

Sputum investigation in children with chronic pulmonary diseases

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Introduction: In the last decades, numerous scientists pull out the sputum investigation as a tool that could be as informative as the examination of bronchial-alveolar lavage. The advantages of the method are the lower cost and the facts that it is less invasive and less scary by the patients and parents' perspective.

Materials and methods: We investigated sputum samples from one hundred and twenty six children (63 with asthma, 15 with bronchiectasis and 48 with cystic fibrosis) aged (7-18 yrs), admitted in the clinic for acute exacerbation. Sputum was expectorated spontaneously or induced by 20-min inhalations of 0,09% saline. All sputum fractions were investigated cytologically and microbiologically. Lung function was measured by spirometry pre and post sputum induction, as well as at the admission and discharge of the patients.

Results: There were no any side effects and adverse reactions during the sputum collection. All our cytological results are in concordance with studies with a similar design. The neutrophil-dominated endobronchial inflammation was a major characteristic of cystic fibrosis and non-CF bronchiectasis. Taking a cut-off of 1% as indicating high sputum eosinophil count when compared with normal airways, sputum eosinophilia as a test for asthma (defined by a consistent history, spirometry results and clinical presentation) gives a sensitivity of 80% and a specificity of 95%.

In **conclusion**, sputum investigation is a noninvasive tool for the disease monitoring, follow up and therapeutic guidance in children with chronic pulmonary disease.