SEDATION OR ANALGESIA DOES NOT IMPROVE THE OUTCOME OF NON-INVASIVE POSITIVE PRESSURE VENTILATION

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Introduction: While the current limited data available suggests that sedation and/or analgesic drugs during NPPV are safe and feasible, more widespread application should await the results of larger observational studies or randomized clinical trials (1-3).

Objectives: To estimate the effect of analgesic or sedative drugs on the outcome of non-invasive positive pressure ventilation (NPPV).

Methods: We performed a secondary analysis of patients receiving NPPV as first-line therapy in a prospective observational study of mechanical ventilation carried out in 322 intensive care units from 30 countries. A Marginal Structural Model (MSM) was used to analyze the association of the use of analgesic and/or sedative drugs with late failure of NPPV (defined as need of invasive mechanical ventilation after at least 2 hours of NPPV). To analyze the impact of analgesic or sedative drugs on ICU mortality, a logistic regression model with generalized estimating equations was created. For the purpose of these analyses we excluded the patients who received NPPV for less than 2 hours because we considered that sedation or analgesia in these patients might have been used frequently as rescue therapy to avoid NPPV failure, rather than simply aimed at improving comfort.

Results: A total 1,109 patients with acute respiratory failure who received NPPV as first-line ventilatory support for at least 2 hours were included in the analysis. Of these, 215 patients (19.4%) received some kind of analgesic or sedative drug at some time during NPPV. In our multivariate analysis the use of analgesic drugs was not associated with failure of NPPV (OR 1.85; 95%CI 0.63-5.45). However, the use of sedatives was associated with NPPV failure (OR...
2.82; 95%CI 0.85-9.39); simultaneous administration of analgesics further magnified this sedative effect (OR 5.71; 95%CI 1.77-18.40). The simultaneous use of analgesic and sedative drugs was also significantly associated with higher ICU mortality (OR 4.27 95%CI 1.91-9.56).

**Conclusion:** In our analysis, the use of sedatives does not improve the outcome of non-invasive positive pressure ventilation, and may contribute to NPPV failure, particularly when combined with analgesics.