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Title: Non-invasive ventilation in octuagenarians out of the intensive care unit: Tolerability, efficacy and safety results

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Body: Non-Invasive Ventilation (NIV) is an appealing option in older patients in whom endotracheal intubation may not provide long-term benefits.The evidence on its tolerability and efficacy in very old people,however,is limited to sub-intensive care and respiratory units. Objective: to evaluate the effect of NIV in a hospitalized population of 17 patients (9 female),mean age of 88.5 years (range:84 to 100,SD 5.1)with acute, hypercapnic respiratory failure with or without respiratory acidosis admitted to a geriatric acute care ward with experience in non-invasive mechanical ventilation. Methods: inclusion criteria were: PaO2/FiO2<300 mmHg and PaCO2>50 mmHg, no indication to invasive mechanical ventilation for age, malignancies or severe comorbidies. Patients were evaluated by blood gas analysis at the beginning of NIV (T0), after one hour of ventilation (T1) and at discharge (T2). Results were analyzed by paired T-test. Results: Mean blood gas analysis parameters at T0 were: pH 7.35(SD 0.09); PaO2 53 mmHg(SD 14.8);PaCO2 65.4 mmHg(SD 15.1); the mean PaO2/FiO2 ratio was 210.3(SD 79.4).At the T1 evaluation all parameters were significantly improved.NIV was well tolerated.The most frequent complications were facial ulcer (6/17)and abdominal distension (1/17).Three patients died, two for non-respiratory causes.All 14 surviving patients were discharged with stable gas exchanges and continued mechanical ventilation at home or in a dedicated rehab ward.Conclusions: in the very old, NIV performed by a team of pneumologists and geriatricians is effective and well tolerated,and should be considered for patients not eligible to intensive care units.