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Title: Nasal non-invasive positive pressure ventilation for moderate exacerbation of chronic obstructive pulmonary disease (COPD) treated in a Tunisian medical ward

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Body: Nasal Non-Invasive Positive Pressure Ventilation (NNPPV) is a soft method with a low burden which can be used in medical ward and may improve the outcome of COPD exacerbation. Aim: The aim of this study is to evaluate the effectiveness of the addition of NNPPV to usual medical care in improving the outcome of patients treated in a medical ward for an exacerbation of COPD with moderate hypercapnia. Methods: Among 25 patients who were hospitalized for an exacerbation of COPD with moderate hypercapnia, 10 were randomly selected to receive NNPPV (NNPPV group) and then compared to the 15 patients who received only an optimal medical treatment without ventilation support (control group). Results: The age of patients who received NNPPV did not differ from that of control group (63 ± 10 yrs-old vs 66 ± 9 yrs-old; $p = 0,31$) and neither did the blood gas on admission (PaO_2 : 46 ± 9 vs 49 ± 12 mmHg; $p=0,56$; PaCO_2 : 58 ± 12 mmHg vs 57 ± 9 mmHg; $p=0,80$; pH : $7,39 \pm 0.1$ vs $7,38 \pm 0.06$, $p = 0, 8$). None of the patients treated with NNPPV died or was transferred to ICU while 2 died and 3 were transferred to ICU among patients of control group. Also, time to improve for blood gas parameters was shorter and on day one we recorded a $\Delta\text{PaO}_2 = 33.6 \pm 14$ mmHg in NNPPV group vs 17.28 ± 19 mmHg in control group ($p=0,02$) and a $\Delta\text{PaCO}_2 = -4 \pm 13$ mmHg in NNPPV group vs 16 ± 7.5 mmHg in control group ($p=0,04$). Results: NNPPV in COPD patients treated for an exacerbation with moderate hypercapnia shortens time to improve of blood gas and is likely to reduce mortality and the need of more invasive ventilation methods.