

## Early Tracheostomy and Percutaneous Endoscopic Gastrostomy in Hemorrhagic Stroke Patients: Associated Factors and Effects on Hospitalization

Matthew McCann<sup>1</sup> • Justin Fraser, MD<sup>2</sup>

18a

<sup>1</sup>College of Medicine, University of Kentucky • <sup>2</sup>Department of Neurosurgery, University of Kentucky

**Objective:** Early tracheostomy and percutaneous endoscopic gastrostomy (PEG) have been suggested to provide benefits over extended translaryngeal intubation and nasogastric feeding in various patient populations, including reductions in ICU length of stay, rates of complications, and costs. However, there is a paucity of literature evaluating early tracheostomy and PEG in critically ill patients with hemorrhagic strokes. We aimed to study the role of early tracheostomy and PEG in treating critically ill hemorrhagic stroke patients.

**Methods:** A series of patients treated at University of Kentucky between June 1, 2011 and June 1, 2015 for hemorrhagic stroke was retrospectively reviewed. We evaluated patient risk factors for tracheostomy and/or PEG with logistic regression. We analyzed the influence of tracheostomy/PEG timing on patient survival and incidence of complications using logistic regression. The influence of tracheostomy/PEG timing on length of stay was evaluated with multiple linear regression.

**Results:** Out of 366 patients diagnosed with hemorrhagic strokes, 75 were tracheostomized and 86 underwent PEG. Fac-

tors significantly associated with tracheostomy and PEG included advanced patient age, presence of pneumonia on admission, and diagnosis of spontaneous subarachnoid hemorrhage. The timing of tracheostomy and PEG was not significantly associated with patient survival or rates of complications in this population. Earlier PEG placement was significantly correlated with shorter overall hospital stay in survivors, but neither tracheostomy nor PEG was correlated with ICU length of stay.

**Conclusions:** Hemorrhagic stroke is a devastating neurovascular event, which entails a poor prognosis. Characterizing measures to potentially improve critical care of these patients is vital. Our study identified patient risk factors associated with increased likelihood of tracheostomy and PEG in this population. Additionally, we found the timing of PEG was correlated to length of stay. Complication rates related to tracheostomy and PEG in this population were minimal. In conclusion, this retrospective data set supports some benefit to early PEG placement in this population and justifies the need for further prospective study.