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Title: Eosinophilia predicts poor outcome after lung transplantation

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Body: Eosinophils are involved in the pathophysiology of many respiratory diseases but the role of eosinophilia in lung transplantation has never been investigated in full. Our aim was to investigate the impact of BAL eosinophilia on outcome. A retrospective analysis of our BAL and patient database was performed for all patients transplanted between 2001 and 2011 with follow-up until 2012. Using a cut-off $\geq 2\%$ eosinophilia in BAL, BOS free survival and overall survival was compared between 66 patients having a BAL with eosinophils $\geq 2\%$ and 253 control patients (never BAL $\geq 2\%$). Patients with eosinophilic BAL had worse BOS-free survival and overall survival (both $p < 0.0001$) compared to controls. Eosinophilic BAL predisposed to the later development of BOS, but especially RAS ($p < 0.0001$). Serum eosinophilia and CRP levels were also upregulated at the moment of eosinophilic BAL. After correction for covariates (age, gender, underlying disease, ever A-grade rejection, ever infection, post-operative day) the association between eosinophilic BAL and BOS and death remained significant ($p = 0.0001$ and $p = 0.0009$). BAL eosinophilia $\geq 2\%$ predicted poor outcome in our lung transplant cohort. BOS-free survival and overall survival were significantly lower compared to controls (never BAL eosinophilia $\geq 2\%$). Eosinophils especially predisposed to RAS, which implicates that RAS might work via another immunological mechanism.