Reducing Gastrostomy Placement in Children with Aspiration

Oropharyngeal dysphagia can be associated with aspiration, which is diagnosed typically by a videoflouroscopic swallow study (VFSS). It is important to determine which children will have resolution of aspiration over time and which children will need a long-term feeding solution, such as a gastrostomy button. It has been noted that gastrostomy placement rates have increased nationally in U.S. children, and better data are needed to determine which children would benefit from conservative therapy versus gastrostomy placement. The authors of this study developed an evidence-based guideline to reduce gastrostomy placement in such children.

This quality improvement study occurred at a tertiary care children's hospital and was assembled by input consisting of a literature review as well as consultation with speech language pathologists (SLPs) and pediatric gastroenterologists in order to develop an evidence-based guideline. Children equal to or less than 2 years of age with aspiration demonstrated on VFSS were included in the study, and a flowchart was utilized for the quality improvement study. Briefly, if a child was breastfeeding and there was a concern for aspiration, the child underwent a VFSS and had consultation with a SLP. If a VFSS was abnormal and the child was less than 52 weeks gestational age, then the child either was admitted to the hospital for a trial of nasogastric (NG) breastmilk or oral thickened formula with NG breast milk. The patient then continued to work with SLP and gastroenterology and neurology recommendations were considered. If a repeat VFSS showed improvement in the swallowing mechanism, then work with SLP and trialing with thickened feeds continued until the aspiration had resolved as demonstrated by VFSS. However, if a repeat VFSS still showed aspiration, a child was considered a candidate for gastrostomy placement. A similar process was in place for children who were formula feeding.

The primary outcome of this study was to determine how often patients with an abnormal VFSS subsequently required gastrostomy placement within 6 months. Frequency of ordering VFSSs was measured quarterly as a proxy marker of study adherence, and emergency room visits and hospital admissions were tracked for those patients with an abnormal VFSS. In total, 6125 patients at 2 years of age or less underwent a VFSS during the 4-year study period, and 1668 of these patients had aspiration or penetration. Results demonstrated that 768 patients had aspiration or aspiration and penetration on their first VFSS while 900 patients had penetration only during their first VFSS. Additionally, 94 of the patients with aspiration or aspiration and penetration on their first VFSS (12.2%) and 31 of the patients with penetration only on their first VFSS (3.4%) eventually required gastrostomy placement. During the course of the quality improvement study, gastrostomy placement in this patient population fell from 10.9% at the beginning of the study to 5.2% at the end of the first year of study implementation with this lower percentage continuing for the remaining 3 years of the study. The number of VFSSs increased throughout the study. The number of emergency room visits and hospitalizations in the patient group without gastrostomies did not increase during the study with this same patient group having significantly less emergency room visits and hospitalizations compared to those children who had undergone gastrostomy placement.

This is an extremely important quality improvement study demonstrating that use of evidence-based clinical protocols can eliminate unnecessary gastrostomy placement in a group of children that otherwise would benefit from working with SLP long term. Also, the lower amount of emergency room visits and hospitalizations in children who did not require gastrostomy placement demonstrates that such quality improvement trials can reduce health care costs and improve patient safety. Important quality improvement research, such as this study, is necessary to improve the healthcare outcomes of children with chronic health conditions.

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