High-Flow Nasal Cannula Therapy for Respiratory Distress in Preterm Babies?

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*Treatment failure was more frequent with HFNC than with CPAP in babies with early respiratory failure.*

Use of high-flow nasal cannula (HFNC) therapy as means of noninvasive respiratory support for preterm infants has increased over the last decade, largely because the devices are easy to use and well tolerated. Although HFNC has been shown to be equivalent to continuous positive airway pressure (CPAP) for postextubation support of recovering preterm babies, whether this modality provides safe and effective early support for respiratory distress syndrome remains unknown.

To examine this issue, investigators conducted a randomized, controlled, noninferiority trial involving 583 moderately preterm infants (gestational age, 28 weeks to 36 weeks plus 6 days) at nine centers in Australia and Norway. The infants received respiratory support with either CPAP (6–8 cm of water pressure) or HFNC (6–8 liters of gas per minute) within the first 24 hours of life. Criteria for failure were worsening oxygenation or gas exchange, apnea, or need for emergent intubation.

Early treatment failure was more frequent with HFNC versus CPAP (25.5% vs. 13.3%; P<0.001). Rates of intubation within 72 hours were similar with HFNC and CPAP (15.5% and 11.5%, respectively), although a trial of rescue CPAP was allowed after HFNC treatment failure.

**Comment:** These results contrast with previous studies that showed HFNC was equivalent to CPAP when initiated after extubation (e.g., *NEJM JW Pediatr Adolesc Med* Jan 2014 and N Engl J Med 2013; 369:1425). HFNC does not provide sufficient support for the preterm infant with early respiratory distress due to surfactant deficiency.

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