

Effect of Vapotherm® on Dyspnea in Patients Hospitalized for Acute Exacerbation of COPD

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Initial treatment of patients hospitalized for acute exacerbation of COPD with bronchodilators, steroids, antibiotics, and O₂ via nasal cannula (NC) often fails to provide adequate and timely symptomatic relief. We examined the effects of a device that delivers humidified air-O₂ mixture at high flows (up to 20 lpm) via NC, Vapotherm® (Vapo), on further relief of dyspnea in patients hospitalized for COPD exacerbations, not in respiratory failure. **Methods:** 5 patients hospitalized for acute exacerbation were studied while receiving the aforementioned standard therapy. Patients initially received O₂ via NC to determine their baseline O₂ flow to obtain SpO₂ > 94%. Each patient was then randomized to receive either high-flow via Vapo (baseline lpm O₂ + additional humidified air to total 20 lpm) or baseline lpm O₂ via Vapo (1-3 lpm), i.e. sham Vapo. Dyspnea was measured using Borg scale (Borg) and Visual Analog Score (VAS) prior to and 30 minutes after initiation of randomization. **Results:** all 5 patients were males, age 67±11 yrs (SD), had COPD exacerbation presenting with increasing dyspnea, and FEV₁ 25.4±9.7% predicted, FEV₁/FVC 0.37±0.13. At baseline, FEV₁, FEV₁/FVC, Borg, and VAS were not different between the 2 groups (30±9 vs. 22±10% predicted, 0.43±0.16 vs. 0.34±0.14, 3.5±3.0 vs. 4.0±3.2, 28.0±4.2 vs. 42.3±29.1 respectively, p=0.4-0.8). After randomization, patients receiving high-flow Vapo showed a trend for improvement in dyspnea compared to patients on baseline low-flow O₂ therapy based on Borg (1.5±0.7 vs. 4.3±1.2, p=0.057) and VAS (7.5±0.7 vs. 46.3±28.0, p=0.16). **Conclusion:** Vapo offers additional relief of dyspnea in hospitalized patients with COPD exacerbation.

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