending on the age of the person);

taking an anamnesis to assess the causes of the development of pneumonia symptoms in a child;

physical examination, auscultation;

X-ray examination that allows to recognize the disease, evaluate its characteristics (as well as a specific place, affected area).

If necessary, if there is doubt about the correctness of the diagnosis, CT and MRI of lung structures are performed.

Laboratory tests play a major role. Blood and sputum tests are performed. Also, bacteriological and serological studies that allow to identify the causative agent of the disease.

Clinical data are evaluated in the system. Only a doctor knows how to diagnose pneumonia in a child. It will not be possible to independently determine the pathological condition. This is a waste of valuable time.

Treatment of pathology

Treatment of pneumonia in children is carried out under the supervision of a pediatrician or a pediatric pulmonologist. Ideally, treatment begins on the first day of the development of the disorder. Therapy is carried out in an outpatient or hospital setting. Depending on the risk of disease.

Treatment involves correcting the underlying cause. Antibiotics and antiviral drugs are used. Medicines of the mucolytic group are prescribed for cough and sputum removal.

If the body temperature rises or there are signs of intoxication, antipyretic (anti-inflammatory) drugs, as well as saline drugs (as part of infusion therapy) can be used.

When the situation normalizes, physiotherapy methods are indicated. The physiotherapist will decide what specific measures are needed.

Forecasts of the disease

If the disease affects a large area of the lungs, the prognosis for life is relatively unfavorable. In other cases, with minimal damage, the prognosis is positive. A lot depends on the moment of starting therapy and the literacy of the treatment. According to the recommendations, help should begin within the first few days from the onset of the disease.

Measures to prevent pathological conditions

Prevention is carried out under the supervision of a doctor, as well as independently. Contact with patients with infectious diseases should be avoided. Compliance with hygiene rules plays an important role. Congenital forms of pneumonia are rare. To prevent congenital pneumonia in children, the mother should treat infectious diseases. Moreover, even at the stage of pregnancy planning. Also, don't forget about vaccinations.

List of used literature:

1. Filin VA Pediatrics: A textbook for students. average honey. educational institutions / Vyacheslav Aleksandrovich Filin. - M.: "Academy" publishing center, 2003. - 368 p.
2. Mazurin AV, Vorontsov IM Propedeutics of children's diseases - M.: 1985 - 432 p.
3. Andryev S. et al. Experience with the use of memantine in the treatment of cognitive disorders //Science and innovation. – 2023. – T. 2. – №. D11. – C. 282-288.
4. Antsiborov S. et al. Association of dopaminergic receptors of peripheral blood lymphocytes with a risk of developing antipsychotic extrapyramidal diseases //Science and innovation. – 2023. – T. 2. – №. D11. – C. 29-35.
5. Asanova R. et al. Features of the treatment of patients with mental disorders and cardiovascular pathology //Science and innovation. – 2023. – T. 2. – №. D12. – C. 545-550.
6. Begbudiyevev M. et al. Integration of psychiatric care into primary care //Science and innovation. – 2023. – T. 2. – №. D12. – C. 551-557.
7. Bo'Riyev B. et al. Features of clinical and psychopathological examination of young children //Science and innovation. – 2023. – T. 2. – №. D12. – C. 558-563.
8. Borisova Y. et al. Concomitant mental disorders and social functioning of adults with high-functioning autism/asperger syndrome //Science and innovation. – 2023. – T. 2. – №. D11. – C. 36-41.

