TITLE: Three-Ounce Water Swallow Challenge for Oropharyngeal Dysphagia: Diagnostic Accuracy and Guidelines

DATE: 04 April 2016

RESEARCH QUESTIONS

1. What is the diagnostic accuracy of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia in adults?

2. What is the diagnostic accuracy of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia in children?

3. What are the evidence-based guidelines regarding the use of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia in adults?

4. What are the evidence-based guidelines regarding the use of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia in children?

KEY FINDINGS

Two non-randomized studies were identified regarding the diagnostic accuracy of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia in adults.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2011 and March 23, 2016. Internet links were provided, where available.
The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

**SELECTION CRITERIA**

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

<table>
<thead>
<tr>
<th>Table 1: Selection Criteria</th>
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<tr>
<td><strong>Population</strong></td>
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<tr>
<td>Q1 and 3: Adults with suspected oropharyngeal dysphagia</td>
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<tr>
<td>Q2 and 4: children with suspected oropharyngeal dysphagia</td>
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<td><strong>Intervention</strong></td>
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<td>3-ounce (90-cc) water swallow challenge (also referred to as the Yale Swallow Protocol)</td>
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<td><strong>Comparator</strong></td>
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<td>Q1 and 2: Endoscopic evaluation of swallowing (e.g., fiberoptic endoscopic evaluation of swallowing [FEES]), videofluoroscopy (VFSS; also referred to as modified barium swallow exam [MBS])</td>
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<td>Q3 and 4: No comparator</td>
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<td><strong>Outcomes</strong></td>
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<td>Q1 and 2: Diagnostic test accuracy outcomes (e.g., sensitivity, specificity, positive and negative predictive value)</td>
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<tr>
<td>Q3 and 4: Evidence-based guidelines regarding the use of the 3-ounce (90 cc) water swallow challenge for the identification of swallowing disorders in children and adults</td>
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<tr>
<td><strong>Study Designs</strong></td>
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<tr>
<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines</td>
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**RESULTS**

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

Two non-randomized studies were identified regarding the diagnostic accuracy of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia in adults. No relevant health technology assessments, systematic reviews, meta-analyses, or evidence-based guidelines were identified. No relevant literature was identified regarding use of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia in children.

Additional references of potential interest are provided in the appendix.

**OVERALL SUMMARY OF FINDINGS**

Two non-randomized studies\(^1,2\) were identified regarding the diagnostic accuracy of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia in adults.

One study compared the water swallow challenge to videofluoroscopic swallow studies (VFSS) in 25 male adults.\(^1\) The study results determined the diagnostic accuracy of the water swallow challenge to have 100% sensitivity, 64% specificity, a 78% positive predictive value, and a
100% negative predictive value. The authors concluded that the water swallow challenge was useful and valid for determining aspiration risk, but specified that the patient population in this study was limited.¹

A second study used a combined approach to determine aspiration risk in patients following a stroke.² The water swallow challenge was used in conjunction with the Clinical Predicative Scale of Aspiration (CPSA), and was compared with VFSS when results were discordant. The diagnostic accuracy of the water swallow challenge was determined to have 87.3% sensitivity and 42.3% specificity. The authors determined that a combined approach to screening for aspiration risk that included the water swallow challenge was useful and more efficient than relying on a single screening test.²

No relevant literature was identified regarding use of the 3-ounce (90-cc) water swallow challenge for the identification of oropharyngeal dysphagia children; therefore, no summary can be provided for this patient population.
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials
No literature identified.

Non-Randomized Studies


Guidelines and Recommendations
No literature identified.

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APPENDIX – FURTHER INFORMATION:

Systematic Reviews and Meta-Analyses – Specific Water Challenge not Identified


   PubMed: PM25280814

   PubMed: PM25581840

Non-Randomized Studies

No Comparator or Alternate Comparator

   PubMed: PM24635053

   PubMed: PM24033866

   PubMed: PM22306627

   PubMed: PM22006561

    PubMed: PM21336196
Alternate or Unnamed Intervention


