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FEATURES OF COMMUNITY-ACQUIRED PNEUMONIA

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Abstract. The aim of the study: to study the features of the clinical picture and treatment tactics for community-acquired pneumonia (CAP) in children with cerebral palsy (CP).

Keywords: community-acquired pneumonia, method, treatment, cerebral palsy, children.

Introduction

The last decades have been characterized by an increase in the prevalence of perinatal CNS pathology. In its structure, a special place is occupied by cerebral palsy (CP) - a disorder of motor function and posture caused by a static defect or damage to the immature brain [1].

Materials And Methods

The tendency to develop acute lower respiratory tract diseases, primarily pneumonia, is determined by a number of factors that are directly related to CP. Children with CP have hypoventilation due to muscle weakness and spastic scoliosis, weakened cough reflex, dysphagia, frequent aspiration, secondary immunodeficiency states, severe protein-energy deficiency, antibiotic resistance of pathogenic microorganisms [1–3]. This category of patients has a special predisposition to pneumonia with an atypical, protracted course, significant respiratory disorders [4]. We have demonstrated the role of diaphragm dysfunction in the pathogenesis of respiratory disorders in children with CP [5].

The prospective cohort continuous comparative study included 56 children with community-acquired pneumonia against the background of CP (the first, or main, group) and 100 children with community-acquired pneumonia without CP (the second, or comparison group), who underwent treatment at the Andijan City Children's Hospital in 2019–2023. The children were aged from 0 to 14 years. The first group included patients with different forms of CP: 35 children (62.5%) had spastic diplegia, 7 (12.5%) had hyperkinetic form, 5 (8.9%) had hemiparetic, 5 (8.9%) had double hemiplegia, and 4 children (7.2%) had atonic-astatic form. Severe forms of CP predominated (40 cases - 71.4%): double hemiplegia with spastic tetraparesis and severe muscle hypertension; atonic-astatic form with low muscle tone and damage to the cortical-subcortical connections; hyperkinetic form with hyperkinesis (athetosis, choreoathetosis, torsion dystonia).

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Results And Discussion

In both groups, males predominated (in the first group, boys accounted for 58.9%, girls — 41.1%; in the second group, boys and girls accounted for 62.0% and 38.0%, respectively) with no statistically significant intergroup differences ($p > 0.05$). The average age of children in the first group was 5 (2–9) years, in the second — 4 (1–10) years, which also had no statistically significant differences ($p > 0.05$). The age structure of patients without CP reflects a more frequent incidence of pneumonia in young children [3]. At the same time, in the group of patients with CP, the proportion of patients over three years of age was statistically significantly higher than in the comparison group, which can be associated with the tendency to develop acute bronchopulmonary pathology in children with organic CNS lesions of all age groups (Table 1).

Table 1 Age structure of patients with pneumonia in the compared groups

Comparison groups	Age					
	up to 1 year		from 1 year to 3 years		over 3 years old	
	abs.	%	abs.	%	abs.	%
Group 1 (n = 56)	8	14,2	17	30,4	31	55,4
Group 2 (n = 100)	17	17,0	49	49,0	34	34,0
P	> 0,05		< 0,05		< 0,01	

Note: In tables 1–4: Group 1 – children with pneumonia and CP; Group 2 – children with pneumonia without organic CNS damage.

The average age of the mother at the birth of the child in the first group was 27 (22–32) years, in the second — 28 (21–33) years ($p > 0.05$). The age of the mother over 35 years was recorded in 19.6% of cases in the first group, in 17.0% in the second ($p > 0.05$). Maternal smoking was noted in 12.5% of cases in the first group, in 12.0% in the second ($p > 0.05$). Acute and chronic extragenital diseases during pregnancy were statistically significantly more common in the first group than in the second (44.6% and 28.0%, respectively; $p < 0.05$), as was the use of medications (28.6% and 11.0%, respectively; $p < 0.05$). The same pattern was observed when comparing the incidence of pregnancy pathology (early and late gestosis): in the first group it was 89.3%, in the second - 21.0% ($p < 0.01$). Complicated course of the intranatal period and / or pathology of the neonatal period were also statistically significantly more common in children with CP than in the comparison group (48.2% and 23.0%, respectively; $p < 0.01$). The established patterns can be associated with the direct influence of these factors on the formation of perinatal pathology of the central nervous system [1].

The proportion of children vaccinated in accordance with the National Immunization Schedule of the Republic of Uzbekistan in the first group was statistically significantly lower than in the second (67.8% and 89.0%, respectively; $p < 0.01$), which is associated with a higher frequency of medical exemptions in children with perinatal pathology. Anemia was more common in patients with CP (62.5% versus 40.0% in the second group; $p < 0.01$),

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whereas no statistically significant differences were found between the groups in the frequency of atopy and food allergies (12.5% in the first group and 15.0% in the second; $p > 0.05$). Previous pneumonia was more often recorded in children of the first group (33.9% versus 14.0% in the comparison group; $p < 0.01$). The studied case of pneumonia was the second in 21.4% of patients with CP and in 10.0% of patients without CP ($p < 0.05$), the third in 12.5% and 4.0%, respectively ($p < 0.05$). At the same time, pneumonia suffered in the first year of life in the first group was registered in 23.2% of children, and in the second - in 12.0% ($p < 0.05$). The revealed pattern reflects the tendency to develop pneumonia in children with CP, which is consistent with the literature data [3].

Conclusion

The results of the study indicate a tendency of children with cerebral palsy (CP) to develop pneumonia, as well as the presence of clinical features of community-acquired pneumonia in this neurological pathology, which include a more severe and prolonged course of the disease with greater severity of respiratory disorders, more frequent bilateral lung damage, more pronounced and prolonged involvement of the bronchial tree in the inflammatory process with more common broncho-obstructive syndrome, difficulty in expectoration, exacerbation of symptoms of neurological disease. These patterns can be associated with impaired respiratory mechanics due to damage to the respiratory muscles and deformation of the chest, a tendency to microaspiration, insufficient cough efficiency in organic damage to the central nervous system.

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