Abstract Group: 3.2. Airway Cell Biology and Immunopathology

Keyword 1: COPD - mechanism Keyword 2: Dendritic cell Keyword 3: Bronchoalveolar lavage

Title: Characteristics of endobronchial dendritic cells in patients with stable COPD

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Body: Background: Dendritic cells (DCs) have been postulated to play a crucial role in Chronic obstructive pulmonary disease (COPD). We have previously shown that endobronchial DCs of asymptomatic smokers display an increased expression of antigen recognition receptors (such as BDCA-1, MMR, CD1a or Langerin) and co-stimulatory molecules (such as CD80 and CD86), but normal CD83 expression (suggesting normal maturation), as compared to never smokers (Bratke, K. et al., Am J Respir Cell Mol Biol 2008; 38:655-60). The phenotype of endobrochial DCs in COPD is unknown. Methods: Four-colour flow cytometry was used to characterise the concentration and the phenotype of DCs in bronchoalveolar lavage fluid (BALF) of current smokers with COPD, ex-smokers with COPD and never-smoking healthy controls. Results: The percentage of plasmacytoid DC (pDCs) and myeloid DCs (mDCs) in BALF did not differ between patients with COPD and controls. The expression of the surface markers BDCA-1, MMR, CD1a, Langerin, CD80, CD86 on mDCs was increased in current smokers with COPD, but not ex-smokers with COPD suggesting that the upregulation of these markers is related to current smoking, rather than to the presence of COPD. In contrast, the expression of the maturation marker CD83 on mDCs was significantly decreased both in current smokers and ex-smokers with COPD, as compared with controls. Conclusion: In line with a previous histologic study (Tsoumakidou, M. et al., Chest 2009; 136:726-33), the current BALF study suggests that COPD is characterised by a deficiency in DC maturation. This maturation deficit might contribute to the pathogenesis of persistent airway inflammation in COPD.