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Title: LSC 2013 abstract - Peripheral blood neutrophil chemotaxis and apoptosis in patients with allergic asthma challenged with dermatophagoides pteronyssinus

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Body: Background: Recent investigations suggest that neutrophils may play an important role in the allergen-induced inflammation in asthma [Monteseirin J., 2009; Kampe M. et al. 2011]. Aim: To analyze the changes of peripheral blood neutrophil chemotaxis and apoptosis in patients with allergic asthma after bronchial allergen challenge with Dermatophagoides pteronyssinus. Methods: Thirty patients with allergic asthma (AA) and sensitized to D.pteronyssinus were enrolled into the study. They were compared with 30 patients with allergic rhinitis (AR), sensitized to D.pteronyssinus and 20 healthy individuals (HI). All subjects underwent bronchial challenge with D.pteronyssinus. Peripheral blood collection and neutrophil isolation were performed 24 h before as well as 7 h and 24 h after bronchial challenge. Neutrophil chemotaxis was evaluated after stimulation with IL-8. Annexin-V FITC was used to detect apoptotic neutrophils. Neutrophil chemotaxis and apoptosis were analyzed by flow cytometer. Results: Before, 7 h and 24 h after the bronchial allergen challenge, neutrophil chemotaxis was greater in patients with AA compared with those with AR and HI as well. The apoptotic activity of neutrophils was lower before, 7 h as well as 24 h after the challenge in patients with AA than in HI. Meanwhile, differences on neutrophil apoptosis between AA and AR patients was found only 7 h and 24 h after the challenge. Conclusions: Inhaled D.pteronyssinus activates peripheral blood neutrophil chemotaxis and reduces apoptosis in sensitized patients, that demonstrates enhancement of systemic inflammation.