CLINICAL COURSE AND MICROBIOLOGICAL FEATURES OF THE AIRWAYS IN NON-CYSTIC FIBROSIS BRONCHIECTASIS

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Background. Non-cystic fibrosis bronchiectasis is a progressive disease characterized by bronchial dilatation, impaired mucociliary clearance, chronic inflammation, and recurrent infections. Airway colonization, particularly by bacterial pathogens, is an important factor associated with disease exacerbation and an unfavorable clinical course.

Objective. To investigate the microbiological characteristics of the airways in children with non-cystic fibrosis bronchiectasis and their impact on disease course.

Materials and Methods. From 2025 to 2026, 37 children aged 5–14 years were examined at the Pulmonology Department of the Andijan Regional Children's Multidisciplinary Medical Center. The main group included 17 patients with bronchiectasis in whom cystic fibrosis was excluded by sweat chloride testing and molecular genetic analysis. During the study, the diagnosis of bronchiectasis was established according to the International Classification of Diseases, 11th Revision (ICD-11). The control group included 20 patients with protracted community-acquired pneumonia. Statistical analysis was performed using Microsoft Excel 2016 and the Fisher–Student test; $p<0.05$ was considered statistically significant.

Results. Analysis of clinical signs showed that, in the study group, persistent cough and chronic airway obstruction were observed in 14 patients (82%), while productive purulent sputum, irritability, and decreased oxygen saturation were observed in 10 patients (59%). Joint pain, elevated body temperature, and the use of accessory respiratory muscles during breathing were also observed in 10 patients (59%), while decreased appetite was noted in 11 patients (65%). Weight loss and "watch-glass" nails with "drumstick" fingers were identified in 5 patients (29%). In the comparison group, persistent cough and chronic airway obstruction were observed in 4 patients (20%), irritability and decreased oxygen saturation in 8 patients (40%),

and joint pain, fever, and the use of accessory respiratory muscles during breathing in 14 patients (70%). *Pseudomonas aeruginosa* was detected in 6 patients (35.3%) and was significantly more frequent than in the control group (0%; $p<0.006$). *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Staphylococcus aureus* were identified in 29.4%, 11.8%, and 23.5% of cases, respectively. Children colonized with *P. aeruginosa* had more pronounced clinical symptoms, a more severe disease course, and more persistent chronic inflammation. Spirometric parameters in these patients were: FVC, 64.9±1.1%; FEV_1, 54.6±1.3%; and FEF50, 40.5±1.3%. Obstructive changes were associated with chronic inflammation of the bronchial wall, mucosal edema, increased bronchial secretion, and impaired bronchial drainage function. During the study, analysis of chest computed tomography (CT) findings revealed cylindrical and saccular bronchiectasis in the S6 and lingular segments in 2 patients (12%).

Conclusion. In children with non-cystic fibrosis bronchiectasis, *P. aeruginosa* colonization was associated with higher frequency, greater clinical severity, morphological lung damage, and impaired respiratory function. Bacteriological examination is important for selecting individualized treatment strategies.

Keywords: bronchiectasis, microbial colonization, *Pseudomonas aeruginosa*, pneumonia, spirometry.