Clinical assessment of asthma severity partially corresponds to sputum eosinophilic airway inflammation in allergic eosinophilic granulomatosis with polyangiitis

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Introduction. The aims of this study were:
– to explore the relationship between sputum biomarkers of airway inflammation and levels of asthma severity/control;
– to compare eosinophilic markers in induced sputum and blood;
– to assess the impact of asthma on the quality of life of the EGPA patients.

Methods. Thirty-two patients (13F:19M, age 56 ± 13 yrs; follow-up 6 ± 5 yrs) affected by EGPA were enrolled. All patients were assessed for lung function and bronchial hyperreactivity; asthma severity was evaluated according to GINA guidelines and asthma control by ACT test. Sputum eosinophil percentages, exhaled nitric oxide (eNO) and blood EGPA biomarkers were assessed including: eosinophilic count, serum IL-2, IL-4, IL-5, eosinophil cationic protein (ECP) and anti-neutrophil cytoplasmic autoantibody (ANCA). Systemic and inhaled therapy, BVAS and VDI, the short form (SF)-36 and the Asthma Quality of Life Questionnaire (AQLQs) were recorded.

Results. All the patients received low dose oral corticosteroids (CS) and/or immunosuppressive drugs, but only 50% of them were treated with inhaled CS. In all the patients we documented a low disease activity but a severe poorly controlled asthma (table I). Sputum eosinophil counts were correlated with both peripheral eosinophilia (r = 0.487, P = 0.007) and lung function tests (i.e. FEV1, r = −0.404, P = 0.03). A good association was also detected between eNO and ACT (P = 0.04). AQLQs score was significantly correlated with the SF-36 questionnaire score (r = 0.462, P = 0.03).

Discussion. Airway inflammation biomarkers correlated with both asthma severity/clinical control and systemic markers of inflammation. Immunosuppressive drugs are effective in controlling systemic inflammation but not airway inflammation with unfavorable effects on patients’ quality of life.

Conclusion. Control of asthma represents a crucial goal of EGPA management. Airway inflammation biomarkers may represent a useful tool in monitoring and tailoring patients’ treatment over the follow-up.

Table I

| FEV1/SVC % predicted (mean + SD) | 78.28 ± 12.74 |
| FEV1% predicted (mean + SD) | 80 ± 19.66 |
| Asthma control according to GINA guidelines |
| Well % | 31/18.8 |
| Partial % | 38/53.10 |
| Poor % | 31/28.10 |
| Methacholine mcg (geometric mean) | 0.329 |
| eNO ppb (median, range) | 33 (8–177) |
| Sputum eosinophils % esp (median, range) | 38.19 (0–91) |

Clinical value of commonly measured laboratory tests in eosinophilic granulomatosis with polyangiitis (Churg-Strauss)

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Introduction. Serial measurement of absolute eosinophil count (Eos), serum immunoglobulin E (IgE), erythrocyte sedimentation rate (ESR), and C-reactive protein (CRP) is common practice in the care of patients with EGPA, yet the value of these tests as biomarkers is largely anecdotal.

Methods. Subjects were enrolled in an observational EGPA cohort. Eos, IgE, ESR, and CRP were measured quarterly. BVAS/WG defined disease activity. The association of tests with disease activity was assessed via GEE logistic regression, adjusting for repeated measures and medication use (prednisone, other immunosuppressants). Survival analysis determined if tests predicted 3 months future flare risk. Analyses were stratified by ANCA status.

Results. Among 141 subjects, there were clinico-demographic differences according to ANCA status (table I). Most observations (74%) occurred while subjects were on immunosuppressants. Correlations among Eos, IgE, ESR, and CRP were mostly low or non-significant.