

INTISARI

Latar Belakang: Pasien cedera otak traumatik (COT) berat sering memerlukan intubasi endotrakeal dan ventilasi mekanik jangka panjang akibat penurunan kesadaran, hilangnya refleks proteksi jalan napas, serta kegagalan weaning. Penggunaan ventilasi mekanik yang berkepanjangan meningkatkan risiko pneumonia terkait ventilator, kerusakan laring, dan perpanjangan lama rawat inap. Trakeostomi awal (<7 hari) dipertimbangkan untuk mengurangi komplikasi tersebut dibandingkan trakeostomi lambat (≥ 7 hari). Meskipun beberapa studi internasional menunjukkan manfaat trakeostomi awal, bukti di Indonesia masih sangat terbatas. Penelitian ini bertujuan membandingkan lama rawat ICU, lama rawat rumah sakit, dan durasi ventilasi mekanik antara pasien COT yang menjalani trakeostomi awal dan lambat di RSUP Dr. Sardjito Yogyakarta.

Metode: Studi observasional prospektif dilakukan pada 35 pasien COT yang menjalani trakeostomi di RSUP Dr. Sardjito Yogyakarta periode Mei–November 2024 dengan teknik *whole sampling*. Pasien dibagi menjadi kelompok trakeostomi awal (<7 hari) dan lambat (≥ 7 hari). Analisis statistik menggunakan uji Mann-Whitney dan analisis bivariat untuk faktor perancu (usia, GCS, temuan CT Scan) dengan taraf signifikan $p < 0.05$.

Hasil: Dari 35 pasien, median usia 27 tahun (20–46 tahun) dengan mayoritas mengalami COT berat (GCS 3–8 sebanyak 68,6%). Trakeostomi awal dilakukan pada 51,4% pasien. Trakeostomi awal menghasilkan lama ventilasi mekanik keseluruhan yang lebih pendek (median 6 hari vs 14 hari; $p < 0.001$), lama rawat ICU (median 7 hari vs 15 hari; $p < 0.001$), dan lama rawat rumah sakit (median 15 hari vs 22 hari; $p < 0.001$) dibandingkan trakeostomi lambat. Variabel perancu tidak berhubungan signifikan dengan luaran ($p > 0.05$).

Kesimpulan: Penelitian ini menyimpulkan bahwa trakeostomi awal (<7 hari) pada pasien cedera otak traumatik di RSUP Dr. Sardjito Yogyakarta secara signifikan berhubungan dengan lama rawat ICU yang lebih pendek dibandingkan dengan trakeostomi lambat (≥ 7 hari).

Kata Kunci: Cedera Otak Traumatik, Waktu Trakeostomi, Ventilasi Mekanik, Lama Rawat

ABSTRACT

Background: Patients with severe traumatic brain injury (TBI) often require endotracheal intubation and prolonged mechanical ventilation due to decreased consciousness, loss of protective airway reflexes, and weaning failure. Prolonged mechanical ventilation increases the risk of ventilator-associated pneumonia, laryngeal damage, and prolonged hospital stay. Early tracheostomy (<7 days) is considered to reduce these complications compared to late tracheostomy (≥ 7 days). Although several international studies have shown the benefits of early tracheostomy, evidence in Indonesia is still very limited. This study aims to compare the length of ICU stay, hospital stay, and duration of mechanical ventilation between TBI patients who underwent early and late tracheostomy at Dr. Sardjito General Hospital, Yogyakarta.

Methods: A prospective observational study was conducted on 35 patients with TBI who underwent tracheostomy at Dr. Sardjito General Hospital Yogyakarta from May to November 2024 using a total sampling technique. Patients were divided into early (<7 days) and late (≥ 7 days) tracheostomy groups. Statistical analysis used the Mann-Whitney test and bivariate analysis for confounding factors (age, GCS, CT scan findings) with a significance level of $p < 0.05$.

Results: Of the 35 patients, the median age was 27 years (20–46 years), with the majority experiencing severe TBI (GCS 3–8 in 68.6%). Early tracheostomy was performed in 51.4% of patients. Early tracheostomy resulted in shorter overall mechanical ventilation duration (median 6 days vs. 14 days; $p < 0.001$), ICU length of stay (median 7 days vs. 15 days; $p < 0.001$), and hospital length of stay (median 15 days vs. 22 days; $p < 0.001$) compared to late tracheostomy. Confounding variables were not significantly associated with outcome ($p > 0.05$).

Conclusion: This study concluded that early tracheostomy (<7 days) in traumatic brain injury patients at Dr. Sardjito General Hospital Yogyakarta was significantly associated with shorter ICU length of stay compared to late tracheostomy (≥ 7 days).

Keywords: Traumatic Brain Injury, Tracheostomy Timing, Mechanical Ventilation, Length of Stay