

## FACTORS INFLUENCING THE DEVELOPMENT OF THE PROLONGED CURRENT OF NON-SOCIAL PNEUMONIA IN CHILDREN ACCORDING TO THE DATA OF RETROSPECTIVE STUDIES

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### **Abstract:**

One of the leading causes of a complicated and protracted course of pneumonia is a change in the body's immunological reactivity. The study of community-acquired pneumonia over the past decades, both in our country and abroad, has made it possible to significantly change the understanding of many aspects of this problem and optimize diagnostic and therapeutic tactics. In the works of Russian and foreign researchers, it has been shown that the features of the clinical picture of community-acquired pneumonia in children depend on their age, immune status and properties of respiratory pathogens.

Many works are devoted to the study of immune disorders and their role in the pathogenesis of community-acquired pneumonia. So, Kh.M. Vakhitov (2009) showed that the development of community-acquired pneumonia in children is accompanied not only by an increase in the level of pro-inflammatory interleukins, but also by significant disturbances in the composition of lipoproteins, primarily due to an increase in atherogenic fractions in combination with intensive activation of peroxide processes. lipid oxidation.

An important criterion for the use of antibiotics is reliable clinical guidelines, modern diagnostic tests that allow timely detection and identification of bacterial infection.

**Keywords:** Community-acquired pneumonia, cytokines, children, prolonged course

**Introduction:** Despite numerous studies aimed at solving the obvious problem, mortality in severe forms of pneumonia does not decrease; single publications in medical literature consider this problem in the light of growing antibiotic resistance of pathogens and irrational use of antimicrobial agents in this category of patients. [1]. Irrational use of antibacterial agents is associated with the aggravation of the problem of growth of antibiotic resistance of hospital pathogens. The worsening problem of antibiotic resistance of bacteria to antibiotics is also associated with the prevalence of self-treatment. In recent years, clinical course of the disease has also changed; the number of cases of prolonged pneumonia is increasing. A large number of cases of the prolonged course of pneumonia are probably due to atypical agents

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and the ineffectiveness of ABT. The modern interpretation of prolonged pneumonia is based on delayed or unauthorized pneumonic process in spite of the therapy carried out. The risk factors of prolonged pneumonia development are background of concomitant diseases, age of the patient, and degree of inflammatory process severity and virulence of the causative agent [5].

It is also necessary to analyze the compliance of the starting therapy with the current etiological structure of pneumonia and the sensitivity of the probable pathogen to antibiotics. Numerous studies have shown that the most frequent pathogen of EP is pneumococcus, which, according to various authors, in 15-60% of cases causes the disease [7]. At present, clinical information has been accumulated on the role of pneumonia and the development of its prolonged course, the most frequent of which is *Streptococcus pneumoniae* [4]. Study of the role of pneumococcal infection is relevant for all countries of the world, including Russia, because pneumococcal infection is a serious medical and social problem [2]. Among other typical bacterial pathogens of pneumonia, a notable etiological role belongs to *H. influenzae*, to a lesser extent to the Enterobacteriaceae family (*Klebsiella pneumoniae*, *Escherichia coli*, etc.), *Pseudomonas aeruginosa* (*P. aeruginosa*) and *St. Aureus*. The main problem in choosing an acceptable antibiotic is the microbiological characteristics of the pathogens, causing a rational approach to the choice of antimicrobial chemotherapy of the disease. The importance of the etiological diagnosis in extra-hospital pneumonia is undoubted, as only the etiological diagnosis allows prescribing timely etiotropic therapy.

### **Research goal**

Study microbiological composition and resistance to antibacterial agents of pneumonia pathogens in children.

### **Materials and techniques**

A total of 100 children with extra-hospital pneumonia aged 1 to 15 who were admitted to inpatient treatment at the Department of Pulmonology of the RSSPMC Pediatrics of the Ministry of Health were examined.

The diagnosis was made based on the classification of the main clinical forms of bronchopulmonary diseases in children, approved at a special meeting of the XVIII National Congress on Respiratory Diseases (2009). Anamnestic data, results of clinical, laboratory, functional methods of investigation and results of etiological verification were taken into account for making the diagnosis. Microbiological tests were carried out in accordance with the standards of modern clinical microbiology, conducted by taking material from the depth of the yawn and determined by the bacterioscopic method in smears painted on gram. Sensitivity to antimicrobial preparations was studied by disco diffusion method.

