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Title: IL-25 secreted from epithelial cells has the potential to promote airway remodeling in asthma

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Body: Introduction: Interleukin (IL)-25 plays a pivotal role in the pathogenesis of asthma, not only in airway inflammation, but also in airway remodeling. Objective: To explore the function and significance of IL-25 in the pathogenesis of eosinophilic asthma (EA) and non-eosinophilic asthma (NEA). Methods: Induced sputum was analyzed from 50 untreated asthmatic patients: 26 with EA, 24 with NEA. Serum and induced sputum from all the participants were collected and the level of IL-25 in the samples was determined by enzyme-linked immunosorbent assay (ELISA). Expression of IL-25 in bronchial epithelium and basement membrane thickening were quantified by immunohistochemistry. Results: Compared with healthy control subjects, the lung function was impaired in patients with EA and NEA. ELISA results showed that the levels of IL-25 in the serum and induced sputum of asthmatic patients were significantly higher than healthy subjects ($p < 0.05$). But there were no statistic differences between EA and NEA patients ($p > 0.05$). The immunohistochemistry results indicated that higher expression of IL-25 and thickened basement membrane were observed in asthmatic bronchial epithelium. Correlation analysis showed that the level of IL-25 in serum and induced sputum was positively correlated with the average thickness of basement membrane in asthmatic patients. Conclusion: IL-25 secreted from epithelial cells has the potential to promote airway remodeling in asthma. The increased level of IL-25 in peripheral blood and bronchial epithelium was parallel, eosinophil may not be necessary for airway remodeling in asthma. Key words: IL-25, eosinophilia, airways remodeling, bronchial asthma.