



Resource utilization after gastrostomy tube placement: Defining areas of improvement for future quality improvement projects[☆]



Jesus A. Correa^a, Sara C. Fallon^a, Kathleen M. Murphy^a, Veronica A. Victorian^a, George S. Bisset^b, Sanjeev A. Vasudevan^a, Monica E. Lopez^a, Mary L. Brandt^a, Darrell L. Cass^a, J. Ruben Rodriguez^a, David E. Wesson^a, Timothy C. Lee^{a,*}

^a Division of Pediatric Surgery, Michael E. DeBakey Department of Surgery, Baylor College of Medicine, Houston, TX

^b Edward B. Singleton Department of Pediatric Radiology, Texas Children's Hospital, Houston, TX

ARTICLE INFO

Article history:

Received 21 February 2014

Received in revised form 22 June 2014

Accepted 25 June 2014

Key words:

Gastrostomy

Pediatrics

Quality improvement

ABSTRACT

Background: Gastrostomy tube (GT) placement is a frequent procedure at a tertiary care children's hospital. Because of underlying patient illness and the nature of the device, patients often require multiple visits to the emergency room for GT-related concerns. We hypothesized that the majority of our patient visits to the ER related to gastrostomy tube concerns were not medically urgent. The purpose of this study was to characterize the incidence and indications for GT-related emergency room visits and readmission rates in order to develop family educational material that might allow for these nonurgent concerns to be addressed on an outpatient basis.

Methods: We reviewed the medical records of all patients with GT placement in the operating room from January 2011 to September 2012. We evaluated our primary outcome of ER visits at less than 30 days after discharge and 30–365 days after discharge. The purpose of the ER visit was categorized as either mechanical (dislodgement, leaking) or wound-related (infection, granulation tissue). Additional outcomes assessed included readmission rates, reoperation rates, and the use of gastrostomy contrast studies.

Results: During the study period, 247 patients had gastrostomy tubes placed at our institution at a median age of 15.3 months (range 0.03 months–22 years). Of the total patient population, 219 were discharged less than 30 days after their operation (89%). Of these, 42 (20%) returned to the emergency room a total of 44 times within 30 days of discharge for concerns related to their GT. Avoidable visits related to leaking, mild clogs, and granulation tissue were seen in 17/44 (39%). An additional 40 patients among the entire cohort of 247 (16%) presented to the ER a total of 71 times 31–365 days post-discharge; 59 (83%) of these visits were potentially avoidable. The readmission rate related to the GT was low (4%).

Conclusions: Few studies have attempted to quantify the amount of postoperative resources utilized post-GT placement in children. Our findings indicated this is not an insignificant quantity. In response to these findings, we have developed a series of educational materials and identified a dedicated nurse to perform inpatient gastrostomy education to these patients prior to discharge.

© 2014 Elsevier Inc. All rights reserved.

1. Background

Gastrostomy tube (GT) placement in the pediatric population plays an important role in the care of high-risk patients with neurologic disease and feeding difficulties. In 2006, an estimated 11,000 gastrostomy tubes were placed in patients less than 18 years of age in the US [1]. Complications related to the procedure can range from minor (granulation tissue) to serious (gastric outlet obstruction, bowel perforation, intraperitoneal leak). Fortunately, significant

complications are very rare (<1%), particularly with the Stamm gastrostomy technique [2].

Minor complications occur more frequently and result in a higher relative burden on the health care system. One cross-sectional study of ER visits related to gastrostomy complications found that 62% of patients presented to the ER with dislodgement concerns [3]. Another study of 159 pediatric patients with gastrostomy placement found the majority of ER visits were related to granulation tissue (58%) and tube dislodgement (28%), with 93% of patients being discharged from the emergency department [4]. If these numbers were extrapolated to the 11,000 patients necessitating this procedure annually, this would result in 6918 ER visits a year with only 484 complications requiring admission to the hospital. The cost of these unnecessary visits cannot be ignored. In one adult study examining ER visits in patients with gastrostomy tubes, 33 patients visited the ED 138 times over a two

[☆] Disclosures: The authors have no sources of support or disclosures regarding the preparation of this manuscript.

* Corresponding author at: 6701 Fannin Suite 1210, Houston, TX 77030. Tel.: +1 832 822 3135; fax: +1 832 825 3141.

E-mail address: tclee@texaschildrens.org (T.C. Lee).

year period with the majority of complaints related to dislodgement; the estimated cost of each visit was approximately \$1000 [5].

We hypothesized that the majority of our patient visits to the ER related to gastrostomy tube concerns were not medically urgent. As we perform approximately 150 new tube insertions per year, this volume of ER visit represents an area of significant resource utilization. The purpose of this study was to evaluate the incidence and indications for these ER visits so that a patient-directed educational program could be developed to decrease these visits and improve the quality of their care.

