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Title: Acute and chronic effects of PDE5-Is on SpO₂ in patients with COPD associated pulmonary hypertension

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Body: Background Pulmonary hypertension as a complication of COPD negatively influences important outcomes such as mortality, hospitalisation and exercise capacity. The use of PDE5-Is to treat PH in this patient group is currently being explored but concerns persist regarding PDE5-I induced V/Q mismatch as occurs with Bosentan. Aims To determine the acute and chronic effects of PDE5-Is on SpO₂ in patients with COPD-PH Methods Results from the 3P trial were used, comprised of patients with moderate-severe COPD and echo defined PH. A single dose of sildenafil 50mg was given to 120 patients. Resting SpO₂ was recorded at 0,30,60,120,180mins. All patients had read an information leaflet stating common SEs and were asked to report any. Resting SpO₂ was also assessed in the main study cohort at 0 and 12 weeks following once daily tadalafil 10mg or matched placebo (60 per arm). Results The figure shows sildenafil's acute effects on SpO₂ over time.

One patient (0.8%) felt increased breathlessness. Two patients (1.7%) felt less breathless. SpO₂ did not however change significantly between active/placebo groups following 12 weeks of daily tadalafil, mean Δ -0.91% and -0.70% respectively (p=0.543). Conclusions Significant SpO₂ changes during acute sildenafil dosing strongly suggest transient asymptomatic V/Q mismatch. Chronic daily tadalafil dosing had no significant effect on SpO₂ suggesting that significant V/Q mismatch did not occur.