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**Title:** Uncomplicated dementia in very elderly patients can be a cause of NIV treatment failure

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**Body:** Introduction: Initial trials on Noninvasive ventilation (NIV) have proven to be effective also in elderly patients with hypercapnic respiratory failure because it reduces respiratory distress without the need of endotracheal intubation, and improves survival. Compliance to ventilation is considered the most important cause of NIV treatment failure and in this population the presence of dementia as comorbidity could be responsible of an extra-deterioration in the patient's ability in affording NIV. Aim: To evaluate the dementia as a cause of an increased NIV treatment failure because of a lower compliance to ventilation in these patients. Results: 22 pts aged <sup>3</sup> 80 years (84,2±3,5) (Group A) and 8 pts with diagnosis of uncomplicated dementia, base don DSM-IV criteria, aged <sup>3</sup> 80 years (83±1,2) (Group B) with cardiogenic pulmonary edema or acute-on-chronic respiratory failure from COPD underwent NIV. On admission the two groups showed no differences (p>0.05) in PaO<sub>2</sub> mm Hg (53±8 vs 52±8), PaCO<sub>2</sub> mmHg (62±12 vs 66±14), pH (7,30±0,1 vs 7,29±0,1), and in SAPS II score. After 48 h of ventilation there was a difference in pH levels (7.36±0,1 vs 7,26±0,1; p = 0,048) between the two groups. From the assessment of clinical charts it emerged that patients of Group B were more intolerant to NIV and frequently disconnected from ventilation. The mean use of NIV in the first 48 h was: Group A 35 h; Group B 16 h. Mortality was 6/22 (27%) in Group A and 6/8 (75%) in Group B. Conclusion: our data show a high mortality rate in elderly patients with hypercapnic respiratory failure and with diagnosis of dementia submitted to NIV. We think that this may be due to a lower compliance to NIV in this population.