Dysphagia: Validating Tool
The importance of a nursing dysphagia screening

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Disclosures

• We have no relevant financial or conflicts of interest to disclose.
We will discuss...

• Current recommendations re: dysphagia screening.

• A brief review of dysphagia & aspiration including statistics, burdens, & complications.

• Importance of early utilization of bedside dysphagia screening.

• Challenges of validating a dysphagia screening tool.
Primary goal...

• Understanding the importance of utilizing a *quality* dysphagia screening tool to provide superior nursing care.
Saint Luke’s Marion Bloch Neuroscience Institute

- 2017 Gold Plus
- Commitment to quality patient care and excellence


Saint Luke’s is committed to providing stroke treatment according to nationally recognized, evidence-based guidelines at all of our hospitals.

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Validation Study at St. Luke’s

• Dysphagia screening tool validation study at Saint Luke’s Hospital - Kansas City (Plaza campus).
  • IRB approved, study in process.
  • Based on the most up-to-date literature, created previously by a team in-house by dedicated staff.
  • Validating in larger sample size in acute stroke population with limited time between testing.
  • Validating against gold standard video fluoroscopy.
  • Goal: good specificity and sensitivity with ease of use, reliable.
Stroke Facts

• Every 40 seconds someone has a stroke.

• Every 4 minutes someone dies of a stroke.

• 795,000 strokes per year in America, with 140,000 deaths.

• Cost of stroke: estimated at 34 billion each year.

• Stroke is a leading cause of long-term disability.

(Stroke Facts CDC.gov)
Brief History of Nursing Dysphagia Screen

- Late 1990’s – early 2000’s
  - Growing research into the feasibility of swallowing screening completed by RNs/physicians
  - Research of important factors for identifying dysphagia and risk of aspiration.
- 2005
  - Increasing need reiterated for valid and reliable dysphagia screenings
- 2007
  - AHA/ASA Guidelines indicate swallowing should be screened prior to oral intake for CVA patients.
- 2010
  - The Joint Commission and “Get with the Guidelines” retired the dysphagia screen performance standards.
- 2012
  - AHA/ASA Symposium reviewed the characteristics of valid and reliable screening and assessment tools.
- 2014
  - AHA/ASA Current Recommendations.

Donovan, et al. (2013)
Identified need for valid and reliable dysphagia screenings

What Constitutes a good screening instrument?
  • Easily administered, valid, reliable, high sensitivity, high specific, evidence based, minimal training, easily documented.

“Absence of consensus on the best screening instrument does not mean no screening should be performed.”

Advance research initiatives
Dysphagia screening guidelines

(2014 Guidelines for Early Management of Patients with Acute Ischemic Stroke AHA/ASA) “dysphagia screening with an evidence-based bedside testing protocol approved by the hospital before being given any food, fluids, or medications by mouth”.

“Dysphagia screening may consist of a structured bedside swallow screen administered by nursing staff, bedside swallow evaluation by a speech-language pathologist, video fluoroscopic swallow evaluation, fiber optic endoscopic evaluation of swallowing, or other method approved by local institutional protocol.”

2014: AHA/ASA Clinical Performance Measures
2014: AHA/ASA Clinical Performance Measures (con’t)

• “Several studies have demonstrated a reduction in pneumonia after institutional implementation of dysphagia screening protocols, but without randomized control groups. Several swallow screening methods have been published in the literature, each with benefits and limitations, without sufficient evidence to recommend a single consensus method.”
Current Dysphagia Screens

- Numerous dysphagia screens in existence:
  - Toronto Bedside Swallowing Screening Test
  - 3-oz Water Swallow Test (WST)
  - Bedside Swallowing Assessment
  - Standardized Swallowing Assessment
  - Guggling Swallow Screen (GUSS)
  - Acute Stroke Dysphagia Screening (Barnes Jewish)
  - Modified Mann Assessment of Swallowing (MANN)
  - Emergency Physician Swallow Screening
  - And so on and so forth!
Dysphagia V. Aspiration

SQUARE → RECTANGLE → SQUARE

ASPIRATION → DYSPHAGIA → ASPIRATION
What *exactly* is dysphagia?

- More than just – “difficulty swallowing” or aspiration.

**Oral Dysphagia**

**Pharyngeal Dysphagia**

**Esophageal Dysphagia**
What *exactly* is aspiration?

- Penetration
- Aspiration
- Clinical signs/symptoms of aspiration
Dysphagia in Acute Stroke

- Statistics
  - Incidence: 37% to 78% (Guyomard, 2009)
  - 50% of those with dysphagia will aspirate (Hinchey, 2005)
  - 33% of those who aspirate will develop pneumonia (Hinchey, 2005)
  - Dysphagia is associated with increased mortality (3 fold) (Donovan et al. 2013)
  - Increased predicted risk of death at 3 months with pneumonia diagnosis (Finlayson, 2011)
  - 50% of stroke patients will have persisting dysphagia at 6 months (Mann, 1999)
Dysphagia in Acute Stroke

• Burden & Complications
  • Increased length of stay (LOS rose 217%) (Campbell, 2016)
  • Incidence of mortality associated with aspiration pneumonia among patients with ischemic stroke is approximately 35% (Hitchney, 2005)

• Dehydration and malnutrition (Clave, 2012)

• Cost of aspiration pneumonia $13,000 to $16,000 per episode (Titsworth, 2013)
  • Similar study citing $23,338 (Cohen, 2016).

