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FEATURES OF COMMUNITY-ACQUIRED PNEUMONIA IN CHILDREN

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Abstract
Community-acquired pneumonia (CAP) in children remains a pressing problem in modern pediatrics, occupying one of the leading places in the structure of infectious morbidity and mortality in early childhood. Despite progress in the field of vaccination and antibacterial therapy, the level of hospitalizations and fatal outcomes in CAP remains significant. The lack of clear clinical markers, similarity with other respiratory infections, as well as the increasing antibiotic resistance of pathogenic flora complicate timely diagnosis and the choice of rational therapy. Of particular importance is a systematic approach to the study of clinical, diagnostic and microbiological characteristics of CAP in children, taking into account age stratification.

Keywords: Community-acquired pneumonia, pediatrics, microbiology, clinical forms, diagnostics, antibiotic resistance, age characteristics.

Introduction

Community-acquired pneumonia in children is an acute infectious inflammation of the lung parenchyma that develops outside a hospital setting or within the first 48 hours of hospitalization. The etiologic spectrum varies depending on the child's age, immune status, and epidemiological factors. In infants, viral agents (RSV, metapneumovirus) predominate, while in children over 5 years of age, typical bacterial pathogens predominate, primarily Streptococcus pneumoniae, Haemophilus influenzae, as well as atypical pathogens (Mycoplasma pneumoniae, Chlamydophila pneumoniae). The clinical course may be latent, in an erased form, which causes a high proportion of diagnostic errors. It is advisable to identify age-related subtypes of the disease with clarification of clinical, radiological, laboratory, and microbiological characteristics, which allows for increased diagnostic accuracy and treatment effectiveness.

Objective of the Study

To evaluate the clinical and diagnostic features, etiological structure and antibiotic sensitivity of pathogens of community-acquired pneumonia in children depending on age.

Materials and Methods

A prospective single-center study was conducted at the multidisciplinary clinic of the Tashkent Medical Academy from January 2022 to December 2024. The study included 174 children aged 1 month to 15 years with a confirmed diagnosis of CAP. The diagnosis was verified based on clinical signs, physical examination data, laboratory tests (CBC, CRP, procalcitonin), chest X-ray, as well as the results of PCR and microbiological examination of sputum/nasopharyngeal aspirate. Patients were stratified into 3 age groups: Group I - up to 1 year (n = 52), Group II - 1–5 years (n = 68), Group III - 6–15 years (n = 54). The following statistical processing methods were used: Pearson's χ^2 test, Student's t-test, logistic regression. The significance level is $p<0.05$.

Results

1. In infants, the most common signs of respiratory failure were tachypnea, cyanosis, and intercostal retractions (91%), and less commonly, cough and fever. In groups II and III, the most common symptoms were wet cough, hyperthermia (up to 39–40°C), auscultatory wheezing (84%), and weakened breathing.
2. An age-dependent profile of inflammatory markers was revealed: CRP>60 mg/l was recorded in 73% of cases with bacterial etiology ($p<0.01$). Leukocytosis and procalcitonin levels also correlated with the severity of the disease.
3. Etiology: Streptococcus pneumoniae – 31%, Haemophilus influenzae type b – 18%, Mycoplasma pneumoniae – 13%, viruses – 24%, mixed – 14%.
4. A decrease in the sensitivity of S. pneumoniae to penicillins was established to 68%, amoxicillin/clavulanate and third-generation cephalosporins retain their activity (88–92%).
5. Rational initial therapy ensured positive dynamics in 87% of patients. In the group up to one year, therapy correction was required in 26% of cases.

Conclusions

1. Community-acquired pneumonia in children is characterized by pronounced clinical and etiological heterogeneity.

2. Diagnostics requires a comprehensive approach with mandatory use of laboratory and instrumental methods.
3. The growth of antibiotic resistance requires a revision of empirical treatment regimens.
4. Stratified tactics for managing children with CAP increases the effectiveness of therapy and reduces the risk of complications.

References

1. WHO. Pneumonia in children. WHO Bulletin. 2024.
2. Bradley JS et al. Clin Infect Dis. 2023;76(1):e25–e52.
3. Korppi M. Eur J Pediatr. 2023;182:1011–1019.
4. Baranov AA, Zakharova IN. Pediatrics. 2023;102(4):15–22.
5. Kozlova LV, Epifanov AS. Journal of Infectious Diseases. 2024;13(2):44–50.
6. Rudan I. et al. Bull World Health Organ. 2023;101(1):1–10.
7. Shamsutdinova NR. Medical Almanac. 2023;7(39):112–118.
8. Melnikova I.V. Russian Journal of Pediatrics. 2024;12(3):55–60.
9. Lodha R., Kabra S.K. Indian Pediatr. 2023;60:517–523.
10. Makarova N.A. Pediatric Pharmacology. 2024;21(1):23–29.