

# The Role of Early Tracheostomy in Critically Ill Neurosurgical Patients<sup>†</sup>

W H L Teoh,\*<sup>MBBS</sup>, K Y C Goh,\*\*<sup>FRCS, FHKAM</sup>, C Chan,\*\*\*<sup>FAMS, FRCS</sup>

## Abstract

**Objective:** To determine the value of early tracheostomy (within 7 days) in ventilated neurosurgical patients. **Methods:** Retrospective review of intubated patients in the neurosurgical intensive care unit (NICU) who underwent elective open tracheostomies for prolonged ventilation. **Results:** Thirty patients over a 2-year period were analysed. There were 19 males and 11 females, mean age  $53.9 \pm 18.1$  years (range 14 to 89), and mean Glasgow Coma Scale (GCS) score on admission  $7.1 \pm 3.8$  (range 3 to 15). The underlying disease aetiology was cerebrovascular disease in 53% of patients, head trauma in 33% and tumour or infection in 13%. Tracheostomy was performed after a mean period of  $8.5 \pm 3.5$  days (range 2 to 18), with patients requiring ventilation for a mean duration of  $13.5 \pm 6.3$  days (range 3 to 31). Complications were minimal; 1 wound infection (3.3%) and 4 tube obstructions (13.3%). Patients who underwent elective early tracheostomy (Group 1 = within 7 days) had poorer GCS on admission ( $6.3 \pm 2.9$  versus  $7.7 \pm 4.3$  in Group 2,  $P = 0.271$ ). Tracheostomy was performed after a mean of  $5.3 \pm 1.7$  days in Group 1 vs.  $10.6 \pm 2.7$  days in Group 2. Group 1 patients had faster recovery from nosocomial pneumonia ( $12.3 \pm 6.2$  versus  $17.9 \pm 12.5$  days,  $P = 0.168$ ), shorter duration of ventilation ( $9.8 \pm 5.9$  versus  $16.0 \pm 5.4$  days,  $P = 0.007$ ), and reduced incidence of multibacterial tracheobronchial colonisation (42% versus 72%,  $P = 0.098$ ). The most prevalent organisms were *Acinetobacter baumannii* (43.3%), *Pseudomonas* (40%), methicillin-resistant *Staphylococcus aureus* (MRSA) (33%), *Klebsiella* (30%) and *Staphylococcus aureus* (26.7%). **Conclusion:** Early tracheostomy in selected neurosurgical patients with poor GCS scores was associated with reduced incidence of tracheobronchial colonisation by multiple pathogens, improvement in chest infections, and rapid weaning from ventilatory support.

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**Key words:** Early tracheostomy, Nosocomial pneumonia, Poor GCS, Rapid weaning, Tracheobronchial colonisation

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\* Medical Officer  
Department of Anesthesia and Surgical Intensive Care

\*\* Consultant

\*\*\* Senior Consultant and Head  
Department of Neurosurgery  
Singapore General Hospital

Address for Reprints: Dr Keith Goh, Department of Neurosurgery, Singapore General Hospital, 1 Hospital Drive, Singapore 169608.

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