Nursing Swallow Screens for Stroke Patients

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Why Dysphagia Matters

- Dysphagia is a common morbidity after stroke
- Increased risk for aspiration pneumonia in patients with dysphagia
- Potential for mortality and dysphagia related comorbidities such as dehydration and malnutrition
- Significant impact and a patient’s quality of life
- Prolonged LOS, increased cost
- Stroke is the leading neurologic cause of dysphagia
Incidence of Dysphagia After Stroke

- Incidence of dysphagia after stroke:
  - Reported incidence of aspiration in acute stroke patients is highly variable
  - 42-60% of acute stroke patients based on clinical bedside exams (Mann & Hankey, 2001)
  - Modified Barium Swallow studies showed 55% of stroke patients continued to demonstrate dysphagia at a median of 10 days post onset of stroke (Mann & Hankey, 2001)
Incidence of Dysphagia

Dysphagia Following Stroke

- Varies from 37-78% (Martino, Foley, Bhogal, Diamant, Speechley, & Teasell, 2005)
- Prospective study of 406 patients
  - At 3 month follow up, 34.7% of patients had dysphagia.
  - Increased frequency for hemorrhagic strokes (49%)
  - For ischemic strokes, most common dysphagia noted with MCA strokes (28%)
  - Paciaroni M. · Mazzotta G. · Corea F. · Caso V. · Venti M. · Milia P. · Silvestrelli G. · Palmerini F. · Parnetti L. · Gallai V.
Silent Aspiration

- Aspiration that occurs without observable outward signs or symptoms.

- Patients with a neurologically based dysphagia are more likely to demonstrate silent aspiration.

- Silent aspiration occurs in 40-67% of patients who aspirate (Daniels et al., 1998).
Aspiration pneumonia is a bacterial infection that results from aspiration of bacteria that are pathogenic to the lungs.

Masiero and Pierobon report 13% incidence in a 6 month follow up study (N of 67, Neurological Sciences Journal)

Pneumonia in acute stroke patients fed by nasogastric tube, Journal of Neurology

- 18 months, prospective study, N 100
- “Pneumonia was diagnosed in 44% of the tube fed patients. Most patients acquired pneumonia on the second or third day after stroke onset”
Clinical/Bedside Dysphagia evaluation:

- Behavioral assessment of swallow function
- Oral mechanical examination
- Evaluation of cranial nerve function
- Systematic assessment with PO trials
- Unable to rule out silent aspiration at bedside
- Unable to evaluate pharyngeal pathology at bedside
- Includes detailed history and patient interview
Instrumental Swallow Evaluations

- Instrumental swallowing evaluations performed by Speech Pathology
  - Modified Barium Swallow Study (MBS)
  - Flexible Endoscope Evaluation of Swallowing (FEES)
Comparison of FEES and MBS Views

Photo courtesy of bidmc.org

Photo courtesy of CarolinaFEES.com
Instrumental Swallow Studies by SLP

- Identify swallowing impairment
- Evaluate airway protection during deglutition
- Target interventions
- Evaluate effectiveness of strategies and modifications
- Make recommendations for most appropriate diet
- Formulate a patient specific, diagnostically relevant and outcomes driven plan of care
Nursing Swallow Screens

Why do we do them?

- Patient safety
  - We know stroke patients are at increased risk for dysphagia, prandial aspiration, and pneumonia
  - Avoid patient’s being kept NPO unnecessarily if they are safe to eat
  - Allow a PO route for medications if safe to do so
Nursing Swallow Screens

- National Standard for Joint Commission accreditation as a Primary and/or Comprehensive Stroke Center.
  - Formal recommendation is for stroke (and TIA) patients to have their swallow screened or evaluated prior to any PO intake, including PO medications.
    - In 2010, dysphagia screening was removed from American Heart Associations “Get with the Guidelines”
Dysphagia Screening Defined:

- American Speech Language Hearing Association (ASHA) defines a dysphagia screen as:
  - “A Pass/Fail procedure to identify an individual who may need a complete dysphagia assessment.”
Screen Requirements

