

REVIEWER'S REPORT

Manuscript No.: IJAR- 51584

Date: 13/05/2025

Title: Early versus Late Tracheotomy in Severe Traumatic Brain Injury Patients Undergoing Decompressive Craniectomy

Recommendation:

- ✓ Accept as it is
- Accept after minor revision.....
- Accept after major revision
- Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer Name: Dr. S. K. Nath

Date: 13/05/2025

Reviewer's Comment for Publication:

This study provides valuable evidence supporting early tracheotomy (within the first week of intubation) in patients with severe TBI undergoing decompressive craniectomy. The findings suggest that early intervention may shorten ventilator dependence, reduce ICU and hospital stay durations, and improve neurological recovery without increasing procedural risks. However, due to its retrospective, single-center design and modest sample size, these results should be interpreted cautiously.

Future research should focus on multicenter, randomized controlled trials with larger cohorts and longer follow-up periods to confirm these findings and establish robust guidelines for tracheotomy timing in neurotrauma patients. Nonetheless, clinicians should consider early tracheotomy as a potentially beneficial strategy, tailored to individual patient conditions.

Reviewer's Comment / Report

Strengths

- Clear Objective and Relevance:** The study addresses a critical clinical question regarding optimal timing for tracheotomy in a specific, high-risk population—patients with severe TBI undergoing decompressive craniectomy. This is a pertinent issue in neurocritical care, aiming to improve patient outcomes and resource utilization.
- Methodical Data Collection:** Data was meticulously gathered from electronic medical records, including comprehensive variables such as injury cause, severity scores, timing of procedures, and clinical outcomes.
- Comparable Baseline Characteristics:** The two groups (early and late tracheotomy) were well-matched in terms of age, gender, injury cause, initial GCS, and severity scores, strengthening the validity of comparisons.
- Multiple Outcome Measures:** The study evaluates various crucial outcomes—ventilator dependence, ICU and hospital stay, mortality, neurological recovery (GOS), and complications—offering a holistic view.
- Statistical Rigor:** Appropriate statistical analyses, including survival analysis and multivariate models, were employed to adjust for potential confounders.
- Support from Literature:** The findings align with existing evidence suggesting benefits of early airway management.

Weaknesses

- Retrospective and Single-Center Design:** The retrospective nature introduces potential biases (e.g., selection bias), and being a single-center limits generalizability.

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2. **Limited Sample Size:** With 30 patients per group, the sample size might be insufficient to detect all differences, especially for secondary outcomes like mortality.
3. **Non-Randomized Allocation:** Tracheotomy timing was based on clinical judgment and multidisciplinary decisions, risking selection bias where sicker or more stable patients might have been preferentially assigned to one group.
4. **Short Follow-Up Period:** A six-month period may not fully capture long-term neurological and functional outcomes or late complications, such as tracheal stenosis.
5. **Potential Confounders Unaccounted For:** Despite multivariate adjustments, unmeasured factors like variations in sedation strategies, rehabilitation efforts, or institutional protocols could influence outcomes.
6. **Limited Data on Long-term Cognitive and Quality of Life:** The study primarily focuses on functional recovery (GOS), but more detailed assessments of long-term cognition or quality of life are lacking.