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Title: Comparison of clinical features of severe persistent asthma and refractory asthma

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Body: Background: Severe persistent asthma represents 5-10% of the asthmatic population, and 'refractory asthma' defined by the ATS workshop is a more severe disease that responds very poorly to high doses of inhaled corticosteroids. Objective: To determine the differences in clinical characteristics between severe persistent asthma and refractory asthma. Methods: Of 356 patients with asthma in our outpatient clinic, 14 patients fulfilled the diagnostic ATS criteria for refractory asthma (group A) and 43 patients met the GINA guideline criteria for severe persistent asthma (group B). We compared the two groups in terms of age, sex, atopic factors, pulmonary function, airway inflammation and complications. To evaluate airway mucus production, concentrations of sputum MUC5AC and MUC5B were measured. Airway mucociliary transport function was examined by measuring nasal clearance time. Patients' symptoms and their impact associated with sputum were scored according to the modified cough and sputum assessment questionnaire (CASA-Q). Results: Magnitude of airflow limitation was similar, but post-bronchodilator FEV1 and reversibility of FEV1 were significantly less in group A than in group B. Complication with atopy was less and that with chronic sinusitis was more frequent in group A. There were no differences between two groups in terms of eosinophilic and neutrophilic airway inflammation, but sputum mucin contents were higher and nasal clearance time was shorter in group A. Conclusion: Compared with severe persistent asthma, irreversible airway obstruction, complication with sinusitis, increased mucus secretion, and impaired airway mucociliary clearance are unique characteristics of 'refractory asthma'.