

Postersession - Direct and Indirect Assessment of Asthma

763 - Invasive and non-invasive monitoring of inflammatory changes in patients with bronchial asthma before and after oral corticosteroid treatment

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Background: In inflamed airways, increased numbers of inflammatory cells such as eosinophils and neutrophils are found in induced sputum (IS) and bronchoalveolar lavage fluid (BALF). These parameters and exhaled NO concentrations correlate in varying degrees with other markers of asthma control such as symptoms and lung function.

The aim of this study was to determine if non-invasive monitoring of airway inflammation can be used for detection of changes after 4 weeks course of oral corticosteroids (OCS) in asthma patients not fully controlled by treatment with inhaled corticosteroids (ICS).

Secondary objective was to compare levels of FeNO with induced sputum (IS) and bronchoalveolar lavage fluid (BALF) inflammatory markers as to suitability for assessing of asthma treatment efficacy.

Methods: 25 patients with not sufficiently controlled severe persistent asthma on ICS were included. Before and after 4 weeks of OCS treatment (prednisone 40 mg/day) clinical assessment was performed. Asthma control test (ACT), lung function (FEV₁) and FeNO were measured, IS and BALF were obtained. IS and BALF cell profile (numbers of eosinophils and neutrophils) were evaluated by means of Hemacolor staining (DCC) and by immunocytochemistry (ICC). The levels of cell products released by activated eosinophils (eosinophil cationic protein - ECP) and neutrophils (myeloperoxidase - MPO) in IS and BALF were assessed by means of enzymeimmunoassay.

Results: After 4 weeks of treatment, improvement in asthma symptoms (ACT) ($p=0.02$), sputum ECP levels ($p=0.002$) and BALF eosinophil counts ($p=0.05$) were detected. Also expected increase in FEV₁ ($p=0.03$) and decrease in FeNO levels ($p=0.02$) was confirmed. Changes in MPO levels and cell profile (eosinophil and neutrophil counts) in sputum were not statistically significant ($p=0.07$, $p=0.09$, $p=0.16$ resp.).

Conclusion: Described parameters reflect asthma treatment efficacy after 4 weeks of OCS course. Combination of more criteria FeNO, IS and/ or BALF examination is useful for more sensitive monitoring of inflammatory changes.