Using the Gugging Swallowing Screen (GUSS) for Dysphagia Screening in Acute Stroke Patients

Pneumonia is a common complication of stroke-related aspiration due to dysphagia and is a major cause of poststroke death (Jauch et al., 2013). Large, quasi-experimental studies reported that bedside dysphagia screening by nurses decreases the incidence of pneumonia after stroke (Jauch et al., 2013). As a result of these findings, The Joint Commission had adopted a dysphagia screening performance measure for hospitals seeking Disease-Specific Care Certification. This best practice indicates that all stroke patients should be screened for dysphagia before receiving oral intake, including medications, food, or fluids. Because malnutrition is associated with complications and poorer outcomes in stroke patients, this screen must be able to be easily administered by nurses at the bedside so that feeding may be safely started as quickly as possible (Jauch et al., 2013).

CURRENT STATE OF DYSPHAGIA SCREENING IN ACUTE STROKE

Unfortunately, researchers have been unable to reach a consensus on the most appropriate tool for dysphagia screening because of limited evidence from well-designed studies. The most commonly used dysphagia screens almost exclusively screen for the swallowing of water (Poorjavad & Jalaie, 2014). This is problematic because patients with dysphagia are more likely to aspirate on thin liquids than semisolids. In addition, half of the patients who aspirate due to dysphagia have no protective cough reflex and experience silent aspirations (Hinchey et al., 2005). Silent aspirations have subtle signs, including throat clearing, drooling, and voice change (Jauch et al., 2013). The ideal dysphagia screen includes liquid and solid textures to fully evaluate swallowing, is sensitive to subtle signs of silent aspiration, and begins with semisolids to increase safety.

In a recent systematic review of dysphagia screens, Poorjavad and Jalaie (2014) found only four “highly qualified” (p. 776) screens for poststroke patients that met the criteria of validity, reliability, sensitivity, and specificity. These highly qualified screens included the Oral Pharyngeal and Clinical Swallowing Examination, the Bedside Aspiration Test, the Toronto Bedside Swallowing Screening Test, and the Gugging Swallowing Screen (GUSS). However, the GUSS is the only screen that tests swallowing of multiple consistencies, which is especially important in acute stroke-related dysphagia.

GUGGING SWALLOWING SCREEN (GUSS)

The GUSS begins with semisolids and is sensitive to several signs of silent aspiration, including delayed swallowing, drooling, and voice change (Trapl et al., 2007). This screen has 100% sensitivity and 69% specificity to predict aspiration risk, compared with fiber optic endoscopic evaluation of swallowing, with a positive predictive value of...
76% and a negative predictive value of 100%. GUSS weaknesses include low specificity, uncertainty of training requirements, and no reliability reported for nurses, although reliability among speech language pathologists (SLPs) was excellent (K = 0.835). In a systematic review of dysphagia screens, Schep, Tirschwell, Miller, and Longstreth (2012) reported that the GUSS was not recommended as the best screen solely on the basis of requiring “specialized training or expertise (p. 3, online-only supplement).” However, the concerns about the training and expertise needed to perform the GUSS could be allayed by our own experiences in using the GUSS.

OUR EXPERIENCES IMPLEMENTING THE GUSS

Our facility became a comprehensive stroke center in 2013 and has since celebrated a 93% compliance rate with our dysphagia screen. In 2014, we began questioning the safety of starting patients on a regular diet, as our nursing dysphagia screen consisted only of water. Although we have excellent SLP coverage, it is not round-the-clock, and some patients who could safely start a modified diet were withheld from oral food and fluids because they could not be seen by an SLP immediately. After conducting a thorough literature review, we decided to adopt the GUSS and implement a set of sliding scale diet orders of various consistencies based on the GUSS results. Other elements of the GUSS that were appealing were the built-in expectations of oral care, elevating the head of the bed to greater than 60° prior to administering the screen, and supervision of the first meal.

Almost 150 bedside nurses throughout our institution were recently educated with a 10- to 15-minute in-service, consisting of a demonstration and explanation of GUSS, with a return demonstration by the bedside RN. Nurses were given the GUSS competency to review prior to the event, and instruction at the event was provided by SLPs, bedside nurses trained by SLPs, and a neurosciences clinical nurse specialist (J.S.J.). Evaluation results of the educational session were overwhelmingly positive, with 93% of nurses agreeing or strongly agreeing that they were able to demonstrate proper performance of the GUSS, calculate the score, and identify appropriate dietary recommendations. Nurses commented that they were happy to have diet recommendation guidelines, were able to initiate a diet sooner, and that the GUSS was not more time-consuming than the traditional dysphagia screen. Our GUSS-based diet orders also allow for the administration of crushed medications with semisolids to decrease unnecessary placement of nasogastric tubes, which increased nursing satisfaction with the screen.

NEXT STEPS

The next step for our institution is to repeat the competency evaluation of bedside nurses who received training of the GUSS to ensure the transfer of knowledge. We are also finalizing implementation of the GUSS into our electronic medical records system and refining the diet orders.

Further research needs to be conducted with the GUSS and dysphagia screening in general to determine the best screening tool to improve patient outcomes. Studies with larger sample sizes that use widely accepted gold standards for validity and establish reliability with bedside nurses are paramount. Another valuable study would be validation of a dysphagia screen for pediatric patients, a population in whom stroke is increasing (Roach et al., 2008).

Other institutions should consider whether GUSS might meet their needs. The nurses who were trained on the GUSS reported that it was easy to learn because of the similarity with our previous screen and because the electronic medical record indicates whether the patient passes or fails each step of the screen, guiding the nurse to use the appropriate diet-based orders. It is our hope that by increasing the safety of our dysphagia screening process, while enabling nurses to initiate early enteral nutrition, we will improve patient outcomes and decrease the morbidity and mortality associated with acute stroke.

REFERENCES


