Feeding Practices with Gastrostomy Tubes: Where is the Evidence?

Dooniya Shaikh, MD; Sameer Gupta, MD; Swapna Munnangi, MS, PhD; Carly Young, MS; Sophia Zigouras, MS
Nassau University Medical Center, Department of Surgery, East Meadow NY

Introduction

Gastrostomy tube placement within the surgical realm has evolved over the past two decades. Variability exists in the method of placement and specifically in the management of initiating nutrition and medications. Current literature is limited regarding protocols amongst general surgeons, however does support early feeding is safe and can result in better outcomes. The objective of this questionnaire based study was to assess the common practices of surgeons across the United States, as well as the reasoning behind those practices, in relation to gastrostomy tube management.

Methods

An online questionnaire was created to anonymously asses' clinician demographics, practice settings, methods, and reasoning when utilizing gastrostomy tubes. This questionnaire had 22 questions, 2 of which were open ended. Other questions had categorized multiple choice answers. This survey was sent out directly via email. Emails were populated from a public database affiliated with American College of Surgeons.

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Results

Table 1: Gastrostomy Tube Management Practices

Question	Respondents
Where do you primarily place gastrostomy tubes?	
Bedside	131 (13.3%)
Endoscopy Suite	278 (28.2%)
Interventional Suite	3 (0.3%)
Operating Suite	573 (58.2%)
Method of gastrostomy tube placement	
Percutaneous Endoscopic Gastrostomy	732 (74.3%)
Percutaneous Radiographic Gastrostomy	1 (0.1%)
Open Gastrostomy	128 (13.0%)
Laparoscopic Gastrostomy	124 (12.6%)
How do you secure the gastrostomy tube?	
Just use the bolster	567 (57.6%)
Suture the bolster down to the skin	269 (27.3%)
Suture another part of the tube down	62 (6.3%)
Tape	13 (1.3%)
Other	74 (7.5%)
What type of sedation is used?	
General	451 (45.8%)
Local	30 (3.0%)
Conscious	440 (44.7%)
Other	64 (6.5%)
Do you routinely have your patient's intubated?	
Yes	416 (42.2%)
No	510 (51.8%)
Other	59 (6.0%)
Do you conduct a gastrostomy tube study prior to use?	
Yes	55 (5.6%)
No	930 (94.4%)

Question	Respondents
Time to initial use of tube with non-nutrition items	
Immediately	434 (45.3%)
1-2 hours	71 (7.4%)
3-6 hours	133 (13.9%)
7-12 hours	92 (9.6%)
13- 24 hours	192 (20.0%)
Greater than 24 hrs	36 (3.8%)
Time to initial enteral nutrition formula	
Immediately	130 (13.6%)
1-2 hours	44 (4.6%)
3-6 hours	140 (14.6%)
7-12 hours	147 (15.3%)
13-24 hours	370 (38.6%)
Greater than 24 hours	127 (13.3%)
If initiation of enteral nutrition is not immediate, choose reasons that apply:	
Bleeding	39 (4.1%)
Historic practice	476 (49.7%)
Awaiting bowel sounds	23 (2.4%)
Awaiting flatus	8 (0.8%)
Awaiting bowel movement	3 (0.3%)
Concern for Vomiting/Aspiration	227 (23.7%)
Facility Protocol	75 (7.8%)
Other (please specify)	272 (28.4%)

Question	Respondents
Does your time to initiation of enteral nutrition differ by technique of tube placement (surgical vs endoscopic vs radiologic)?	
Yes	69 (7.2%)
No	889 (92.8%)
Does your time to initiation of enteral feeding via gastrostomy tube differ based on outpatient or inpatient?	
Yes	69 (7.2%)
No	889 (92.8%)
Do you limit the amount of enteral product on initiation?	
Yes	453 (47.3%)
No	505 (52.7%)
Primary method of initiation of enteral nutrition administration:	
Bolus	146 (15.2%)
Continuous	749 (78.2%)
Intermittent	63 (6.6%)

Percentage of participants that did not answer specific questions not shown in table (58-85 participants per question)

Table 2: Regression Analysis of Responses Associated with Delayed Enteral Nutrition

	OR	CI	p-Value
Practitioner Age: >55 years vs Less than 35 years	1.30	0.26-6.53	0.275
Years in practice: >15 years vs Less than 5 years	1.43	0.80-2.55	0.043*
Type of Practice: Community Hospital vs Teaching Hospital	1.58	1.19-2.11	0.027*
Type of Practice: Private practice vs Teaching Hospital	1.36	0.96-1.92	0.653
Type of community: Suburban vs Urban	1.495	1.11-2.01	0.047*
Location: Bedside vs Operating Suite	0.284	0.19-0.43	0.053
Limit the amount of enteral nutrition: no vs yes	0.68	0.53-0.88	0.003*

14,821 emails were sent with 1043 respondents. Practitioners were predominantly 55 years or older (74.31%) and primarily male (79.96%). 676 respondents have been in practice for greater than 15 years (64.81%) with more respondents practicing in either teaching (44.2%) or community (36.24%) hospitals as opposed to private practice (19.56%). Gastrostomy tubes were predominantly placed in the operating room (58.2%) in percutaneous endoscopic fashion (74.31%). Majority of respondents (94.4%) did not conduct a tube survey prior to use. Enteral nutrition was initiated predominantly at 13-24 hours (38.62 %) followed by 7-12 hours (15.34%). Only 13.57% initiated nutritional feeds immediately. Reasoning behind practices were primarily historical (49.69%). Amongst the participants that answered historical practice, 63.03% have been practicing for greater than 15 years.

Conclusions

The American general surgeon population predominantly initiates nutritional feeding through new gastrostomy tubes at the 13-24 hour mark. Historical motive is the primary reason for this custom, revealing a need for an evidence based universal standard of care.

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