Out-of-Hospital Pediatric Endotracheal Intubation Not Superior to BVM Ventilation

Endotracheal intubation (ETI) and bag-valve-mask (BVM) ventilation for out-of-hospital airway management in children have not been compared in a controlled trial. In this prospective study, 830 patients younger than 12 years who required active airway management were randomized to receive BVM alone or BVM followed by ETI (performed by more than 3,000 paramedics from 2 urban rapid-transport emergency medical service systems).

There was no significant difference in survival between the BVM and ETI groups (30% vs. 26%) or the rate of good neurological outcomes (23% vs. 20%). Analysis by type of illness or injury showed that, compared with ETI, BVM significantly improved both survival in the respiratory-arrest and child-maltreatment subgroups and neurological outcomes in the foreign-body-aspiration subgroup. Median on-scene and total out-of-hospital times were 2 and 3 minutes longer, respectively, in the ETI group ($P<0.001$). Complication rates did not differ between the 2 groups.

**Comment:** This study was a phenomenal undertaking and its results will be widely quoted. Notably, in urban EMS systems with rapid transport times, endotracheal intubation of pediatric patients led to prolonged scene times without better survival outcomes, neurological outcomes, or technical complication rates. However, certain caveats cannot be ignored: The paramedics had no prior pediatric airway management experience; they received only a 6-hour training session that did not include practice on live patients or cadavers; and as many as 33 months elapsed from the training until the close of this study, allowing for considerable erosion of knowledge and skill. The results may have been very different with more experienced paramedics.

— JA Marx

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