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Title: Clinical characteristics of severe asthma subphenotypes

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Body: The natural history and clinical subphenotypes of severe asthma are poorly understood particularly among patients that have difficult to control asthma and no other co-morbidities. To describe the differences in the clinical characteristics of severe asthma subphenotypes on the basis of age at onset of disease. Cross-sectional clinical study was carried out in 40 patients (age 18 years) with severe asthma. In the retrospective collected data were included the demographics information and assessments of lung function (ie, spirometry and body box plethysmography). For lung function were determined airway resistance (Raw), thoracic gas volume, vital capacity, total lung capacity (TLC), and residual volume (RV). The flow-volume relationships were evaluated with FEV₁; FVC and FEV₁/FVC ratio. 16 patients with late-onset asthma (40%) had clinical significant compromised lung function whether they had asthma of short duration or long duration, suggesting that significant compromise in lung function occurred at or very soon after the initial diagnosis of asthma had been made. They had more resistance to airflow (Raw, % predicted 307.5 ± 20 vs 285.3 ± 23.0 respectively p<0.24); larger lung volumes (total lung capacity: TLC, % predicted 107.1±2.6 vs 103.8±2.3 respectively p<0.62; and residual volume: RV, % predicted 202.3±10.3 vs 190.1±8.7 respectively p<0.37) compared to early-onset asthma. Late-onset asthma also was characterized by a reduced FEV₁/FVC and a history of more frequent sinopulmonary infections. Late-onset severe asthma may be associated with a greater degree of airway inflammation and/or more exuberant repair processes, resulting in rapid remodeling of distal part airway, compared to early-onset asthma.