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Comparative outcomes of early vs delayed intubation in the emergency department with respiratory failure

Abstract:

Background: The timing of intubation in emergency department (ED) patients with acute respiratory failure is a critical decision with potential implications for patient outcomes. Early intubation may reduce complications and ICU resource use, while delayed intubation aims to avoid unnecessary mechanical ventilation and its associated risks.

Objective: To evaluate the impact of early versus delayed intubation on clinical outcomes in adult ED patients with respiratory failure.

Methods: This systematic review and meta-analysis included 23 studies published between 2004 and 2024 encompassing 12,678 adult patients. Studies compared early intubation (within 24 hours of ED presentation) with delayed intubation, assessing outcomes such as mortality, ICU length of stay, ventilator-free days, and intubation-related complications.

Results: Early intubation significantly reduced ICU length of stay by an average of 2.5 days (95% CI: -4.1 to -0.9, $p=0.004$) and was associated with fewer adverse events, including ventilator-associated pneumonia and complications from emergent intubation. Patients in the early intubation group also had fewer ventilator days on average (6.8 vs. 10.4 days, $p=0.01$). However, there was no statistically significant difference in mortality between early and delayed intubation groups (RR: 0.95, $p=0.37$). Heterogeneity among studies was moderate to high, largely due to varied patient populations (including COVID-19 cases) and inconsistent definitions of timing.

Conclusion: Early intubation may offer advantages in reducing ICU stay and procedural complications but does not appear to impact overall mortality. Clinical decisions should remain individualized, and further high-quality trials are needed to define optimal timing strategies.

Biography

Ahila Abdulameer Majeed Abu-Nayla is a medical professional at the American Hospital Dubai, UAE, with expertise in emergency and critical care. Her research focuses on the comparative outcomes of early versus delayed intubation in patients with respiratory failure in the emergency department, contributing valuable insights to optimize clinical decision-making and improve patient survival outcomes.