Factors Associated with Desaturation in Pediatric Intubations

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Longer duration of intubation attempt, but not number of attempts, was associated with desaturation, particularly in children younger than 24 months.

In a prior study of pediatric rapid sequence intubation, oxyhemoglobin desaturation (SpO2 <90%) occurred in 33% of 144 children (half younger than 24 months) who underwent 221 intubations at a high-volume, academic pediatric emergency department during a 1-year period (NEJM JW Emerg Med Nov 2012 and Ann Emerg Med 2012; 60:251). Now, in a planned secondary analysis, investigators reviewed videos to identify variables associated with desaturation.

One third of patients had ≥1 episode of desaturation. Desaturation was more common in patients younger versus older than 24 months (59% vs. 10%). The median duration of attempts was 35 seconds; 13 attempts (6%) lasted longer than 90 seconds. The probability of successful endotracheal tube placement decreased with longer attempt duration; success rates for 30-, 45-, 60-, and 75-second attempts were 46%, 42%, 36%, and 25%, respectively. The odds of desaturation for individual attempts lasting longer than 30 and 90 seconds were 2 and 8, respectively, compared with a reference of 1 second. Although desaturation was associated with the duration of both total cumulative and individual attempts, it was not associated with number of attempts.

Comment: Because saturations will drop precipitously in children, particularly the very young, providers should immediately commence bagging at the first sign of any decrease in oxygen saturations.

Citation(s):
Rinderknecht AS et al. Factors associated with oxyhemoglobin desaturation during rapid sequence intubation in a pediatric emergency department: Findings from multivariable analyses of video review data. Acad Emerg Med 2015 Mar 16; [e-pub]. (http://dx.doi.org/10.1111/acem.12633)

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