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Title: T cell chemokine receptor expression in COPD

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Body: Background: COPD is characterized by accumulation of T cells in the lung. Recruitment is regulated by chemokines binding to receptors on the cell surface. We studied the expression of chemokine receptors on T cells from never-smokers, smokers with normal lung function and COPD patients. Methods: Thirty-seven never-smokers, 38 smokers with normal lung function and 32 COPD patients, GOLD stage I-II (23 smokers and 9 ex-smokers) underwent BAL (5x50 mL). BAL and blood T cells were analysed for CD3, CD4 and CD8 in combination with the activity marker CD69 and the chemokine receptors CXCR3, CCR4 and CCR5 using multicolor flow cytometry. Results: The percentage of CD4+CD69- (non-activated) T cells expressing CXCR3 was significantly lower in BAL from "normal" smokers and from COPD smokers compared to never-smokers ($p < 0.001$ and $p < 0.05$). CD4+ T cells from "normal" smokers had significantly higher median fluorescence intensity (MFI) of CCR5 compared to never-smokers ($p < 0.05$). An increase, albeit not significant, was also observed in COPD patients who were current smokers. The expression of CXCR3, CCR4 and CCR5 on CD8+ T cells in BAL did not differ. In blood from COPD patients (both current and ex-smokers), we observed a higher percentage of activated (CD69+) CD8+ T cells expressing CXCR3 compared to "normal" smokers ($p < 0.05$ for both). Conclusions: The lower percentage of CD4+CD69-CXCR3+ T cells and the higher MFI of CCR5 on CD4+ T cells in BAL from both smoking groups seem to be related to smoke exposure per se, rather than the degree of airway obstruction. This was not observed in COPD ex-smokers, indicating that both smoking history and current smoke exposure affect the expression. Analysis of soluble ligands for CXCR3, CCR4 and CCR5 is in progress.