Cuffed vs. Uncuffed Endotracheal Tubes in Young Children

Modern high-volume, low-pressure cuffs are not associated with postextubation stridor.

Concern about pressure-related subglottic injury from cuffed endotracheal tubes in young children has led to mixed recommendations and controversy about their use. Previous research with older high-pressure cuffed tubes demonstrated an unacceptably high incidence of complications, including subglottic stenosis. In a manufacturer-sponsored, multicenter European study, researchers compared the incidence of postextubation morbidity in 2246 children (age range, birth to 5 years) who were randomized to use of a modern high-volume, low-pressure cuffed tube or an uncuffed tube during intubation for general anesthesia.

The incidence of postextubation stridor (an indicator of mucosal injury) was similar in the cuffed and uncuffed groups (4.4% and 4.7%). However, the rate of tube exchange because of poorly fitting tubes was significantly lower in the cuffed group than in the uncuffed group (2.1% vs. 30.8%). The authors conclude that use of cuffed tubes in young children reduces the need for tube exchange and does not increase the risk for postextubation stridor.

Comment: A cuffed tube might help compensate for some of the guesswork involved in sizing of pediatric tubes. This study suggests that the use of cuffed tubes, with proper attention to cuff pressures, can provide ventilation without significant additional risk. However, the authors fell short of their calculated sample size of 3928 patients, because of manufacturing and distribution issues. In addition, the incidence of postextubation stridor in both groups was almost double that reported in previous studies. This study, although promising, will not end the controversy regarding the use of cuffed tubes in children.

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