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Title: Evaluation of the role of inflammation in chronic airways disease (ERICA): Midpoint evaluation

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Body: Background: Chronic obstructive pulmonary disease (COPD) is an inflammatory disease with associated systemic complications including loss of muscle mass and function and increased cardiovascular risk. We hypothesised that elevated fibrinogen would be associated with muscle dysfunction and cardiovascular risk. Methods: ERICA is a multicentre, observational study of patients with COPD. Assessments include: spirometry (FEV₁%), fibrinogen, aortic stiffness (pulse wave velocity (PWV)), quadriceps maximum voluntary contraction (QMVC) force, 6-minute walking distance (6MWD), Short Physical Performance Battery (SPPB) and MRC breathlessness. Results: Thus far 378 patients (151 male), have been evaluated. Mean \pm SD age was 67 \pm 8 yrs, BMI 27 \pm 5 kg/m², FEV₁ 53 \pm 16 % predicted, Fibrinogen 3.5 \pm 0.9 g/L, aortic PWV 10.2 \pm 2.8 m/s, QMVC 31 \pm 1 kg, 6MWD 343 \pm 127 m, SPPB 10 \pm 2, MRC median (IQR) 3 (2-4). Patients were stratified according to tertiles of fibrinogen <3 n=126, 3-3.5 n=118, >3.5 g/L n=134. Tertiles showed a difference in FEV₁%, 6MWD, QMVC, SPPB and MRC (ANOVA p<0.05) which remained after adjustment for age and sex in QMVC and 6MWD, but not PWV. Conclusions: Tertiles of fibrinogen identified differences in lung function and breathlessness, muscle strength and function, but not aortic stiffness: a measure of CV risk. The association of elevated fibrinogen with loss of muscle strength and function suggests that its modulation may improve physical outcomes for patients with COPD. Funded by GlaxoSmithKline and the UK Technology Strategy Board.