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Title: Is controlled oxygen therapy in COPD patients presenting in acute respiratory failure sub-optimal prior to commencement of NIV?

Dr. Shamir 16843 Karmali shamir.karmali@nhs.net MD [1] and Dr. Thida 16844 Win thida.win@nhs.net MD [1].
[1] Respiratory Medicine, Lister Hospital, Stevenage, Hertfordshire, United Kingdom, SG1 4AB .

Body: Introduction: Controlled oxygen delivery with target oxygen saturations is a key aim in managing COPD patients in respiratory failure. Aims: This audit assessed if controlled oxygen therapy is utilised on these patients on admission to hospital and prior to NIV in line with British Thoracic Society guidance. Methods: In a district general hospital, case notes for twenty patients with COPD requiring NIV between April 2011 - February 2012 were analysed retrospectively. FIO2, SpO2 and arterial blood gas values (pH, PaO2, PaCO2 and HCO3) were analysed on admission and prior to commencing NIV (if not started immediately on admission). SpO2 >94% and/or PaO2 >9 kPa were used to indicate 'relative overoxygenation'. HCO3 > 26 mmol/L on admission was taken to suggest chronic hypercapnia and risk of oxygen sensitivity. Results: 65% of patients were admitted with 'relative overoxygenation' (figure 1) of which 54% were immediately started on NIV. However in 46% of patients not immediately started on NIV, over 80% had attempted reduction in oxygenation. 85% of patients had elevated bicarbonate on admission.

Conclusion This audit found 'relative overoxygenation' in the majority of our patients on admission to hospital with some correction prior to NIV. Efforts to limit initial overoxygenation may reduce need for NIV in some patients and should be reinforced to first responders.