Inpatient Mortality of PEG Tube Placement in High Risk Patients

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Introduction

• Percutaneous endoscopic gastrostomy (PEG) tubes are used as access for long-term enteral feedings in many clinical situations. Some are predisposed to poorer clinical outcomes especially in high in-house mortality

• The purpose of this investigation was to use a nationwide sample of inpatients with PEG tubes to identify comorbidities associated with in-hospital mortality.

Methods

• Retrospective cohort study identifying patients with PEG tube placement registered in the Nationwide Inpatient Sample (NIS) database from 2009-2014.

• Discharge-level patient records including the International Classification of Diseases (ICD-9-CM) code for percutaneous endoscopic gastrostomy placement (43.11) were identified. The Elixhauser Comorbidity Index (ECI) was applied to each patient record to group patients by common comorbidities as defined in the Index.

• Demographic analysis included patient age, race, sex, median income per patient's zip code, and presenting institution (urban teaching vs urban non teaching vs rural).

• The most frequently associated diagnoses in the patient records were identified and used as a proxy to suggest the purpose of the PEG tube placement for each patient.

• The **primary outcome measure was in-hospital mortality,** which was **compared across comorbidities, and adjusted for age, sex, race, hospital setting, and local average income.**

Results

• N = 1,087,994

• Mean age was 67.7 years. Fifty-four percent were male, and 46% were female.

• Common diagnoses, aside from PEG tube placement, included neurologic infarct or hemorrhage (25.8%), hearing loss (14.7%), food/vomit pneumonitis (11.6%), acute respiratory failure (5.4%), acute kidney failure (3.7%), pneumonia (2.6%), UTI (2.4%), dysphagia (1.9%), and dehydration (1.9%).

• Respiratory failure (OR 3.3, p<.0001), kidney failure (1.87, p <.0001), and food/vomit pneumonitis (OR 1.5, p<0.0001) were most highly associated with mortality on adjusted multivariate logistic regression analysis.

ECI Diagnosis	Mortality Odds Ratio
Congestive heart failure	1.68
Pulmonary Circulation disease	1.6
Renal Failure	1.63
Liver Disease	1.46
Metastatic Cancer	1.48
Coagulopathy	1.8

Table 1. ECI Applied Inpatient Mortality for Patients with PEG tube placement. These six conditions demonstrated statistical significance (p<0.0001). Most other comorbidities listed in the ECI did not demonstrate a statistically significant increase in mortality

Discussion

• The results indicate that heart, respiratory, kidney, and liver failure, amongst other diagnoses, portend a worse prognosis in patients undergoing PEG tube placement.

• Isolated CVA does not appear to be an independent risk for high inpatient mortality. Thus, a robust informed consent process is required in the presence of one or more organ system failure.

• Further research may better correlate these comorbidities with longer-term outcomes.

Conclusion: The decision to place a PEG tube in patients at risk for failure of one or more primary organ systems should be made judiciously with careful consideration of risks.

References

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