Title: Calprotectin – A marker of mortality in COPD? Results from a prospective cohort study

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Body: Background – Neutrophil involvement in chronic obstructive pulmonary disease (COPD) is well established. Calprotectin comprises more than 45 % of the cytosolic content of neutrophils, and has been shown to be useful as a marker of inflammatory activity in inflammatory bowel disease (IBD) and rheumatoid arthritis (RA). Since disease activity in COPD seems dependent, in part, by neutrophil driven inflammation we decided to investigate whether plasma level of calprotectin (p-calprotectin) was associated with mortality in COPD. Methods - We measured p-calprotectin in blood samples from 458 patients suffering from moderate to very severe COPD in stable phase. Patients were stratified into three groups according to p-calprotectin. Outcome measure was mortality in a 3 year follow-up period. Analyses were adjusted for factors known to influence mortality using multivariate cox proportional hazard regression analysis (Cox PH). Results - Absolute mortality increased from 16.2 % (p-calprotectin< 100 ng/ml), to 27.8 % (p-calprotectin100-200 ng/ml), and to 39.0 % (p-calprotectin> 200 ng/ml). In Cox PH p-calprotectin level > 200 ng/ml [HR 2.16 (CI 95%: 1.19-3.91)] when adjusting for factors known to influence mortality.

Conclusions - p-calprotectin levels > 200 ng/ml are associated with increased mortality in patients with moderate to very severe COPD in stable phase. P-calprotectin is a potential marker of airway inflammatory activity.