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Title: BAL neutrophilia increases mortality in lung transplant patients despite azithromycin treatment

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Body: Introduction: Azithromycin can attenuate bronchoalveolar lavage (BAL) neutrophilia and can prevent or treat bronchiolitis obliterans syndrome (BOS). An increasing number of patients is found to have BAL neutrophilia despite azithromycin treatment, which might have an impact on BOS-free and overall survival. Methods: Medical records of all patients transplanted between 2002 and 2012 were retrospectively investigated. Three groups of patients were created. Group A: patients already treated with azithromycin before the onset of BOS having an increased BAL neutrophilia (>15%) (n=81); control group B: patients under azithromycin therapy with low BAL neutrophilia (<15%) (n=39) and control group C: patients without azithromycin therapy (n=170). Control patients were matched according to post-operative day of BAL sampling. Results: Group A had a significantly worse outcome compared to group C, in terms of BOS ($p<0.0001$) and survival ($p<0.0001$). Between both groups of azithromycin-treated patients, a significant difference towards survival ($p=0.022$) was demonstrated in favor of group B, although no significance was present towards BOS ($p=0.14$).

Discussion: Elevated BAL neutrophilia, despite treatment with azithromycin, implies a detrimental effect towards BOS and survival. This group of patients which constitutes 28% of our study population is steadily growing without an effective therapy being available up to now.