Abstract Group: 3.2. Airway Cell Biology and Immunopathology
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Title: TLR4 up-regulation and reduced Foxp3 expression in mechanically ventilated smokers with obstructive chronic bronchitis

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Body: Chronic bronchitis (CB) is a risk factor in chronic obstructive pulmonary disease (COPD) for accelerated lung function decline and increased mortality. The lung and systemic inflammatory and immunological profile of COPD patients with CB which acutely experience respiratory failure upon a disease exacerbation is unknown. In this study, we explored the expression of Foxp3 by western blot analysis, TLR4 by immunocytochemistry and the concentrations of IP-10 and IL-8 by ELISA in the mini-bronchoalveolar lavages (mini-BAL) and in the peripheral blood (PB) of patients with respiratory failure requiring intubation and mechanical ventilation. The recruited subjects were separated into three different groups: smokers with CB and COPD (COPD, n=18), smokers with CB but without COPD (S, n=8) and patients without CB and without COPD (C, n=10). In mini-BAL of COPD group, Foxp3 and IP-10 were significantly reduced while TLR4 was significantly increased in comparison to C. TLR4 was also increased in mini-BAL of S. In COPD peripheral blood, Foxp3 was reduced in comparison to C but not significant differences were observed for TLR4 and for IP-10. No significant differences were observed for IL-8 concentrations in the mini-BAL and in the blood of the recruited patients. The mini-BAL TLR4 expression correlated with the Clinical Infective Pulmonary Score. In conclusion, in COPD patients with respiratory failure, lung and systemic reduced immune regulatory events (low Foxp3 expression) and lung increased innate immunity responses (high TLR4 expression) may contribute to the increased inflammatory events leading to respiratory failure.