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Title: Open-mouthpiece ventilation versus nasal mask ventilation in acute exacerbation of COPD patients with mild to moderate acidosis: A randomized trial

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Body: Background and aims We hypothesized that the use of this technique of ventilation could prove effective in avoiding further deterioration in patients with acute exacerbations of chronic obstructive pulmonary disease(COPD)with mild to moderate acidosis. Methods Fourteen patients with exacerbations of COPD, with a respiratory frequency > 25 a PaCO₂ >45 and pH>7.20 and <7.30. Patients were randomly assigned to receive non- invasive ventilation (Pressure support ventilation – PSV) via nasal mask or open mouthpiece ventilation. The primary outcome was avoiding the transfer to more intensive setting. Arterial blood gases and respiratory rate were registered 2 hours after the start of the enrollment and then after 6, 12, 24, and 48 hours. In addition duration of NIV, hospital stay and acceptability of the interfaces (mouthpiece or nasal mask)was assessed using a Likert scale. Results None of the patients presented deterioration of gas exchange. The two groups had similar trends in arterial blood gases and respiratory rate.

A significant difference in devices acceptability was found; patients preferred the mouthpiece ventilation (p<0.01) Discussion and conclusion Open mouthpiece ventilation is a useful technique and may prevent further deterioration of gas exchange in COPD patients with mild to moderate acidosis (similar to traditional NIV delivered by nasal mask).