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No Clear Benefit of Early NPPV in Immunocompromised Patients with Hypoxemic Respiratory Failure

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Compared with oxygen therapy, noninvasive positive-pressure ventilation did not prevent subsequent intubation or lengthen survival.

In a small trial conducted in the late 1990s, early use of noninvasive positive-pressure ventilation (NPPV) conferred a mortality benefit in immunocompromised patients with hypoxemic respiratory failure ([NEJM JW Emerg Med Jun 2001](#) and *N Engl J Med* 2001; 344:481). Since then, outcomes in critically ill patients have improved dramatically, and more clinicians have begun to wonder whether early NPPV still is warranted.

In this multicenter trial, investigators in France randomized 374 immunocompromised patients in intensive care units to either NPPV or oxygen therapy during the early stages of hypoxemic respiratory failure. Patients had hypoxemia, tachypnea, labored breathing, or respiratory distress; those with hypercarbia or immediate need for intubation were excluded. Most patients were immunocompromised due to malignancy or chemotherapy.

At 28 days, neither all-cause mortality nor need for invasive ventilation differed significantly between groups.

Comment: The study authors and editorialists emphasize that the trial was underpowered to detect a mortality benefit and highlight the many risks associated with invasive ventilation – considerations that suggest we shouldn't abandon NPPV. Although I agree about the potential harms of invasive ventilation, the findings of this trial will make me pause before starting NPPV *early* in the course of hypoxemic respiratory failure in this population. In light of multiple recent studies ([NEJM JW Gen Med Aug 1 2015](#) and *N Engl J Med* 2015; 372:2185), another interesting question is whether high-flow oxygen (used in only 40% of study patients) might be of greater benefit than NPPV in immunocompromised patients. This should be our next inquiry.

Citation(s):

Lemiale V et al. Effect of noninvasive ventilation vs oxygen therapy on mortality among immunocompromised patients with acute respiratory failure: A randomized clinical trial. *JAMA* 2015 Oct 7; [e-pub]. (<http://dx.doi.org/10.1001/jama.2015.12402>)

Patel BK and Kress JP. The changing landscape of noninvasive ventilation in the intensive care unit. *JAMA* 2015 Oct 7; 1; [e-pub]. (<http://dx.doi.org/10.1001/jama.2015.12401>)