Disappointing Results with Noninvasive Ventilation

Previous small studies have shown noninvasive positive pressure ventilation (NPPV) to be of some benefit in COPD, CHF, and asthma. Investigators from St. Louis randomized 27 ED patients with acute respiratory distress to receive conventional medical therapy with or without NPPV applied in standardized fashion. None of the patients required immediate intubation, and none were asthmatic.

The 16 patients receiving NPPV (6 with CHF, 2 with COPD exacerbations, 7 with pneumonia, and 1 with interstitial lung disease) were similar to the 11 non-NPPV patients in demographics, admission diagnoses, and illness severity (per APACHE II scores). Similar proportions of NPPV and non-NPPV patients ultimately needed endotracheal intubation and mechanical ventilation (43.8% vs. 45.5%). In-hospital mortality was 25% in the NPPV group and 0% in the control group, but the difference was not significant statistically.

Comment: Unfortunately, the small numbers in this study and the clumping together of patients with CHF, COPD, and pneumonia effectively invalidate any conclusions that might be drawn. A properly conducted study would have randomized only patients with (for example) pneumonia, would have standardized medical therapy, and would have enrolled sufficient numbers to achieve statistically significant and clinically meaningful results. This study should not be taken as evidence against, or for, the use of NPPV in any of these conditions.

— CV Pollack

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Wood KA et al. The use of noninvasive positive pressure ventilation in the emergency department: Results of a randomized clinical trial. *Chest* 1998 May 113 1339-1346.