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Post-Pyloric Feeding Tube Placement

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Post-Pyloric Feeding Tube Placement Investigation: Procedure Best Practices

INTRODUCTION/SIGNIFICANCE

- Multiple attempts, radiographs, and tube misplacements may lead to delayed nutritional support, discomfort, and increased costs to treat (Gao et al., 2018; Kappelle et al., 2018; & Shadid, Keckeisen, & Zarrinpar, 2017)
- Waiting for radiologists to confirm placement represent a major cause for delay (DeLegge, 2018; Gokhale et al., 2016; Kappelle et al., 2018; Shadid, Keckeisen, & Zarrinpar, 2017)

Significance

Adverse medical device reports in the US (MAUDE) included 54 adverse reports of post-pyloric feeding tube placement using electromagnetic bedside equipment between 2006 & 2016.

- 98% involved placement into lungs leading to some deaths
- 89% of reviewed medical records of these adverse events showed insertion image tracings in the lungs missed by clinicians during insertion (DeLegge, 2018)

PURPOSE

Concerns exist regarding patient safety during transportation to other departments for enteral feeding tube placement by endoscopy or under fluoroscopy.

Purpose

Ensure Covenant Health's post-pyloric feeding tube placement in adults (>18 years of age) policy and practices align with current evidence (<5 years) from scientific literature.

Research Question

In adults (>18 years of age) having a post-pyloric feeding tube placed, what is the tube placement in the small intestine rate on first attempt with nurse placement at the bedside compared to physician placement using fluoroscopy?

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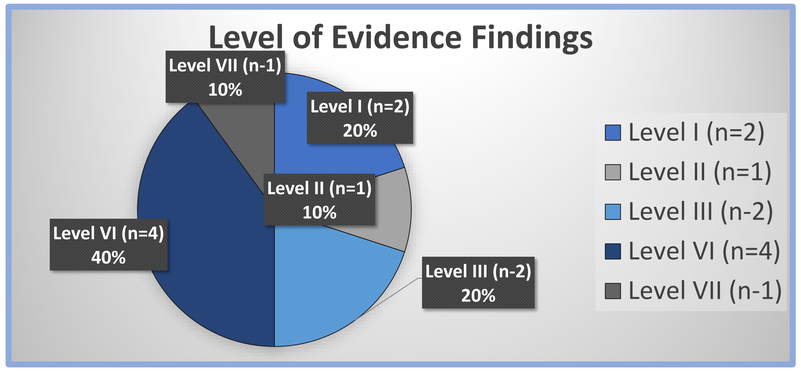
METHODS

Design

- Literature review conducted using Integrated Research Review (IRR) methodology (Brown, 2018; Whittemore & Knafle, 2006)
- Databases Searched were CINAHL, Medline Complete, Cochrane, & PubMed
- Search Keywords were "post-pyloric feeding tube" AND "duodenum" AND "placement" OR "insertion" as MeSH major word terms
- Included current (<5 years) peer-reviewed articles limited to English

Search Results

- 137 articles identified; 10 included in final sample
- Level of evidence independently rated & established through interrater reliability using evidence pyramid published by Sackett et al. (1996)
- Two articles excluded due to lack of relevance to clinical question after full-text review



Literature Synthesis

Systematic reviews (n=2), practice guidelines (n=1), & meta-analysis (n=2) associated blind post-pyloric feeding tube placement with higher rates of complications (DeLegge, 2018; American Association of Critical-Care Nurses [AACN], 2017; Shadid, Keckeisen, & Zarrinpar, 2017; Smithard, Barrett, Hargroves, & Elliot, 2005

BACKGROUND

Covenant Health Nursing Congress Referral posed the question of direct care nurses working in critical care units placing post-pyloric feeding tube placements versus placement by physicians using fluoroscopy in Interventional Radiology..

RESULTS

- Only specialized teams of physicians, dieticians, advanced practice nurses, & nurses placed feeding tubes in reviewed literature (Akers & Pinsky, 2017; DeLegge, 2018; Gao et al., 2018; Gokhale et al., 2016; Kappelle et al., 2018; Shadid, Keckeisen, & Zarrinpar, 2017; Smithard, Barrett, Hargroves, & Elliot, 2005; Wang et al., 2014)
- Radiology clearance for use varied amongst practice settings (Akers & Pinsky, 2017; DeLegge, 2018; Gao et al., 2018; Gokhale et al., 2016; Kappelle et al., 2018; Shadid, Keckeisen, & Zarrinpar, 2017; Smithard, Barrett, Hargroves, & Elliot, 2005; Wang et al., 2014)

Practice Guidelines

American Association of Critical-Care Nurses (AACN) published a practice alert in 2017 stated "Confirm all post-pyloric feeding tube placements with radiology prior to use, even electromagnetic tube placements (Level A Evidence)"

Quality Indicator

Enteral tube misplacement is viewed as a "never event", thus proper placement is a quality benchmark. (Shadid, Keckeisen, & Zarrinpar, 2017)

Synthesis of Findings

- Literature review revealed three insertion techniques reporting similar adverse outcomes & successful placement rates—electromagnetic, endoscopic, & fluoroscopic
- Pros of electromagnetic post-pyloric feeding tube placement included (1) No travel safety risks, (2) Expedited feeding, (3) Immediate correction if misplaced during placement, (4)Limited radiation exposure, & (5) Repositioning as necessary at bedside.
- Literature described cons of electromagnetic post-pyloric feeding tube placement including (1) More patient discomfort, (2) Greater allocation of resources, (3) Specialized training of dedicated team, (4) Greater number of attempts for proper placement, & (5) Increased procedure & nursing time.

(Akers & Pinsky, 2017; DeLegge, 2018; Gao et al., 2018; Gokhale et al., 2016; Kappelle et al., 2018; Shadid, Keckeisen, & Zarrinpar, 2017; Smithard, Barrett, Hargroves, & Elliot, 2005; Wang et al., 2014)

IMPLICATIONS FOR PRACTICE

Although a singular recommendation was not formulated based on reviewed literature, efficacy of current practice was supported compared to other tube placement methods.

DISCUSSION/CONCLUSIONS

- Investigators do not recommend direct care nurse placement of post-pyloric tubes
- Bedside placement recommendations based on literature findings include:
  1. Only electromagnetic-guided system should be used (no blind placements)
  2. Only specially trained team of nurses, nurse practitioners, or physicians should place at the bedside
  3. Continue with requirement for radiographic confirmation of tube placement