

BACKGROUND

Percutaneous Endoscopic Gastrostomy (PEG):

- PEG tube placement is a safe and effective means to provide feeding when oral intake is impaired.
- Common indications for PEG tube placement include head/neck trauma, head/neck cancer and neurological diseases.
- Despite its routine use PEG is associated with complications and mortality.
- Complications include: bleeding, wound infection, tube dislodgement, necrotizing fasciitis, and buried bumper syndrome.

OBJECTIVE AND HYPOTHESIS

The aim of this study was to identify risk factors for the development of post-PEG complications. We hypothesized that patients with low albumin levels, diabetes, thicker abdominal walls and psychomotor agitation would have more complications.

METHODS

Retrospective analysis of all patients with an order for PEG tube placement during the period of December 2011 - November 2013.

Variables Collected:

- Patient demographics
- Indication for PEG
- Diabetes diagnosis
- Albumin levels
- Psychomotor agitation
- Abdominal wall thickness (when CT scans were available)
- Anticoagulant use
- Length of hospital stay
- Complications
- Date complication occurred
- Mortality

Psychomotor agitation was defined as a need for 1:1 observation or restraints.

Analysis:

Patients were stratified into No Complications vs. Complications and compared using Fisher's exact test.

RESULTS

- 91 patients were identified (mean age 58.7, range 19-96, SD 18.6)
- 70.3 % were male, 29.7% were female
- 17 patients developed post-PEG complications (18.7%)
- The most common complications were surgical site infection, tube dislodgement and peristomal leakage
- The 30-day mortality rate was 14.3%

Table 1. Patient Outcomes

Outcome	Mean, Total #	SD, %
Complication Rate (n=91)	17	18.7%
Patients with 1 complication (n=17)	8	47.1%
Patients with > 1 complication (n=17)	9	52.9%
Postoperative time to Complication, days	Mean 26.8 Median 16	SD 47.3 Range 0-203
Mortality Rate (n=91)	17	18.7%
In-hospital Mortality (n=91)	17	18.7%
Death within 30 days (n=91)	13	14.3%
Death within 60 days (n=91)	15	16.5%
Death within 1 year (n=91)	16	17.6%
Postoperative time to Mortality, days	51.8	SD 128.1
Length of Hospital Stay, days	Mean 52.2 Median 32	SD 72.3 Range 9-547

Table 2. PEG related Complications

Complication	Number of patients	%
Minor Complications	17/91	18.7
❖ PEG site Infection	10/17	58.8
❖ Peristomal Leakage	7/17	41.2
❖ Tube Dislodgement	5/17	29.4
❖ Tube Dysfunction	2/17	11.8
❖ Minor Bleeding at PEG site	1/17	5.9
❖ Pnuemoperitoneum	1/17	5.9
❖ Central Fever	1/17	5.9
Major Complications	4/91	4.4
❖ Bleeding at PEG site (required surgery)	1/17	5.9
❖ Buried Bumper Syndrome	3/17	17.6

Table 3. Univariate analysis of patients with and without complications

Variable	No Complication, Total=74	Complication, Total=17	P value
Age, years	60.7 (SD 17.1)	50.1 (SD 22.7)	0.03*
Male	51 (69.0%)	13 (76.5%)	0.77
Surgical Service	46 (62.2%)	13 (76.5%)	0.40
Trauma Activation	38 (51.3%)	8 (47%)	0.79
Albumin, g/dL	2.8 (SD 0.7)	3.2 (SD 0.9)	0.06
Weight, kg	78.6 (SD 21.6)	63.6 (SD 11.6)	0.01*
BMI, kg/m²	27.1 (SD 6.8)	23.7 (SD 7.6)	0.07
Diabetes	21 (28.4%)	5 (29.4%)	1.00
Abdominal wall thickness, mm	27.6 (SD 8.1)	21.6 (SD 7.6)	0.02*
PrePEG Anticoagulants	36 (48.6%)	6 (35.3%)	0.42
PrePEG Steroids	15 (20.3%)	5 (29.4%)	0.52
Patients on 1:1 observation	8 (10.8%)	4 (23.5%)	0.23
Patients on restraints	30 (40.5%)	11 (64.7%)	0.10

CONCLUSIONS

- 18.7% of patients developed complications after PEG tube placement.
- Age, weight and abdominal wall thickness were identified as risk factors for complications.
- Younger patients (< 51.5 years) who weighed less (< 62.2 kg) and had thinner abdominal walls (< 20.2 mm) were more prone to develop complications.
- Abdominal wall thickness was the only independent risk factor for complications.
- 14.3% of patients died within 30 days, however; mortality was due to severe underlying injuries and not PEG tube placement.
- There was no association between complications and mortality.
- Preoperative measurement of abdominal wall thickness by pre-procedural imaging can potentially be used to predict post-PEG complications.