

An Alternative to Endotracheal Intubation

Positive-pressure ventilation may benefit patients in acute respiratory distress. A prospective, randomized Italian trial compared this noninvasive technique with endotracheal intubation in 64 patients with acute hypoxemic respiratory failure secondary to surgery, cardiogenic pulmonary edema, trauma, or pneumonia. Patients with COPD, respiratory or cardiac arrest, status asthmaticus, severe hemodynamic instability, or new multiple organ failure were excluded.

Within the first hour, oxygenation had improved in 62% of patients assigned to positive-pressure ventilation by face mask, as compared with 47% of those assigned to conventional ventilation ($p=NS$). Ten patients in the noninvasive group (31%) ultimately required intubation. The intubated patients were more likely to have serious complications than those ventilated noninvasively (66% vs. 38%). Rates of survival to hospital discharge did not differ statistically (53% vs. 72%, respectively). Among the ICU survivors, patients ventilated noninvasively spent, on average, only half as much time on mechanical ventilation ($p=0.006$) and in the ICU ($p=0.002$).

Comment: Noninvasive positive-pressure ventilation was safe and effective in this hypoxemic but narrowly defined population. Some EDs already find benefits in patients with COPD and hypercapnic respiratory failure, a use supported by other research. This modality should be available in the ED, but used only in patients carefully selected and under as close observation as intubated patients.

— *JG Adams*

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Antonelli M et al. A comparison of noninvasive positive-pressure ventilation and conventional mechanical ventilation in patients with acute respiratory failure. *N Engl J Med* 1998 Aug 13 339 429-435.