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November 20, 2021

Abstract

BACKGROUND: Characterization of disease endotypes will open a new window for the treatment of allergic rhinitis (AR). Herein we provide the first attempt to identify specific AR phenotypes/endotypes and/or any biomarker/predictor for specific treatment response based on local biological parameters. METHODS: This observational study was carried out in 142 patients with seasonal AR and 20 non-allergic controls. Total IgE levels, specific IgE to 112 allergenic molecules and 92 proinflammatory and immunologic proteins were measured in both serum and nasal secretions (NS). RESULTS: We found increased values of MCPs and MMPs in adults both in NS and serum when compared with pediatric patients ($p<.05$). MCPs and MMPs might represent two effective predictors of chronic inflammation. CXCL9, CXCL10, CXCL11, MCPs and MMP1 showed an upward trend both in serum and NS for patients with [?] 3 comorbidities vs non-allergic controls($p<.05$). These data suggest the involvement of these chemokines in the late phase of chronic allergic inflammation in the nose. Serum levels of IL-6, IL-8 and IL-10 ($p<.05$) were significantly higher in patients with AR+asthma compared to patients with different comorbidities. Conversely, serum levels of neurotrophin-3 values ($p<.05$) were significantly higher in those with AR+eczema vs other comorbidities groups. A subgroup of patients with a nasal hypersecretory state,called "hypersecreter endotype" was characterized by paediatric age, male gender, grass pollen sensitization and distributed among persistent, mild or moderate to severe cases of AR. CONCLUSIONS: Our study sets the groundwork for an AR endotypization at molecular level, which is highly desirable to deliver a patient-tailored approach.

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