

## Predictive Factors for Percutaneous Endoscopic Gastrostomy Tube Placement After Anterior Cervical Fusion

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### Learning Objectives

By the conclusion of this session, participants should be able to: 1) Identify the incidence and risk factors for Percutaneous endoscopic gastrostomy tube placement after anterior cervical fusion

### Introduction

Percutaneous endoscopic gastrostomy (PEG) tube placement, though uncommon, may be necessary after anterior cervical fusion (ACF) procedures when there is severe dysphagia and need for enteral nutrition.

### Methods

Adult patients who underwent elective ACF for cervical spondylosis from 2002-2011 were identified using the NIS database. The primary outcome measure was PEG tube placement; secondary outcomes included in-hospital mortality, total hospital charges, and discharge disposition. Multiple logistic regression analyses were conducted to identify independent predictors of PEG tube placement.

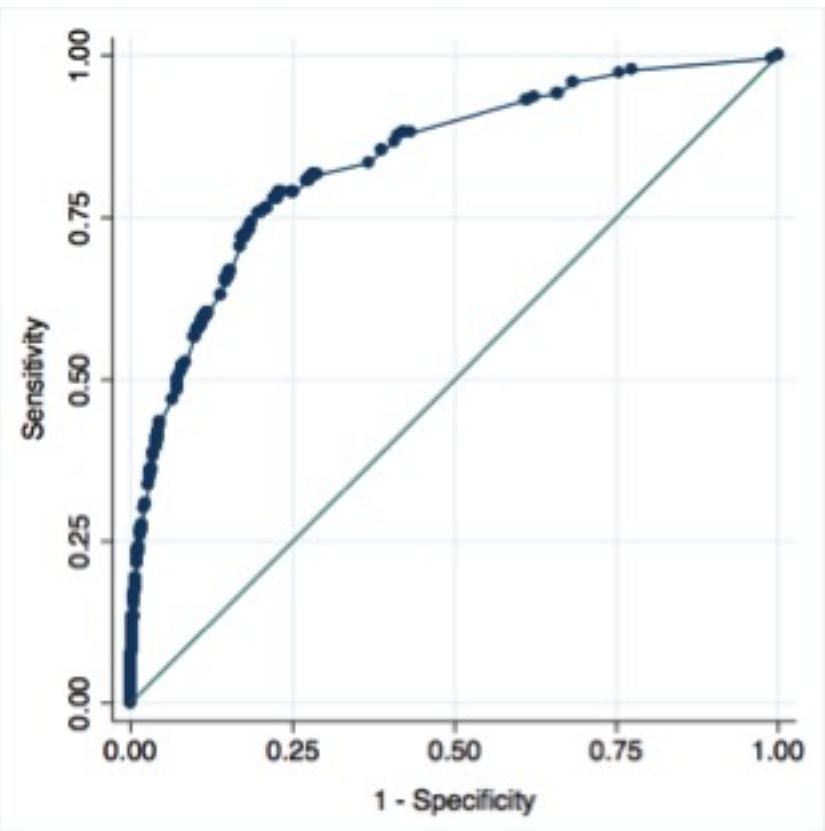
### Results

217 patients required a PEG tube (0.13%; 95% CI, 0.11 – 0.15%). Patients needing PEG tube placement were older (69 years vs. 52;  $p<0.001$ ) and more likely to be male (65% vs. 46.6%;  $p<0.001$ ) when compared control patients. After regression analysis, age over 65 (OR 4.16; 95% CI, 2.88 – 6.00) was the strongest independent predictor for PEG tube placement; other associated factors included male gender (OR 2.14; 95% CI, 1.61 – 2.85), congestive heart failure (OR 4.11; 95% CI, 2.60 – 6.49), deficiency anemia (OR 3.52; 95% CI, 2.23 – 5.35), alcohol abuse (OR 2.80; 95% CI, 1.29 – 6.09), renal failure (OR 2.25; 95% CI, 1.32 – 3.81), chronic lung disease (OR 1.78; 95% CI, 1.32 – 2.41), corpectomy (OR 2.16; 95% CI, 1.47 – 3.17), and fusion of 3 or more spinal segments (OR 1.74; 95% CI, 1.29 – 2.36). The mortality rate for patients who underwent PEG tube placement was 5.1% compared to 0.05% for controls ( $p<0.001$ ); average hospital charges were \$134,379 vs. \$39,519 ( $p<0.001$ ), and non-routine discharges were seen in 89.3% of cases vs. only 6.4% in the control group ( $p<0.001$ ).

### Conclusions

The incidence of PEG tube placement after anterior cervical fusion procedures was 0.13% in this study. Identified risk factors included age over 65, corpectomy, fusion of 3 or more spinal levels, and various medical comorbidities.

Figure 1: Receiver operating characteristic (ROC) curve analysis of the regression model



This model included age > 65, male gender, history of congestive heart failure, deficiency anemia, alcohol abuse, renal failure, and chronic lung disease, corpectomy, and 3 level fusion procedures. The area under the curve (AUC) was calculated at 0.838.

### References

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