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Title: Dialysis plus ultrafiltration significantly improves the detection of cytokines in induced sputum

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Body: Background Measurement of cytokines in induced sputum proves difficult due to sputum composition (mucus, proteases) and processing (DTT addition, filtration, dilution). Research hypothesis DTT eluting followed by sputum concentration will improve cytokine detection. Methods Study was approved by the Local Ethics Committee. Sputum induction and processing (ERS recommendations) was identical for two groups of adult asthmatics. Before cytokine detection (Bio-Plex Pro Human Cytokine 27-plex, Bio-Rad) the sputum was processed for group I by concentration with Centricon Ultracel YM-3 membrane (Millipore, 3000 NMWL) and for group II by dialysis (D-Tube Dialyzers Midi, MWCO 3.5 kDa, Novagen) followed by ultrafiltration (UF) - Amicon Ultra 3K, Millipore, 3000 NMWL. Data were analyzed with SPSS 21. Results Group I: 11 patients, mean age 52.73±12.87 years old, 36% females; group II: 24 patients, mean age 47.75±15.57 years old, 79% females. Dialysis + UF lead to a significant better detection ratio (figure 1) and in higher concentrations (figure 2) of sputum cytokines.

Conclusion Dialysis plus ultrafiltration proves a valuable method for measuring sputum cytokines.