Determining the Sensitivity and Specificity of the 3 oz WST to Detect Aspiration in Postsurgical Cardiac Thoracic Patients.

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**BACKGROUND:**
- Dysphagia is a common complication of cardiothoracic surgical procedures associated with delayed return to oral intake, malnutrition, reintubation, pneumonia, increased cost, and length of hospital stay. 1-4
- Early detection of swallowing impairment is therefore critical to mitigate the development of these sequelae and underscores the need for a rapid sensitive screening tool for this clinical setting.
- The 3 oz Water Swallow Test (WST) is a validated simple screening tool used for the detection of aspiration in hospitalised patients, and has been found to have >96% sensitivity to detect aspiration.
- The utility of the 3 oz WST in detecting aspiration in hospitalised postsurgical cardiothoracic patients has not yet been determined.

**AIM:**
Determine the sensitivity and specificity of the 3 oz WST to detect aspiration in postsurgical cardiothoracic patients.

**METHODS:**
- 197 adults who had undergone a cardiothoracic procedure and in the Cardiac Intensive Care Unit (CICU) were enrolled in this study.
- Participants underwent the 3 oz Water Swallow Test (WST) and Fiberoptic Endoscopic Evaluation of Swallowing (FEES).
- Participants were seen ≤72 hours after extubation, on room air or LFNC oxygen and had confirmed absence of delirium as verified by a score of 0-2 on the Confusion Assessment Method for the ICU.

**RESULTS:**
3 Ounce Water Swallow Test Profiles:

<table>
<thead>
<tr>
<th>Pass</th>
<th>Fail</th>
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<tr>
<td>55%</td>
<td>45%</td>
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**Clinical Utility of the 3 Ounce WST:****

<table>
<thead>
<tr>
<th>Aspiration Status</th>
<th>FEES:</th>
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<tbody>
<tr>
<td>Fail</td>
<td>34 (True +) 54 (False +)</td>
</tr>
<tr>
<td>Pass</td>
<td>20 (False -) 89 (True -)</td>
</tr>
</tbody>
</table>

**CONCLUSIONS:**
- The 3 oz WST misclassified aspiration status in approximately one-third of cardiothoracic patients. Therefore these results do not support the use of the 3 oz WST in isolation, in this patient population.
- The observed high rate of ‘silent’ aspiration in this study and by others7 may provide an explanation for the observed reduced sensitivity of the 3 oz WST to detect aspiration in cardiothoracic patients given that it utilizes the presence of a cough or throat clear as part of the fail criteria.
- Our findings suggest that additional clinical tests indexing the physiologic capacity of a cardiothoracic patient’s ability to swallow safely are warranted to accurately screen dysphagia.
- We are currently examining additional bedside assessment techniques to triage high-risk patients for further comprehensive instrumental evaluation of swallowing.

**References:**

**Figures:**
- Fig 1: New York Heart Association Score
- Fig 2: Aspiration occurred in 54 patients (27%), with silent aspiration representing the most common response pattern to tracheal aspirate (52%). Seventy three percent of patients did not aspirate.