COMPARISON OF OUTCOMES WITH VITALSTIM AND TRADITIONAL DYSPHAGIA TREATMENT

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Background

• VitalStim treatment for dysphagia is heavily marketed in healthcare settings but is controversial due to efficacy questions.

• Some studies (such as Kiger, Brown, & Watkins, 2007) showed that there was no statistically significant difference between outcomes of VitalStim treatment and traditional treatment.

• Other studies have shown that VitalStim treatment appears effective (Carnaby-Mann & Crary, 2007, 2008).
Purpose of This Study

• The purpose of this study was to determine whether there is a difference in swallowing outcomes for skilled nursing facilities (SNFs) that use VitalStim and those that do not.
What is VitalStim?

• VitalStim emerged as an innovative treatment technique when it was cleared by the FDA in 2002 to market for dysphagia treatment using electrode placement on the anterior portion of the neck.

• Product literature states that VitalStim treatment uses “specifically designed electrodes applied to the muscles of the throat to promote proper swallow” (VitalStim, 2009). Some traditional techniques are also used while the patient receives this electrical stimulation.
Method

• SNFs with VitalStim equipment were paired with other SNFs that did not have VitalStim equipment. SNF pairs were subjectively judged to have similar overall resident population characteristics.

• SLPs in both groups of SNFs tracked dysphagia services provided to residents across two months (August 1, 2009, through September 30, 2009).

• Data for residents who were discharged during this time period were collected and analyzed.
  – 22 SNFs without VitalStim equipment reported data.
  – 30 SNFs with VitalStim equipment reported data.
  – 26 of those 30 SNFs reported using VitalStim with at least one resident.
<table>
<thead>
<tr>
<th>Med Dx</th>
<th>Types of Dysphagia Treatments Utilized with This Patient (Check all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient initials: Medical dx causing dysphagia (specify):</td>
<td></td>
</tr>
<tr>
<td>___ Oral motor exercises</td>
<td>___ Thermal stimulation</td>
</tr>
<tr>
<td>___ Chin tuck</td>
<td>___ Effortful swallow</td>
</tr>
<tr>
<td>___ Solid diet modification</td>
<td>___ Double swallow</td>
</tr>
<tr>
<td>___ Thickened liquids</td>
<td>___ Dry swallow</td>
</tr>
<tr>
<td>___ Head turn</td>
<td>___ Modifying rate/amount of PO intake</td>
</tr>
<tr>
<td>___ Head tilt</td>
<td>___ Bolus manipulation exercises</td>
</tr>
<tr>
<td>___ Super-supraglottic swallow</td>
<td>___ DPNS</td>
</tr>
<tr>
<td>___ Other (specify):</td>
<td></td>
</tr>
<tr>
<td>___ VitalStim was utilized with this patient</td>
<td></td>
</tr>
</tbody>
</table>
## Results—Caseload Data

<table>
<thead>
<tr>
<th></th>
<th>Number of SNFs</th>
<th>Number of SLPs</th>
<th>Average SLP Caseload Size</th>
<th>Number of Residents on Caseload for Dysphagia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-VitalStim SNFs</strong></td>
<td>22 SNFs</td>
<td>30 SLPs</td>
<td>14.69 residents</td>
<td>317 residents</td>
</tr>
<tr>
<td><strong>VitalStim SNFs</strong></td>
<td>30 SNFs</td>
<td>37 SLPs</td>
<td>16.03 residents</td>
<td>371 residents</td>
</tr>
<tr>
<td></td>
<td>26 reported using VitalStim with at least one resident</td>
<td>31 reported using VitalStim with at least one resident</td>
<td>99 of those residents received VitalStim</td>
<td></td>
</tr>
</tbody>
</table>

In SNFs that used VitalStim, 27% of the dysphagia caseload received VitalStim services.
## Results—Diagnostic Mix

Residents on dysphagia caseload had the following medical diagnoses causing dysphagia:

<table>
<thead>
<tr>
<th>Residents Receiving VitalStim*</th>
<th>Residents in Non-VitalStim SNFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CVA—30%</td>
<td>• Dementia/Alzheimer’s Disease—28%</td>
</tr>
<tr>
<td>• Pneumonia—9%</td>
<td>• CVA—19%</td>
</tr>
<tr>
<td>• Dysphagia—7%</td>
<td>• Dysphagia—5%</td>
</tr>
<tr>
<td>• Dementia/Alzheimer’s Disease—6%</td>
<td>• Pneumonia—4%</td>
</tr>
<tr>
<td>• Cardiac—6%</td>
<td>• Cardiac—4%</td>
</tr>
<tr>
<td>• Parkinson’s Disease—4%</td>
<td>• Parkinson’s Disease—4%</td>
</tr>
</tbody>
</table>
Results—Diagnostic Mix (continued)
Results—Treatments Used

Traditional treatment techniques were used with this percent of residents in non-VitalStim SNFs:

- Solid diet modification (74%)
- Rate and amount of intake modification (66%)
- Oral motor exercises (37%)
- Bolus manipulation (31%)
- Thickened liquids (29%)
- Double swallow (28%)
- Effortful swallow (19%)
- Chin tuck (17%)
- Vocal fold adduction exercises (15%)
- Dry swallow (14%)
- Thermal stimulation (12%)
Results—Swallowing Outcomes

The Swallowing deficit area of the Rehabilitation Outcomes Measure (ROM) was used to determine outcomes. This is a 7-point scale from 0.0 (profound deficit) to 3.0 (independent functioning).

<table>
<thead>
<tr>
<th>Non-VitalStim SNFs in Study</th>
<th>Number of Residents</th>
<th>Admit Score</th>
<th>Discharge Score</th>
<th>Gain</th>
<th>Length of Stay</th>
<th>Discharge to Home</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>385</td>
<td>1.30</td>
<td>2.15</td>
<td>0.85</td>
<td>44 days</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Reporting artifact made this higher than the 317 previously noted</td>
<td>(Moderate-Severe)</td>
<td>(Mild-Moderate)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Residents Receiving VitalStim</th>
<th>85</th>
<th>0.97</th>
<th>1.84</th>
<th>0.86</th>
<th>41 days</th>
<th>24%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to obtain outcomes for 14 due to de-identification</td>
<td>(Severe)</td>
<td>(Moderate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results—Swallowing Outcomes (continued)

- **Admit Score**
  - Residents without VS: 0.845
  - Residents with VS: 0.85

- **Discharge Score**
  - Residents without VS: 0.855
  - Residents with VS: 0.86

- **Gain**
  - Residents without VS: 0.85
  - Residents with VS: 0.86

- **Length of Stay in Days**
  - Residents without VS: 40
  - Residents with VS: 42

- **Discharge to Home**
  - Residents without VS: 38
  - Residents with VS: 44
Interpretation

- Residents with dysphagia comprised 86% of the SLP caseload with both groups combined.
- In SNFs that used VitalStim, 27% of the dysphagia caseload received VitalStim.
- In all SNFs with VitalStim (regardless of whether it was used during the study), 21% of the dysphagia caseload received VitalStim.
• The most frequent medical diagnosis for dysphagia in the group of residents who received VitalStim was CVA (30% of residents who received VitalStim versus 19% of the dysphagia caseload in non-VitalStim SNFs).

• The most frequent medical diagnosis for dysphagia in SNFs without VitalStim was dementia/Alzheimer’s Disease (28% in SNFs without VitalStim versus 6% of the residents who received VitalStim).
Interpretation (continued)

• When VitalStim is not used, the most frequently used treatment techniques were:
  – Modification of solid diet
  – Modification of the rate and amount of PO intake

• In comparison to the company and the non-VitalStim SNF group, residents receiving VitalStim tended to:
  – Be much more disabled when they began treatment, starting at a lower level of function.
  – End therapy at a lower level of function.
  – Be on caseload 3 days longer than the company but 3 days less than the non-VitalStim SNF group.
  – Be discharged home at a higher frequency (even though they ended therapy at a lower level of function).
References


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