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The data were processed by the method of variation statistics on Fisher - Student with the help of personal computers and the use of application software package.

#### Results and discussion

Anamnestic data revealed that in the group of children with EP, 62.5% of those surveyed had an aggravated heredity due to somatic diseases, of which 25.0% had an acute respiratory disease due to bronchopulmonary disease, 28.5% of mothers had an acute respiratory disease during pregnancy. It is known that respiratory diseases suffered by the mother during pregnancy violate the clinical and immunological condition of a newborn child, which may be one of the reasons for the formation of frequent morbidity in the future. The majority of mothers of children - 68.2% of cases - had foci of chronic infection (ENT diseases of the organs, bronchopulmonary system, cardiovascular and genitourinary systems). All observed children had frequent acute respiratory diseases (5-6 times per year) in their history.

The severity of ER in children is significantly affected by adverse pre-morbid background. In analyzing the background conditions of children with EP, we found that 78.0% of children had first-degree to second-degree anemia, 32.5% had allergic diathesis, 42.5% had residual rickets, and 10.0% had protein-energy deficiency. In this age group, background burdens are actually already coexisting diseases that weigh significantly on the course of the underlying pathology.

The structure of concomitant diseases in preschool EP children was changed, the list of nosological forms of diseases was expanded, and the percentage of diseases with chronic course increased. The first place in the number of cases in children was occupied by chronic diseases of ENT - organs of 67.5% of children, chronic gastroenteritis of 12.5%, chronic enterocolitis of 10.0%, chronic cholecystitis of 15.0%, cardiovascular system, in particular, carditis of 20.0%, MMD of 16.0%.

When admitted to the hospital, the main complaints from parents of sick children were 100% coughing, 75.0% shortness of breath, 62.5% had higher body temperature, 82.0% lower appetite, 89.3% sluggishness, 95.0% pallor, 87.5% sleep disturbance, and 35.0% runny nose.

According to X-ray examination of respiratory organs, 52.5% of patients were diagnosed with bilateral foci pneumonia, 22.5% with right-sided pneumonia, and the inflammation center was located mainly in the basal segments of the right lung. 7.5% had left-sided pneumonia and 17.5% had polysegmental pneumonia.

It is known that when prescribing antibacterial drugs in the EP, a specialist must take into account the likely etiology of the disease. Practice shows that even a beginner clinician should be able to determine the likely etiology of pneumonia from clinical and radiological data, i.e. to think about "typical" or "SARS" pathogens. This will make it possible to prescribe a drug of the appropriate spectrum.

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The etiology of extra-hospital pneumonia is associated with microflora colonized in the upper respiratory tract. The results of a bacteriological study in patients with extra-hospital pneumonia at the peak of the disease showed in 37.5% of cases sensitivity to the strains *Staphylococcus aureus*, in 27.5% to *Streptococcus pneumoniae*, in 15.0% to *Klebsiella pneumoniae* and in 20.0% to *H.influenzae*. The analysis of microorganisms of *Staphylococcus aureus* species in 100% had sensitivity to cephoperazone, carbapenemes, in 60% to amoxicillin, cefotaxime, cephepine, in 40% to ampicillin and only in 20% to macrolides. The largest number of *S. aureus* strains were resistant to 100%  $\beta$ -lactams, 80% to macrolides, 40% to ceftazidime, and only 20% to ceftriaxone. When assessing the sensitivity *Streptococcus pneumoniae* showed a high level of resistance: in 80% to cefotaxime, in 60% to cefepharazone, macrolides, and amikacin. There was an increase of resistance frequency in 100% of cases to  $\beta$ -lactams, 40% to ceftriaxone, carbapenemes and ampicillin and only 20% of cases to macrolides.

Thus, the analysis of the microbial spectrum of the pathogens of extra-hospital pneumonia showed a high frequency of isolation of problematic polyresistant microorganisms, which may become a determining factor for the outcome of the disease. The list of antibacterial drugs used should change depending on changes in sensitivity of microorganisms in order to overcome the resistance of microflora.

#### Conclusions:

1. Detection of microflora determines the use of different groups of antibacterial therapy, taking into account the spectrum of antibiotic sensitivity of microbial strains, which is largely variable.
2. Microbiological studies have shown that children with non-hospital pneumonia have a significant sensitivity to *Staphylococcus aureus* strains in 47.5% of cases and to *Streptococcus pneumoniae* in 38.5% of cases.

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