- **Validity**
  - Assess dysphagia and aspiration risk
  - Appropriateness for PO intake
- **Reliability**
  - Inter-rater and intra-rater
- **Sensitivity**
  - Captures the correct patient population
- **Specificity**
  - Rules out patients not at risk
Intermountain Healthcare Nursing Swallow Screen

- Developed collaboratively with the Speech Language Pathology Practice Council, with input and buyoff from practitioners across the corporation.
  - Developed with the intent of being used across all intermountain facilities.
    - Including facilities where 7-day a week SLP is not currently available.
- Incorporates a core screening tool used widely across the country
  - The Three Ounce Water Challenge
  - The 90ml Water Test
Three Ounce Water Challenge

- First reported on 44 stroke patients by DePippo et al. (1992).
  - Failure required referral for objective dysphagia evaluation
    - FEES (Flexible Endoscopic Evaluation of Swallowing)

- Revised version was administered to 3,000 hospitalized patients with 14 distinct diagnoses
  - FEES used as comparison
  - Correctly predicted aspiration 96.5% of the time
    - with a negative predictive value of 97.9%,
    - and a false negative rate of ≤2.0%.

(Suiter, D.B. & Leder, S.B. [2008]. Clinical utility of the 3-ounce water swallow test. Dysphagia, 23, 244-250.)
A Word of Caution - Clinical Observations from IMC

- SLP incorporated the 90ml water challenge in our clinical bedside exams
  - Not the slam dunk we were hoping for

- MBS/FEES showing silent aspiration with 90ml of barium and/or water

- Warrants further research
  - Potential Quality project
## Swallow Screen

### Pre-Swallow Screen Criteria

Screen the patient's swallow for the following questions. If the answer is any question is "NO" the patient has failed the screen.

<table>
<thead>
<tr>
<th>Can Maintain Attention to Participate</th>
<th>Yes/Pass</th>
<th>No/Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to Sit up at least 5min</td>
<td></td>
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<tr>
<td>Able to Produce a Swallow</td>
<td></td>
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<td>Able to Manage Own Secretion</td>
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- **Yes to All Criteria**: Proceed with the sequential swallowing tasks using the instructions below.
- **No to ANY Criteria**: STOP, patient remains NPO; do not continue. Refer to SLP for a consultation.

### Instructions for Performing Sequential Swallowing Tasks

**TASK:** Have the patient drink water (with or without a straw), drinking 90mL sequentially WITHOUT STOPPING OR PAUSING. Observe the patient drinking water. If any of these behaviors occur, the patient has failed this screen.

### Observations

**Stopped, Paused or was Unable to Complete Sequential Swallows**
- No/Pass
- Pass

**Coughed Immediately After Task**
- No/Pass
- Yes/Fail

If "PASSED" - May give clear liquids and PO meds only (Diet to be advanced M.O., LP, or SLP).
If "FAILED" - Patient remains NPO. Refer to SLP for a consultation.
Pre-Screening Questions

### Pre-Swallow Screen Criteria

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- **Yes to All Criteria**  Circle one
- **No to Any Criteria**  Circle one

If ”Yes to All Criteria” - proceed with the sequential swallowing tasks using the instructions below
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Pre-Swallow Screen Criteria

Screen the patient’s swallow for the following questions. If the answer to any question is "NO" the patient has failed the screen.

- Alertness
  - Can the patient maintain alertness?
- Appropriate positioning for PO intake
- Cough strength/Airway protection
- Secretion management/Airway protection
  - Presence of secretions within the laryngeal vestibule increases risk of aspiration
- Slurred speech
  - Facial droop, buccal pocketing, poor bolus management
- Oxygen requirement
  - Why 6 liters?

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If "FAILED" - Patient remains NPO. Refer to SLP for a consultation.

