Allergy to aeroallergens, induced sputum, bronchoalveolar lavage and nasal mucosa biopsy in patients with severe bronchial asthma.

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Background:
The aims of this study were to detect the degree of correlation between inflammatory parameters in upper and lower airways in patients with severe persistent asthma with and without allergy to inhalant allergens. This degree indicates if the examination of induced sputum (IS), bronchoalveolar lavage fluid (BALF) and nasal mucosa biopsy in parallel is advisable or a shorter spectrum of approaches is equally sufficient.

Methods:
27 patients with partially controlled severe persistent asthma treated by high doses of ICS combined with LABA were included for evaluation. Out of the pollen season skin-prick tests and/or specific IgE antibodies to aeroallergens were performed, induced sputum (IS) and bronchoalveolar lavage fluid (BALF) cell profile were evaluated by routine staining (Hemacolor), ECP concentrations in supernatant were assessed. Biopsy of nasal mucosa (NM) was performed.

Results:
Allergy was detected in 20 patients (birch: 7, grass: 8, mugwort: 8, mites: 11, molds: 9; cat: 7, dog: 7), in 7 patients allergy to aeroallergens was not found. Significant differences were not found between groups of patients with and without allergy to aeroallergens: ECP levels in IS (p=0.82) and BALF (p=0.98), eosinophil counts in IS (p=0.64), in BALF (p=0.49) and in NM (p=0.88). In all patients significant correlation was found in NM eosinophil counts and ECP levels in IS (p=0.0004), but not in BALF (p=0.09). The correlation in eosinophil counts in NM and IS was found (p=0.07), but did not reach statistical significance. Significant correlation in eosinophil counts in NM and BALF (p=0.29) was not detected.

Conclusion:
Relation between allergy to seasonal or perennial allergens and degree of inflammation in the nasal mucosa and in lower airways. NM biopsy or IS examination seems to be sufficient for the detection of the degree of eosinophilic inflammation in clinical practice.

References:
2. Chlumský J, Pokorná H: Relation between clinical severity of bronchial asthma and degree of airway inflammation assessed by the eosinophilic leucocyte count in induced sputum. Vnitr Lek. 2001 Sep; 47(9):604-8

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