

Austin MA, Willis KE, Walters EH, Wood-Baker R. Effect Of High Flow Oxygen On Mortality In Chronic Obstructive Pulmonary Disease Patients in prehospital setting: A Randomized Controlled Trial. BMJ 2010; 341:c5462.

It would seem that the use of oxygen in the treatment of an acute COPD exacerbation would be of obvious benefit...but how much is too much? While it's well known that hyperoxia in COPD patients decreases minute ventilation, increases CO₂ retention, and worsens respiratory acidosis, a trend to administer high flow oxygen in patients with acute COPD exacerbation still persists. The study published by Austin *et al*, is an unblinded randomized controlled trial evaluating 2 parallel groups treated during the prehospital phase of their acute COPD exacerbation. Patients were randomized to receive either high flow oxygen at 8-10 L/min via a nonrebreather mask –vs- titrated oxygen flow to keep oxygen saturations between 88-92%. Patients in both groups also received standard treatment with salbutamol, ipatroprium, and dexamethasone. The primary outcome was prehospital and in hospital mortality. A total of 62 patients met final inclusion criteria; 30 in the control arm, and 32 in the oxygen titration arm. The results demonstrated that treatment with high flow oxygen was associated with higher mortality with a number needed to harm of 1:14. However the key element to qualify this conclusion was missing. An ABG to confirm the presence and severity of respiratory acidosis in the setting of hyperoxia was recorded in only 11% of the patients. Perhaps a venous blood gas measurement in the prehospital setting would have assisted in directing level of oxygen delivery with regards to severity of acidosis. Although this study does support data known from prior studies a conclusive stand on this clinical dilemma remains to be set. Even in our own academic institution we struggle with the dogma that COPD patients need to have oxygen saturations that exceed 92%. With the current level of evidence we do know that oxygen saturations may need to be titrated and high flow oxygen is probably harmful in chronic COPD patients

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