Tracheal Tube Cuff Pressures in Air Transport Patients

R. Eleanor Anderson, MD, Ron M. Walls, MD, FRCP, FAAEM

Cuff pressures are infrequently measured and are often too high.

Complications of tracheal cuff overinflation occur after both long-term and short-term intubation, although the latter is less well recognized. Emergency and critically ill patients are often subjected to cuff pressures that remain unmeasured for hours. Air medical transport, during which cuff pressure increases due to decreased ambient pressure, may exacerbate cuff pressure problems. To assess the incidence of elevated cuff pressure (defined as ≥30 cm H2O) and factors associated with it in emergency and critically ill patients, researchers studied 101 intubated patients scheduled for air medical transport during a 1-year period in Switzerland.

Sixty-three patients underwent emergency transfer, and 38 were transported from an intensive care unit (ICU). Cuff pressures were significantly higher in emergency transfer patients (58 vs. 30 cm H2O). There was no difference in cuff pressure between patients managed by anesthesia providers and those managed by non-anesthesia providers. A manometer was used in 2 emergency transfers and 20 inter-ICU transports; median cuff pressure was significantly lower when a manometer was used (27 vs. 70 cm H2O). For 46% of patients, cuff pressures had not been measured prior to hand-off to the air transport team.

Comment: Excessive cuff pressure can cause mucosal and serious deep-tissue damage in the trachea. The cuff pressures in this study are disturbingly high. The time-honored method of palpating the pilot balloon to determine cuff pressure is notoriously inaccurate (NEJM JW Emerg Med Aug 30 2007), and cuff pressure should either be measured by a device or maintained at the lowest level possible (the level at which a leak first disappears).

Citation(s):