9. Ivanovich U. A. et al. Efficacy and tolerance of pharmacotherapy with antidepressants in non-psychotic depressions in combination with chronic brain ischemia //Science and Innovation. – 2023. – T. 2. – №. 12. – C. 409-414.
10. Nikolaevich R. A. et al. Comparative effectiveness of treatment of somatoform diseases in psychotherapeutic practice //Science and Innovation. – 2023. – T. 2. – №. 12. – C. 898-903.
11. Novikov A. et al. Alcohol dependence and manifestation of autoaggressive behavior in patients of different types //Science and innovation. – 2023. – T. 2. – №. D11. – C. 413-419.
12. Pachulia Y. et al. Assessment of the effect of psychopathic disorders on the dynamics of withdrawal syndrome in synthetic cannabinoid addiction //Science and innovation. – 2023. – T. 2. – №. D12. – C. 240-244.
13. Pachulia Y. et al. Neurobiological indicators of clinical status and prognosis of therapeutic response in patients with paroxysmal schizophrenia //Science and innovation. – 2023. – T. 2. – №. D12. – C. 385-391.
14. Pogosov A. et al. Multidisciplinary approach to the rehabilitation of patients with somatized personality development //Science and innovation. – 2023. – T. 2. – №. D12. – C. 245-251.
15. Pogosov A. et al. Rational choice of pharmacotherapy for senile dementia //Science and innovation. – 2023. – T. 2. – №. D12. – C. 230-235.
16. Pogosov S. et al. Gnostic disorders and their compensation in neuropsychological syndrome of vascular cognitive disorders in old age //Science and innovation. – 2023. – T. 2. – №. D12. – C. 258-264.
17. Pogosov S. et al. Prevention of adolescent drug abuse and prevention of yatrogenia during prophylaxis //Science and innovation. – 2023. – T. 2. – №. D12. – C. 392-397.
18. Pogosov S. et al. Psychogenetic properties of drug patients as risk factors for the formation of addiction //Science and innovation. – 2023. – T. 2. – №. D12. – C. 186-191.
19. Prostyakova N. et al. Changes in the postpsychotic period after acute polymorphic disorder //Science and innovation. – 2023. – T. 2. – №. D12. – C. 356-360.
20. Prostyakova N. et al. Issues of professional ethics in the treatment and management of patients with late dementia //Science and innovation. – 2023. – T. 2. – №. D12. – C. 158-165.
21. Prostyakova N. et al. Sadness and loss reactions as a risk of forming a relationship together //Science and innovation. – 2023. – T. 2. – №. D12. – C. 252-257.
22. Prostyakova N. et al. Strategy for early diagnosis with cardiovascular diseaseisomatized mental disorders //Science and innovation. – 2023. – T. 2. – №. D12. – C. 166-172.
23. Rotanov A. et al. Comparative effectiveness of treatment of somatoform diseases in psychotherapeutic practice //Science and innovation. – 2023. – T. 2. – №. D12. – C. 267-272.
24. Rotanov A. et al. Diagnosis of depressive and suicidal spectrum disorders in students of a secondary special education institution //Science and innovation. – 2023. – T. 2. – №. D11. – C. 309-315.
25. Rotanov A. et al. Elderly epilepsy: neurophysiological aspects of non-psychotic mental disorders //Science and innovation. – 2023. – T. 2. – №. D12. – C. 192-197.
26. Rotanov A. et al. Social, socio-cultural and behavioral risk factors for the spread of hiv infection //Science and innovation. – 2023. – T. 2. – №. D11. – C. 49-55.
27. Rotanov A. et al. Suicide and epidemiology and risk factors in oncological diseases //Science and innovation. – 2023. – T. 2. – №. D12. – C. 398-403.
28. Sedenkov V. et al. Clinical and socio-demographic characteristics of elderly patients with suicide attempts //Science and innovation. – 2023. – T. 2. – №. D12. – C. 273-277.

29. Sedenkov V. et al. Modern methods of diagnosing depressive disorders in neurotic and affective disorders //Science and innovation. – 2023. – T. 2. – №. D12. – C. 361-366.
30. Sedenkova M. et al. Basic principles of organizing gerontopsychiatric assistance and their advantages //Science and innovation. – 2023. – T. 2. – №. D11. – C. 63-69.
31. Sedenkova M. et al. Features of primary and secondary cognitive functions characteristic of dementia with delirium //Science and innovation. – 2023. – T. 2. – №. D11. – C. 56-62.
32. Sedenkova M. et al. The possibility of predicting the time of formation and development of alcohol dependence: the role of genetic risk, family weight and its level //Science and innovation. – 2023. – T. 2. – №. D12. – C. 173-178.
33. Shamilov V. et al. Disorders of decision-making in the case of depression: clinical evaluation and correlation with eeg indicators //Science and innovation. – 2023. – T. 2. – №. D12. – C. 198-204.
34. Solovyova Y. et al. Protective-adaptive complexes with codependency //Science and innovation. – 2023. – T. 2. – №. D11. – C. 70-75.
35. Solovyova Y. et al. Suicide prevention in adolescents with mental disorders //Science and innovation. – 2023. – T. 2. – №. D11. – C. 303-308.
36. Solovyova Y. et al. The relevance of psychotic disorders in the acute period of a stroke //Science and innovation. – 2023. – T. 2. – №. D12. – C. 212-217.
37. Spirkina M. et al. Integrated approach to correcting neurocognitive defects in schizophrenia //Science and innovation. – 2023. – T. 2. – №. D11. – C. 76-81.
38. Chuchalin AG Respiratory medicine. Manual in 3 volumes. - M.: Litterra, 2017. - T. 2.
39. Pediatrics: a textbook for honey. universities / ed. NP Shabalova. - 6th edition, rev. and supplement - St. Petersburg: SpetsLit, 2015.- 959 p. : ill.