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Research Article

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Clinical Research Analysis of Pneumonia in 214 Children

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Abstract

Purpose: *To investigate the clinical characteristics, etiological distribution and treatment outcome of pneumonia in children, and to provide reference for clinical diagnosis and treatment. Methods: The clinical data of 214 children with pneumonia admitted to our hospital from January 2024 to December 2024 were analyzed retrospectively, including age, sex, seasonal distribution, clinical manifestations, etiological examination and treatment.*

Results: *Of the 214 children, 132 were mycoplasma pneumonia and 82 were lobar pneumonia. Conclusion: Infantile pneumonia is common in infants under 3 years of age, mainly in winter and spring. Viral infection is the main cause. Early reasonable treatment has good prognosis.*

Keywords: Childhood Pneumonia, Clinical Analysis, Etiology

Introduction

Child pneumonia is a common respiratory tract infection, especially in children under 5 years of age, is one of the leading causes of child death worldwide [1, 2]. In recent years, with the increase of antibiotic resistance, the global spread of novel coronavirus, many children respiratory tract disease spectrum changes, especially Mycoplasma pneumoniae respiratory syncytial virus, adenovirus, rhinovirus and other widespread epidemic.

Based on the demographic data of Yulin area. Yulin City is located in the northernmost part of Shaanxi Province, at the junction of Shaanxi, Gansu, Ningxia, Inner Mongolia and Shanxi provinces. It covers a total area of 42,920 square kilometers. The city is divided by the Great Wall, with the northern part being the sandy grassland area and the southern part being the loess hilly and gully area. The average altitude is 1,220 meters. The registered population is 3.8589 million. It is a transitional zone between the Loess Plateau and the Inner Mongolia Plateau, located between 36°57'N and 39°57'N, and 107°28'E and 111°15'E. The urban population is 287,400, the rural population is 357,400, and the population aged 0 to 15 is 811,514. Statistical Bulletin of Shaanxi Province 2023, Shaanxi Statistical Yearbook 2024.

Respiratory tract infections in children increased significantly, especially lower respiratory tract diseases. In recent three years, the number of severe pneumonia cases in children increased significantly. Through clinical and viral nucleic acid detection, virological infections were more common. Mycoplasma virus infection was the main infection in severe cases, and drug-resistant mycoplasma pneumonia cases increased significantly, which brought challenges to antibiotic selection in children. This study retrospectively analyzed the clinical data of 214 children with pneumonia to explore its epidemiological characteristics, clinical manifestations, etiological distribution and treatment outcome, and provide reference for clinical diagnosis and treatment.

Materials and Methods

Subjects

214 cases of pneumonia were selected from January 2024 to December 2024 in our hospital. All cases met the pneumonia

diagnostic criteria of Zhufutang Practical Pediatrics. Exclusion criteria: patients with congenital heart disease, immunodeficiency disease, pulmonary tuberculosis and other serious basic diseases [3, 4].

Research methods

Clinical Data Collection

Record the age, sex, onset season and clinical manifestations of children (fever, cough, pulmonary rales, etc.), laboratory tests (Blood routine, CRP, PCT, etc.), imaging findings (chest X-ray or lung CT).

Pathogenic Detection

Sputum culture, blood culture (bacterial detection). Respiratory virus antigen detection (influenza virus, respiratory syncytial virus, etc.) Serological tests (Mycoplasma pneumoniae IgM antibody).

Treatment Methods

According to the etiological results, antibiotics (bacterial infection), antiviral drugs (such as oseltamivir) or macrolides (mycoplasma infection) are selected, supplemented by symptomatic supportive treatment (oxygen therapy, atomization, etc.).

Efficacy Evaluation

- **Cure:** symptoms disappear, imaging inflammation absorption. Improvement: symptoms are relieved, but not completely recovered. Ineffective:

Statistical Methods

SPSS27.0 software was used to analyze the data. Measurement data were expressed as (cases), and counting data were expressed as (%).

Results

General Data

Age distribution: 78 cases under 3 years old 3.2 Clinical Manifestations: 92 cases (43.0%) in winter, 60 cases (28.0%) in spring, 40 cases (18.7%) in summer and 34 cases (10.3%) in autumn

Clinical Manifestation

Number of symptoms/signs	number (n=214)	Percentage (%)
cough	132	61.7%
high fever	55	25.7%
Left lung infection	32	15.0%
Right lung infection	35	16.4%
Left and right lung infection	37	17.3%

Etiology

pathogen type	Number (n=214)	Percentage (%)
mycoplasma pneumonia	132	61.7%
lobar pneumonia	82	38.3%

Treatment and Outcome

The average length of stay was 7.2±2.5 days.(94.4%),11 cases improved (5.1%), ineffective 1 case (0.5%, cured after transfer to higher hospital), no death cases.

Discussion

Pneumonia in children is a common respiratory disease in pediatrics, the clinical manifestations are diverse and complex [5]. The results of this study show that the main symptoms of pneumonia in children include fever, cough, shortness of breath and dyspnea, which are consistent with previous studies. The incidence of 0-7 years old reached 79.4%, of which the incidence of 3-7 years old was higher. The high incidence may be due to the fact that the infant immune system has not yet fully developed [6]. Viral pneumonia and bacterial pneumonia are the main types of pneumonia in children.

Viral pneumonia is mainly adenovirus, respiratory syncytial virus, rhinovirus and metapneumovirus, which is in line with the current epidemic trend. Other pneumonia is more common in mycoplasma pneumonia, which may be related to mycoplasma resistance. Therefore, early identification of pathogen types and targeted treatment are very important to improve the prognosis of children. Complications: Heart failure and respiratory failure are common serious complications of pneumonia in children [7]. Close monitoring and timely treatment are required. Comprehensive treatment measures including anti-infection, symptomatic support and complication management are the keys to improve the cure rate. Most children improve after timely and effective treatment, but some children have poor prognosis due to severe illness or more complications. Therefore, early diagnosis and timely treatment are of great significance to improve the prognosis of childhood pneumonia [8].

In summary, the clinical manifestations of childhood pneumonia are diverse and complex, and early diagnosis and comprehensive treatment are essential to improve the prognosis of children [9]. Clinicians should strengthen the monitoring and prevention of childhood pneumonia to improve the health level of children.

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