Airway inflammation and inflammation play major roles in the progression of cystic fibrosis (CF) lung disease. In patients with mild disease, airway inflammation is a clinically relevant and often underdiagnosed feature. Lung function, sputum cell counts, and cytokine profiles in CF with mild disease might be different in patients with and without involvement of small airway disease (SAD). Patients with mild CF (n=32) and 22 healthy controls were enrolled in this study. Patients with CF were assigned to two groups: (1) patients without SAD (n=19, median age 12.3 years, MEF25>50% predicted), and (2) patients with SAD (n=13 median age, 13.2 years, MEF25<50% predicted). Lung function parameters were measured, cells in induced sputum were counted, and cytokines/chemokines (IL-1β, IL-6, IL-8, TNF-α) were analyzed by real-time quantitative PCR (qRT-PCR) and cytometric bead array (CBA). Patients with CF had significant elevated levels of pro-inflammatory genes in qRT-PCR and secreted gene products in CBA compared to controls. Patients with CF and SAD had significantly increased trapped air (RV/TLC) and pronounced airway inflammation compared to controls as indicated by elevated levels of sputum biomarkers like total cells, neutrophils, and IL6. Our study demonstrated that patients with CF with mild disease...
defined by lung function might be further endotyped according to their involvement of SAD. In patients with CF and SAD, airway neutrophilic inflammation is more pronounced and is in part distinct from that seen in patients without SAD.