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FIVE-YEAR NATIONAL ANALYSIS OF POST-PROCEDURE OUTCOMES IN PATIENTS UNDERGOING IR-GUIDED, SURGICAL, AND PERCUTANEOUS ENDOSCOPIC GASTROSTOMY TUBE PLACEMENT PROCEDURES

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PURPOSE / OBJECTIVES

Gastrostomy tube placement is a common procedure for providing long-term enteral nutrition in patients with dysphagia or a risk of aspiration pneumonia. Several techniques are available, including percutaneous endoscopic gastrostomy (PEG), interventional radiology (IR)-guided gastrostomy, and surgical gastrostomy. However, the comparative outcomes of these approaches in terms of safety, complications, and procedural success remain poorly understood. This study aims to compare post-procedure events across these three techniques—IR-guided, surgical, and PEG tube placement—to better inform clinical decision-making for patients requiring long-term enteral nutrition.

MATERIAL & METHODS

We analyzed data from the 2016-2020 National Inpatient Sample database, utilizing ICD-10 codes to identify adult patients who underwent gastrostomy tube placement. Patients were categorized into three groups: PEG, IR-guided gastrostomy, and surgical gastrostomy. The primary outcome was the overall complication rate, while secondary outcomes included post-procedural hemorrhage, infection, tube malfunction, and other unspecified complications. Multivariate regression analysis was conducted to compare outcomes across the groups, adjusting for factors such as patient demographics, hospital characteristics, indication (benign or malignant), Elixhauser Comorbidity Index, aspirin use, and compensated and decompensated cirrhosis.

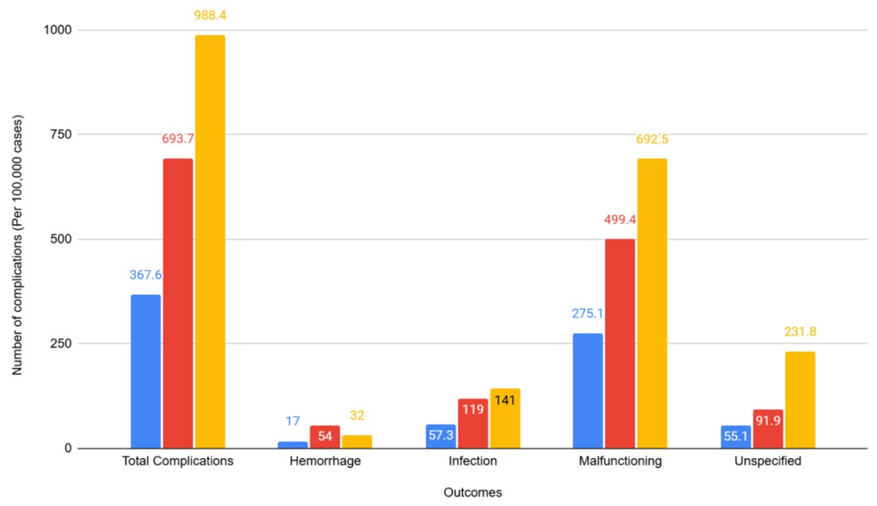

Figure 1: Comparison of complication rates among three techniques: PEG, IR-guided gastrostomy, and surgical gastrostomy

	PEG	IR-guided	Surgical
Total Complications	Ref	**1.98 (1.88-2.08)**	**2.91 (2.69-3.14)**
Hemorrhage	Ref	**3.07 (1.47-2.91)**	**2.07 (1.47-2.91)**
Infection	Ref	**2.05 (1.83-2.29)**	**2.55 (2.13-3.05)**
Malfunctioning	Ref	**1.88 (1.78-1.99)**	**2.66 (2.42-2.91)**
Unspecified	Ref	**1.72 (1.54-1.93)**	**4.14 (3.56-4.83)**

Figure 2: Multivariate regression analysis among three techniques: PEG, IR-guided gastrostomy, and surgical gastrostomy.

RESULTS

Between 2016 and 2020, a total of 1,164,260 gastrostomy procedures were performed, with IR-guided procedures being the most common (62%), followed by percutaneous endoscopic gastrostomy (PEG) (31.8%) and surgical gastrostomy tubes (6.2%). Among these, patients undergoing PEG placement experienced the lowest rates of composite complications, including post-procedural hemorrhage, infection, tube malfunction, and other unspecified complications.

IR- guided procedures were associated with the highest risk of post-procedural hemorrhage, while surgical PEG patients faced the highest rates of tube malfunction and other complications (Picture- 1). Additionally, patients undergoing PEG had a shorter length of stay and lower total hospitalization costs compared to those in the other groups. After adjusting for confounding factors, PEG placement consistently demonstrated better clinical outcomes and lower resource utilization, while both IR-guided and surgical procedures were associated with significantly higher risks of complications and greater healthcare costs

SUMMARY / CONCLUSION

Our study clearly demonstrates that PEG tube placement is a safer procedure compared to other gastrostomy techniques. Despite this, the number of IR-guided PEG procedures has been on the rise in recent years. Physicians should be aware of these findings, as we recommend a gastroenterology evaluation for PEG tube placement before considering alternative modalities.