Endotracheal Tubes with Subglottic Suctioning Reduce Ventilator-Associated Pneumonia in Trauma Patients

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In a retrospective review, trauma patients intubated with endotracheal tubes allowing subglottic suctioning had significantly lower rates of VAP than those intubated with standard ETTs.

Ventilator-associated pneumonia (VAP), caused by aspiration of oral secretions that collect above the endotracheal tube (ETT) cuff, increases the risk for subsequent sepsis and death. ETTs that allow subglottic suctioning (ETT-SSDs) have been shown to reduce rates of VAP in medical patients. To evaluate their use in trauma patients, investigators at a single trauma center reviewed records for admitted patients older than 14 years who remained intubated for more than 48 hours.

ETT-SSDs were implemented and used routinely starting in March 2012. All patients received the same standard ventilator care bundles to reduce infection risk, although compliance wasn't tracked until 2012. Cuff pressures were maintained between 25 and 30 cm H2O. VAP was diagnosed using Centers for Disease Control and Prevention criteria.

Of 1135 patients from 2010 to 2014, 667 were intubated with standard ETTs and 468 with ETT-SSDs. The ETT-SSD group had a higher percentage of patients with serious head injury and lower percentage with serious chest injury. Other baseline characteristics were similar. In analyses adjusted for these confounders, ETT-SSDs were associated with significantly reduced risk for VAP (odds ratio, 0.6). In comparisons between matched cohorts by age, injury severity, and sex, this relationship remained, and patients who received ETT-SSDs had fewer mean ventilator days (12 vs. 14) and shorter mean intensive care unit stays (13 vs. 16 days).

Comment: This study is limited by its retrospective design, potential selection bias, and lack of safety bundle compliance tracking during the first 2 years, when standard ETTs were used more commonly. However, these findings are similar to those in medical patients, and the downside of placing an ETT-SSD, other than cost, is small. Emergency physicians should consider ETT-SSD for high-risk trauma patients who are likely to require prolonged ventilation.

Citation(s):

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