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Title: Asthma, upper airway disease and systemic inflammation in patients with Churg Strauss syndrome and severe chronic asthma

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Body: Background: the bronchial and systemic eosinophilic inflammation is a well-known distinctive tract in patients with SCA (severe chronic asthma) and with CSS (Churg Strauss syndrome), where the upper airways disease is a comorbidity which strongly influences the respiratory symptoms. Aims: to compare the functional and biological characteristics of patients with SCA and CSS in relation to systemic asset and level of therapy; to define the upper airways diseases and to characterize nasal inflammation. Methods: 35 patients with CSS and 21 with SCA were enrolled. All patients were assessed for lung function and bronchial iperreactivity. Asthma control was established according to GINA guidelines and by ACT questionnaire, the quality of life by AQLQ. Sputum eosinophil percentages, exhaled nitric oxide, peripheral blood eosinophil counts and nasal disease and cytology were assessed. Result: the two groups of patients were similar in lung function, asthma control and quality of life. While CSS patients showed higher sputum eosinophil percentages (38[91] vs 15[94], $p<0.05$) SCA patients had higher peripheral eosinophil counts (895±740 vs 592±579, $p<0.05$), depending probably by the different therapy (higher systemic therapy in CSS vs higher ICS dose in SCA).The majority of patients presented upper airway involvement, with eosinophilic inflammation evidence (nasal eosinophilic %: 0.5[38] CSS vs 0.6[10] CSA). Conclusions: both groups of patients showed partially controlled eosinophilic airway inflammation. The ICS dose in CSS patients seems not appropriate to the asthma severity. Eosinophilic upper airway inflammation may represent a limit to achieve a good asthma control.