2. Methods

2.1. Study design

After IRB-approval, the medical records of all patients at who had undergone gastrostomy placement by the surgery service at a tertiary care referral center from January 2011 to September 2012 were reviewed. Patients who went to the operating room during this time frame for a revision of a previously placed gastrostomy were excluded. Patients received an open Stamm gastrostomy, a laparoscopic gastrostomy, or rarely, a percutaneous endoscopic gastrostomy (PEG). Patients who had a PEG placed by the interventional radiology or gastroenterology departments were not included. Data collected included patient demographics, the indication for placement, operative technique, and postoperative outcomes. Data analysis was descriptive; all data are reported as a mean (standard deviation) or a median (range).

2.2. Measured clinical and resource utilization outcomes

In order to quantify our resource utilization in these patients, we evaluated: ER visits less than 30 days after discharge, ER visits 30–365 days after discharge, and unplanned clinic visits related to gastrostomy tube concerns. The purpose for the ER or clinic visit was categorized as either a mechanical or a wound concern. Mechanical concerns included dislodgment, clog, or leak. Wound concerns were categorized as infectious (cellulitis, abscess) or noninfectious (granulation tissue, skin breakdown, bleeding). Essential visits were defined as those involving a problem that required urgent medical attention or could not be reasonably addressed at home. Examples include dislodgement in the 30 day postoperative period, concern for infection, signs of obstruction, or an acute change in the mechanical functioning of the tube. Avoidable visits were defined as those involving a preventable problem or problem that could be addressed by the caretaker at home. Examples include granulation tissue, leaking, or minor clogs that did not interfere with the overall tube functioning. For instances where the nature of the ER visit was considered difficult to categorize based on these a priori definitions, the case was reviewed by a resident and a staff surgeon, and a consensus was reached after a discussion of the case. Visits related to a subsequently placed gastrojejunostomy tube were not included in this review. Additional outcomes assessed included readmission rates, reoperation rates, and the use of gastrostomy contrast studies. The average cost related to ER visits for gastrostomy concerns was calculated.

3. Results

3.1. Patient demographics

During the study period, 247 patients had a GT placed at our institution. Demographics and surgical procedural data are presented in Table 1. The median age at initial placement was 15.3 months (range 0.03 months–22 years). The most common indication for gastrostomy placement was neurologic dysfunction (49%). Open procedures were performed in 181 (73%) patients, laparoscopic placement in 60 (24%), and 6 (3%) had a percutaneous endoscopic

Table 1
Variable

Median age at surgery	15.3 months (range 0.03–264)
Median BMI at the time of surgery	15.3 kg/m ² (range 10.5–35.5)
Gender	131 females (53%) 116 males (47%)
Indications	
Neurologic dysfunction	120 (49%)
Congenital heart disease	19 (7.7%)
Metabolic disorder	18 (7.2%)
Surgical GI anatomic abnormality	14 (5.7%)
Cystic fibrosis with pancreatic insufficiency	11 (4.5%)
Other indication (BPD, muscular dystrophy, facial deformity)	65 (26.3%)
Operation	
Open Stamm gastrostomy	181 (73%)
Laparoscopic gastrostomy	60 (24%)
PEG	6 (3%)
Gastrostomy device	
Primary tube	141 (57%)
Primary button	106 (43%)

gastrostomy. Pezzet or Malecot tubes were placed in 141 patients (57%), 90 (36%) received primary balloon buttons, and 16 (7%) received non-balloon buttons.

3.2. Patient clinical outcomes

Postoperative complications prior to discharge were minimal. Ten patients had adverse events including 6 wound infections, 2 dislodgements where a tube was replaced with a Foley catheter, 1 dislodgment that required a repeat operation for replacement, and 1 dislodgement into the subcutaneous space that was corrected by readjusting the catheter.

3.3. Gastrostomy device

As previously stated, the majority of patients received a gastrostomy tube initially. These patients had a rate of ER visit >30 days after discharge of 20% (Table 2). The majority of visits were related to mechanical concerns (13%). Similarly, those who had an initial balloon button had an ER visit rate of 20%, with the majority related to wound concerns (13%). Those with a nonballoon button had a visit rate of 13%.

3.4. Emergency room visits

Of the total patient population, 219 were discharged less than 30 days after their operation (89%). Of these, 42 (20%) returned to the emergency room a total of 44 times within 30 days of discharge for concerns related to their tube. Avoidable visits related to leaking, mild clogs, and granulation tissue were seen in 17 (44%). Conversely, 61% presented with essential visits to the ER with concerns for tube dislodgment less than 30 days after placement or infection of the wound (Fig. 1). The mean ER visit length of stay was 5.4 hours (±3.8). The majority of these visits were related to mechanical concerns (60%, Fig. 2).

An additional 40 patients (16%) presented to the ER a total of 71 times greater than 30 days but less than 1 year after discharge from

Table 2
ER visit rate by type of gastrostomy device, <30 days.

	Tube n = 141	Balloon button n = 60	Nonballoon button n = 16
ER Visits <30 days from discharge	28 (20%)	12 (20%)	2 (13%)
Mechanical concerns	19 (13%)	4 (7%)	2 (13%)
Wound concerns	9 (6%)	8 (13%)	

Download English Version:

<https://daneshyari.com/en/article/4155349>

Download Persian Version:

<https://daneshyari.com/article/4155349>

[Daneshyari.com](https://daneshyari.com)