• Reduced quality of life
Dysphagia in Acute Stroke

- Burden & Complications (con’t)
  - The one year attributable cost of post-stroke dysphagia (Bonilha et al. Dysphagia, 2014)
    - “Unique, preliminary assessment of dysphagia related costs post-stroke”
  - Determined cost of dysphagia 1 year post-stroke: $9,297 (based on Medicare cost)
    - Multiple variables to account for cost / Limitations noted
    - 2004 database collection
Dysphagia in Acute Stroke

- Early detection of dysphagia
  - Early detection may reduce length of stay, improved outcomes, decrease risk of pneumonia, decrease medical costs, improve allocation of resources, allow for early mobilization of treatments and/or therapy (O’Horo, 2015)

- Variables that may decrease likelihood of pneumonia
  - Stroke unit care associated with significant reductions (Govan, 2007)
  - Timing of dysphagia screen (Hinchey, 2005)
  - Early diet modifications (Hinchey, 2005)
  - Early mobilization (Ingeman, 2011)
Dysphagia in Acute Stroke

- Further need for *early* dysphagia screen intervention
  - Keeping patient’s NPO until complete dysphagia assessment is completed may present other health risks
- SLP not present 24/7
- Every stroke patient does not need SLP dysphagia assessment

(Donovan et al, 2013)
Evaluation of Dysphagia

• *What* and *how* exactly are we evaluating?

• Dysphagia **Screening**

• Dysphagia **Assessment**
  
  • SLP Clinical/Bedside Swallow Evaluation

  • Instrumental Dysphagia Evaluation
    
    • Modified Barium Swallow Study (MBSS)/Videofluoroscopic Swallow Study (VFSS)
    
    • Fiberoptic Endoscopic Evaluation of Swallow (FEES)
Evaluation of Dysphagia

- Dysphagia Screening
  - Identify dysphagia and aspiration risk
  - “Pass” or “Fail”

- 5 Main Categories of Screening Items
  - Demographics
  - History
  - Functional Assessment
  - Oral Mechanism Assessment
  - Swallowing Test

(Daniels et al, 2012)
Evaluation of Dysphagia

- Aspiration in Patients With Acute Stroke
  - Determine whether specific clinical features of the oropharyngeal mechanism predict aspiration within 5 days of acute stroke.

- 55 patients
- Oral motor exam, clinical swallow evaluation, & VFSS

- Dysphagia in 65% of patients (confirmed using VFSS)
- Aspiration in 38% of patients
  - Of the patients that aspirated –
    - 33% of patients aspirated overtly
    - 67% of patients aspirated silently

(Daniels et al, 1998)
Evaluation of Dysphagia

- 6 clinical indicators that significantly predict aspiration include:
  - Dysphonia
  - Dysarthria
  - Abnormal gag reflex
  - Abnormal volitional cough
  - Cough after swallow
  - Voice changes after swallow

- Predictors of silent aspiration

- Sensitivity = 69.6%, Specificity = 84.4%

- All patients who aspirated presented with at least 1 clinical indicator, 90% presented with 2 or more.

- Bedside swallow testing without the clinical features identified on oral motor exam, failed to identify 24% of aspirating patients.

(Daniels et al, 1998)
Evaluation of Dysphagia

- Water Swallow Tests (WST)
  - Determine diagnostic accuracy for identifying patients who are aspirating.
  - Observe airway response with or without voice changes following water trial(s).

- Single sip volume (1-5mL)
- Consecutive sips (90 – 100mL)
- Progressively increasing volumes

(Brodsky et al, 2016)
Evaluation of Dysphagia

- Water Swallow Tests (WST) Results
  - Consecutive sips from large volumes offers the best characteristics to rule out overt aspiration
  - Single sips volumes appropriately ruled in aspiration when clinical signs were present, though negative results may be indicative of false negatives.
    - Omission of silent aspiration data
  - Combining single sips with consecutive sips from large volumes warrants further research.

(Brodsky et al, 2016)
Evaluation of Dysphagia

- Why do *both... oral mechanism assessment* and swallowing test?
Predictors and Outcomes of Dysphagia Screening After Acute Ischemic Stroke

  - 80% received dysphagia screening
  - Higher risk of pneumonia (13.1% vs 1.9%)
  - Severe disability defined as Modified Rankin Score 4-5 (52.4% vs 18.0%)
  - Discharge to long term care facility (14.0% vs 4.3%)
  - Decubitus ulcer (1.9% vs 0.1%)
  - Percutaneous feeding tube (9.0% vs 0.1%)
  - All cause mortality at one year (36.2% vs 10.2%)

*Limitations*
Validating a Dysphagia Screening Tool

- Does it measure what it is supposed to measure & perform as its supposed to perform?
  - Sensitivity / Specificity / Reliability

- Validation: works consisting of research using processes by which the reliability and relevance of a procedure for a specific purpose are established

- Validity, derived from Latin meaning “strong”

- Numerous statistical tests may be utilized

- Validation against “gold standard” instrumental testing (video fluoroscopy / FEES) (Daniels, 1998).
Challenges of Validation

- Limited financial and human resources
- Change in patient condition between tests
- Prolonged time interval between tests
- Sample size
- Study design
- Inter-rater reliability
- Grant requests
Challenges of Validation

• Lack of consensus on a single dysphagia screening tool as “gold standard”

• Literature review:
  • Majority with small sample size, marginal sensitivity and or specificity, extended time between tests, some not validated against instrumental examination (gold standard).
  • Further prospective studies are needed

(Donovan, 2012)
Conclusions

• Dysphagia and aspiration are common occurrences in patients with acute stroke.

• Failing to identify dysphagia and aspiration in a timely manner increases healthcare costs, medical co-morbidities, likelihood of death and decreases patient satisfaction and quality of life.

• Efficient implementation of a quality dysphagia screening tool can reduce the burdens and complications associated with dysphagia and aspiration.

• Dysphagia screening is not a “one size fits all” process.

• Though no single dysphagia screening tool is currently recommended by the AHA/ASA, dysphagia screening is a necessary component to comprehensive stroke care.
Questions?
Citations


