NASAL MUCOSA BIOPSY IN SEVERE ASTHMA PATIENTS AS A TOOL FOR THE PREDICTION OF THE INFLAMMATORY CHANGES IN LOWER AIRWAYS

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Background: Decision of oral corticosteroid treatment (OCS) in patients with severe asthma is complicated by modification of primary character and intensity of inflammation by inhaled corticosteroid (ICS) treatment. The aim of this study was to determine the clinical usefulness of the possible relation between (semi)invasive inflammatory parameters in upper and lower airways.

Methods: 30 patients with partially controlled severe persistent asthma treated by high doses of ICS combined with LABA were included for evaluation. Before and after 4 weeks of OCS treatment induced sputum (IS) and bronchoalveolar lavage fluid (BALF) cell profile were evaluated by cytometric analysis, by routine staining with Hemacolor (DCC) and by immunocytochemistry (ICC), ECP concentrations in supernatant were assessed. At the same time, FENO measurement and biopsy of nasal mucosa (NM) after 2 month nasal ICS withdrawal was performed.

Results: Significant correlation was found in eosinophil counts in NM biopsy and in IS by DCC and ICC staining (p<0.005, p<0.01 resp.). No significant correlations between eosinophil counts in NM biopsy and BALF (p=0.06, p=0.26 resp.) were observed. Significant correlation was found between eosinophil counts in NM biopsy and ECP levels in IS (p=0.01) and BALF (p=0.006). After 4 weeks of OCS treatment, decrease in eosinophil counts in IS and BALF (p<0.005, p<0.002) and ECP levels (p<0.005, p<0.007) and FENO (p<0.0054) were detected. No significant correlations between eosinophil counts in NM biopsy and FENO levels before OCS were observed.

Conclusion: The results of our study show a close correlation of the presence of eosinophilic inflammation in the nasal mucosa and (residual) eosinophilic inflammation in the bronchi which is not possible to be reliably verified by routine noninvasive methods. Combination of IS, NM biopsy, BALF and FENO examination is useful for more sensitive monitoring of inflammatory changes.

References:
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