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Title: The effect of high dose N-acetylcysteine (1200mg daily) on airway function and airway trapping in COPD patients — A double blinded randomized placebo controlled trial

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Body: Introduction High dose N-acetylcysteine (NAC) has both antioxidant and mucolytic effect. However, there was a lack of study to demonstrate its beneficial use in COPD patients. Aims: To investigate the effect of high dose NAC (1200mg daily) on airway function in stable COPD patients Methods This is a 16-week double-blinded randomized placebo-controlled trial conducted in a government hospital in Hong Kong. Spirometry confirmed COPD patients (FEV1/FVC <70%) were recruited and randomized into treatment (NAC 1200mg daily) and placebo groups. Both patients and doctors were blinded for the group allocation. Lung function tests were measured at the beginning and 16-week follow up. Results: 107 eligible COPD subjects (93.5% male) with mean age of 70.8±8.0 and %FEV1 54.3±21.5% were recruited. Baseline characteristics were comparable between the 2 groups. At 16-week, there was significant improvement in small airway function in treatment group (FEF_{25-75%} from 0.53 to 0.65L/s) compared with placebo (0.55 to 0.54L/s) (p=0.006). Airtrapping was also improved in treatment group (RV/TLC ratio from 0.71 to 0.6) compared with placebo (ratio from 0.67 to 0.64) in the emphysematous subtype of COPD patients (p=0.03).

Conclusions High dose N-acetylcysteine improves small airway function in COPD patients. It reduces airtrapping in the emphysematous subgroup of COPD patients.