

Tracheostomy before 14 Days: Is It Associated with Better Outcomes in Pediatric Patients on Prolonged Mechanical Ventilation?

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Background & Objectives: There are several advantages of tracheostomy in patients undergoing prolonged MV, like promotion of oral hygiene and pulmonary toilet, patient comfort, faster weaning, reduced risk of developing VAP but there is no consensus on the timing of tracheostomy in children. Objective of this study was to compare the outcome in the form of duration of post-tracheostomy ventilation, days taken before decannulation, PICU and hospital stay and death between early (after <14 days of ventilation) vs late (after ≥14 days of ventilation) tracheostomies in PICU.

Methods: This is a retrospective study from the hospital clinical database of consecutive patients below 12 years who had undergone tracheostomy after admission into the pediatric intensive care unit (PICU) for prolonged ventilation (≥96 hours) from January 2015 to December 2019. Patients were divided into two groups: tracheostomies done within 14 days of MV (early tracheostomy) and patients with tracheostomies performed after 14 days (late tracheostomy). Patients' age, sex, indications, complications, decannulation rate, length of MV, PICU, and hospital stay were analyzed.

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



Early(<14 days) vs Late(>14 days) Tracheostomy in Children With Prolonged Ventilation (>96 Hrs): Which Has A Better Outcome.

Results:

- Of the 1,425 patients on invasive MV, 87 (6.1%) patients required tracheostomy after a mean 13.37 days of MV. The most common indication was encephalopathy 32 (36.7%) followed by acute respiratory distress syndrome 20 (22.9%).
- Factors like higher pediatric logistic organ dysfunction score, vasoactive inotrope score, incidence of pretracheostomy ventilator-associated pneumonia, and difficulty in obtaining parental consent were associated with late tracheostomy.
- The early tracheostomy group had a higher decannulation rate (odds ratio, 5.17; p, 0.01) and weaning rate (odds ratio, 5.94; p, 0.032).
- The late tracheostomy group needed a longer duration of MV, PICU, and hospital stay. Complications of tracheostomy were less in the early tracheostomy patients (odds ratio, 2.95; p, 0.03). Significantly higher number of patients in the late tracheostomy group had to be discharged with a tracheostomy tube (10 vs 3, p, 0.016).

Conclusions: Early tracheostomy was associated with reduced complications of tracheostomy and effective decannulation in the majority of the patients. Late tracheostomized patients had a longer duration of MV and length of PICU and hospital stay compared to patients in early tracheostomy group.

Key message: In the context of scarcity of data on timing of tracheostomy in children with prolonged ventilation, the study proposes that early (<14 days) tracheostomy is associated with a better outcome.

EXPERT COMMENT

“This study highlights that : Early tracheostomy (<14 days) was associated with lower complications, higher successful weaning rates, and less utilization of intensive care facilities in patients receiving prolonged MV. We still need more data, before adopting this approach.”



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With warm regards,

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Reference

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