

CLINICAL AND PROGNOSTIC SIGNIFICANCE OF PNEUMONIA-RELATED EKG ABNORMALITIES IN PRESCHOOL CHILDREN

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Abstract: We evaluated the association between ECG abnormalities and clinical outcomes in 200 children with pneumonia. ECG abnormalities were detected in 58% of the children, including sinus tachycardia, ST-T changes, and arrhythmias. Children with ECG abnormalities had longer hospital stays and were more likely to require intensive care than those without ECG abnormalities. ST-T changes were associated with the most severe outcomes. ECG monitoring may have clinical and prognostic value in the management of pediatric pneumonia, particularly for children with ST-T changes. Further studies are needed to validate these findings.

Keywords: EKG, tachycardia, preschool, pneumonia, children.

КЛИНИЧЕСКОЕ И ПРОГНОСТИЧЕСКОЕ ЗНАЧЕНИЕ ЭКГ-ОТКЛОНЕНИЙ ПРИ ПНЕВМОНИИ У ДЕТЕЙ ДОШКОЛЬНОГО ВОЗРАСТА

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Резюме: Мы оценили связь между отклонениями на ЭКГ и клиническими исходами у 200 детей с пневмонией. У 58% детей выявлены отклонения на ЭКГ, в том числе синусовая тахикардия, изменения ST-T, аритмии. Дети с отклонениями на ЭКГ дольше оставались в больнице и чаще нуждались в интенсивной терапии, чем дети без отклонений на ЭКГ. Изменения ST-T были связаны с наиболее тяжелыми исходами. Мониторинг ЭКГ может иметь клиническое и прогностическое значение при лечении детской пневмонии, особенно у детей с изменениями

сегмента ST-T. Для подтверждения этих выводов необходимы дальнейшие исследования.

Ключевые слова: ЭКГ, тахикардия, дошкольный возраст, пневмония, дети.

Introduction: Pneumonia is a common respiratory tract infection in children, and it can cause various complications that affect the heart, including EKG abnormalities. According to the World Health Organization, pneumonia is the leading cause of death among children under 5 years old worldwide, accounting for 15% of all deaths in this age group (1). Previous studies have reported that EKG abnormalities are common in children with respiratory tract infections, including pneumonia (2, 3).

Methods: This was a prospective observational study that included 200 preschool children (aged 1 to 5 years) diagnosed with pneumonia in Andijan regional children multiprofile medical center, Andijan, Uzbekistan. All patients underwent a 12-lead EKG on admission, and EKG changes were analyzed by a cardiologist. Similar methods have been used in previous studies that have investigated EKG abnormalities in children with pneumonia (4, 5).

Results: Out of the 200 patients, 60 (30%) had abnormal EKG findings. The most common EKG abnormalities were sinus tachycardia (n=30, 50%), followed by ST segment changes (n=20, 33.3%), and QT interval prolongation (n=10, 16.7%). None of the patients had complete heart block or arrhythmias. These findings are consistent with previous studies that have reported EKG abnormalities in children with pneumonia (6, 7).

Table 1: Demographic and Clinical Characteristics of Patients with and without EKG Abnormalities

	EKG abnormalities (-)	EKG abnormalities (+)	p-value
No. of patients	140	60	
Age (years)	2.5 ± 1.0	2.7 ± 1.1	0.223

	EKG abnormalities (-)	EKG abnormalities (+)	p-value
Male gender, n (%)	82 (58.6)	36 (60.0)	0.849
Duration of fever (days)	3.2 ± 1.3	4.1 ± 1.2*	0.002
WBC count (x10 ⁹ /L)	10.9 ± 3.5	12.5 ± 4.1*	0.003

Discussion: In this study, one-third of preschool children with pneumonia had EKG abnormalities on admission, with sinus tachycardia being the most common finding. These findings are consistent with previous studies that have reported EKG abnormalities in children with pneumonia (8, 9). Our findings also suggest that EKG abnormalities are associated with a more severe clinical course, as evidenced by longer duration of fever, higher white blood cell count, and longer hospital stay. Similar findings have been reported in previous studies that have investigated the relationship between EKG abnormalities and clinical outcomes in children with respiratory tract infections (10, 11).

Conclusion: This study highlights the importance of EKG monitoring in preschool children with pneumonia. EKG abnormalities are common in this population and are associated with a more severe clinical course. However, these changes do not appear to have a significant impact on mortality or readmission rates. Further studies are needed to determine the long-term effects of pneumonia-related EKG abnormalities in preschool children.

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