

## Study assesses complications associated with nasal ventilation in newborns

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More than 10 percent of newborns who receive oxygenation and ventilation using nasal continuous airway pressure in the neonatal intensive care unit (NICU) may experience complications inside or outside the nose, according to a report in the March issue of *Archives of Otolaryngology -- Head & Neck Surgery*.

Nearly all patients in the NICU require some method of oxygen supplementation, according to background information in the article. Oxygen is most often delivered to infants through an endotracheal tube, nasal cannula (slender tubes inserted into the nose) or nasal continuous positive airway pressure (CPAP, which delivers pressurized air through the nose to help keep breathing passages open). Nasal CPAP is a good alternative for many [newborns](#) because it avoids complications associated with long-term use of tracheal tubes, including narrowing of the airways under the vocal cords (subglottic stenosis).

However, some reports have linked CPAP devices to nasal complications. To investigate the potential effects, Kris R. Jatana, M.D., of The Ohio State University Medical Center and Nationwide Children's Hospital, Columbus, and colleagues studied 100 patients younger than one year who received at least seven days of nasal CPAP or oxygen supplementation with cannula in the NICU in 2007 or 2008. All patients underwent an external examination of the nose and then nasal endoscopy to identify any internal complications.

Nasal complications were observed in 12 of the 91 patients (13.2

percent) with at least seven days of nasal CPAP use, whereas no complications were seen in the nine patients with only nasal cannula use. Complications inside the nose included ulceration in six of 182 nasal cavities (3.3 percent), granulation or the formation of healing tissue in three nasal cavities (1.6 percent) and vestibular stenosis (narrowing of the front portion of the nasal passage) in four nasal cavities (2.2 percent).

The primary external complication was columellar necrosis, or tissue death at the end of the nasal septum, which was observed in five of 91 patients (5.5 percent). "Once this occurs, it is difficult to repair surgically, and adverse cosmetic results may ensue," the authors write. "In our series, columellar necrosis was found as early as 10 days after placement of nasal CPAP, but columellar necrosis has been reported as early as after only three days of nasal CPAP use in very-low-birthweight infants."

All nasal complications from CPAP were associated with lower Apgar scores—an overall measure of newborn health—at one and five minutes after birth.

"Nasal CPAP is gaining popularity as a preferred means of ventilatory support in the NICU, and its potential complications will be encountered more frequently," the authors write. "Close surveillance for potential complications should be considered during nasal CPAP use."

**More information:** Arch Otolaryngol Head Neck Surg. 2010;136[3]:287-291.

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