

## DIAGNOSTIC CRITERIA OF CHLAMYDIAL PNEUMONIA IN CHILDREN

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**ABSTRACT:** Despite numerous scientific studies, the problem of pneumonia in children, especially atypical etiology - chlamydia, continues to remain unsolved, which is associated with the difficulty of early diagnosis of the etiological factor, the features of clinical and laboratory manifestations of the disease. The purpose of our study is to study the diagnostic criteria of chlamydial pneumonia in children. Materials and methods of research. To establish the diagnostic significance of clinical signs, markers of the inflammatory response and cytokines depending on the etiological factor of the disease, an examination of 40 patients with community-acquired pneumonia aged from birth to 10 years was conducted, divided into 2 groups: Group I - 20 patients with pneumonia with chlamydial etiology, Group II - 20 patients with typical etiology of pneumonia.

**Key words:** chlamydial pneumonia, diagnostics, clinic, children.

**Relevance.** According to the World Health Organization, pneumonia is one of the main causes of childhood mortality worldwide. The search for methods of etiological diagnosis and improvement of methods of therapy of pneumonia in children continues [3,6]. The criteria for diagnosing "atypical" pneumonia are the difficulty of isolating pathogens using traditional bacteriological research and the ineffectiveness of penicillin therapy. The effectiveness of antibacterial therapy largely depends on the timely detection of the etiological factor of pneumonia, which dramatically affects the course and outcome of the disease, and cultural diagnostics is difficult, since chlamydia, being an intracellular pathogen, is not detected either by microscopy of a sputum smear or by standard bacteriological culture of sputum or blood. [1,2,8]. Chlamydia are intracellular microorganisms that persist in epithelial cells for a long time, cause complicated course and are the cause of exacerbation of chronic bronchopulmonary pathology, which leads to difficulties in diagnosis and treatment [7,10,11]. Laboratory diagnostics of the activity of the inflammatory process in the lungs in atypical pneumonia is based on the determination of C-reactive protein, which is the main marker of the activity of the inflammatory process [5,12]. Determination of procalcitonin is necessary when deciding on the addition of a bacterial infection and the prognosis of bacterial complications. The study of inflammation markers and the cytokine profile in pneumonia in children can be a criterion for determining the pathogen, as well as differential diagnostics [4,9].

**The aim of the study is to study** the diagnostic criteria of chlamydial pneumonia in children.

**Materials and methods of the study.** To establish the diagnostic significance of clinical signs, markers of the inflammatory response and cytokines depending on the etiological factor of the disease, an examination of 40 patients with community-acquired pneumonia aged 1 to 10 years was conducted, divided into 2 groups: Group I - 20 patients with pneumonia with chlamydial etiology, Group II - 20 patients with typical etiology of pneumonia. To assess the normative laboratory parameters, 20 healthy children were examined. To clarify the atypical etiology of pneumonia, PCR methods were used, characterized by high diagnostic accuracy. The content of C-reactive protein and procalcitonin in the blood serum were determined on an automatic immunochemiluminescent analyzer Immulite 2000.

**Results of the study.** The results of the comparative analysis of the studied parameters in patients with chlamydial pneumonia (Group I) and typical pneumonia (Group II) showed that the largest number of children with chlamydial pneumonia belonged to the age group over 6 years (56.7%), compared with patients with typical etiology (13.3%) pneumonia. In chlamydial pneumonia, the onset of the disease was mainly associated with a gradual increase in clinical symptoms, which was a reliably significant criterion compared with pneumonia of typical etiology.

On admission to the hospital, the condition of moderate severity in children was significantly more often observed with chlamydial pneumonia (61.7%), in contrast to the disease caused by typical flora

(38.3%). With chlamydial pneumonia, the disease in 70.0% of cases occurs against the background of subfebrile temperature, febrile temperature in 26.7% and in isolated cases in patients (3.3%) was recorded above 39.0 C. The main complaint of patients was a cough that appeared from the first days of the disease, which was dry, whooping cough-like in nature with scanty, difficult to separate sputum. Hard breathing was heard during auscultation, which was significantly different compared to pneumonia of typical etiology. With chlamydial pneumonia, high rates of absence or mild dyspnea were observed. The data of the analysis allow us to recommend the following as additional criteria for the etiological diagnosis of pneumonia caused by chlamydial pneumonia: younger age of children, gradual development, “familial” nature of the disease, moderate condition, subfebrile temperature, dry cough with scanty difficult to separate sputum, absence of respiratory failure or 1st degree respiratory failure.

When studying C-reactive protein and procalcitonin, conducted upon admission to hospital in patients with chlamydial pneumonia (Group I), a reliable difference was found in almost all studied indicators in relation to the control group. The revealed patterns in the assessment of the concentration of inflammation biomarkers CRP and PCT in the blood of patients indicate a pronounced activity of the inflammatory process in pneumonia caused by the pathological influence of chlamydia and in combination with other clinical and laboratory indicators will improve diagnostics, monitor the course of the disease and evaluate the effectiveness of drug therapy.

Analysis of the obtained data showed that in patients with chlamydial pneumonia, there is a reliable increase in the endogenous production of both anti-inflammatory - IL-4, and pro-inflammatory cytokines - IL-6 and TNF- $\alpha$ , more than 3.2 times, 2.9 and 2.5 times, respectively, compared with standard values. The analysis data showed that in the formation of the pneumonic process in children with atypical etiological factors, a significant role is played by hyperproduction of anti-inflammatory cytokines and a decrease in the level of pro-inflammatory cytokines.

**Conclusion.** The results of the studies allowed us to recommend the following as additional criteria for the etiological diagnosis of chlamydia: gradual development, familial nature of the disease, moderate severity, subfebrile temperature, unproductive, obsessive, dry cough with scanty, difficult to separate sputum, absence or grade 1 DN. They also showed that immunological disorders in sick children with atypical pneumonia are characterized by a reliable increase in proinflammatory and anti-inflammatory cytokines compared to standard values. The identified violations of cytokine indicators indicate the possibility of their use as promising markers in early diagnosis of the etiological factor and will increase the possibilities of corrective therapy for chlamydial pneumonia.

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