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Sequential Swallows "Fail"

- Stopped, paused or was unable to complete sequential swallows
  - Was the patient able to sip and swallow repeatedly, taking the entire 90 mls without a break?
    - Yes = Pass
    - No = Fail

- Coughed immediately after the task
  - Cough = Fail
    - Throat clear?
    - Change in 02 saturations?
How Does the Screen Address Silent Aspiration?

- Clinical/bedside swallow studies cannot rule out silent aspiration.

- 3-oz water challenge used in research to determine “if a reflexive cough might be triggered with increased depth and volume of aspiration in those who otherwise have an absence of overt behavioral signs during aspiration. “

- Silent aspiration risk has been shown to be volume-dependent.
Volume matters

- Study conducted by Leder, Suiter, and Green
  - Sample size of 4102 patients from the acute care setting
  - Silent aspiration first identified on FEES
  - Patients then instructed to drink 90ml of water
    - 58% of patients silently aspirated smaller volumes
      - 48% of small volume liquid silent aspirators coughed when given 90ml of water
      - 65% of puree silent aspirators coughed when given 90ml of water
Screening with Water

- Water is presumed to be safest and most easily absorbed by the lungs

- The nursing swallow screen should be administered with WATER ONLY.
  - Prior to administration of PO meds
  - Not concurrent with administration of PO meds
Why Water?

- Aquaporins are water conducting channels in the lung endothelium and epithelium
- Aspirated water is typically absorbed from the airspaces
"Passed" Screen

- **Pass:**
  - Patient has passed the screen and is advanced to a Clear Liquid Diet and allowed PO Meds with water.
  - If good tolerance seen with clears, ADAT per MD, LIP, or SLP
  - SLP to follow up for clinical bedside and diet modification if warranted.
    - If patient already demonstrating good tolerance of advanced diet, formal clinical bedside evaluation is not completed.

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If "PASSED" - May give clear liquids and PO meds only (Diet to be advanced M.D., LIP, or SLP). If "FAILED" - Patient remains NPO. Refer to SLP for a consultation.
"Failed" Screen

- Fail:
  - Patient is kept NPO
    - Including PO meds
  - Speech Pathology to follow for formal clinical bedside swallow study.
    - MBS/FEES if warranted.
Rollout and Utilization

- **ED**
  - Ideally patients kept NPO
  - If PO is indicated (including PO meds), swallow screen is completed in the ED by trained RN.

- Neuro ICU and Neuromedical floor
  - Charge and bedside nurses trained and screening process implemented.
  - Most patients are still kept NPO until seen by speech unless after hours

- ICU’s
  - Stroke patients outside of NCCU cleared by Charge Nurse from NCCU

- General Floors
  - Stroke patients on general floors cleared by Charge Nurse from Neuromedical floor
Education and Skill Maintenance

- Training completed by Speech Language Pathologists in the NCCU, and Neuromedical floors.
- SLP completed training to ED Team Leads and Charge Nurses, with ongoing tiered education.
- Yearly reviews/passoffs
  - Incorporated in simulations
  - Consideration for future online module
Orders and Charting

- Nursing swallow screens should ideally be part of the order set for stroke patients.
- Ad Hoc Charting by the RN
  - Charting can be easily reviewed by SLP, MD, and Nursing staff in Form Browser
Conclusion and Review

- Dysphagia is a common side effect of stroke and can have life threatening implications.
- Utilization of nursing swallow screens can improve patient safety and minimize patients being kept unnecessarily NPO.
- Screening tools should be valid, reliable, sensitive, and specific.
- Screenings are Pass/Fail and should not replace a formal clinical bedside or an instrumental swallow study when indicated.
- Implementation of a Nursing Swallow Screening Protocol requires ongoing education and skills maintenance.
- Speech Pathology, Nursing Staff, and Physicians/LIP’s work hand in hand in delivering the best possible care for our stroke patients.
Questions?

THANK YOU FOR YOUR TIME AND ATTENTION!
References

R Martino, N Foley, S Bhogal, N Diamant, M Speechley, R Teasell stroke 36 (12), 2756-2763


