Evidence-Based Use of Thickeners in Dysphagia Management

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Prevalence of Dysphagia

- Community dwelling elders
- Hospitalized individuals
- Post-stroke
- SNF residents
- Post-H&N cancer treatment
- COPD

Sura et al., 2012
Cichero, 2013
Garcia-Peris, 2007
Good-Fraturelli et al., 2000
Goals of Thickeners

- Long-standing use in dysphagia management
- Altering fluid viscosity to prevent aspiration
- Impairments
  - Sensory function
  - Kinematic coordination
Bolus Rheology and Aspiration

- 20-40% of patients with dysphagia demonstrate aspiration
- Aspiration of liquid > solids (Feinberg et al., 1990)
- Aspiration of thin liquid > thickened liquids (Leonard et al., 2014)

Perlman et al., 1994
Leonard, et al., 2014
Thickened Liquid and Swallow Physiology

- Increased tongue pressures (Steele et al., 2014)
- Changes in biomechanics (Dantas et al., 1990)
- Reduced Penetration-Aspiration Scale scores (Vilardell et al., 2016)
- Post-deglutitive residue and aspiration (Bhattacharyya et al., 2003)
**Practice Patterns**

**Speech Pathologists**
- 84.8% in favor of thickeners
- Poor oral control
- Delayed pharyngeal swallow

**Patients**
- 91.6% of facilities used thickened water
- 8-28% of patients consume thickened liquids
- 60% nectar thick
- 33% honey thick

*Garcia et al., 2005*

*Castellanos et al., 2004*
Algorithmic recommendations

Risk of systemic sequelae

Limited evidence as preventative measure against adverse events

Dehydration
Medication absorption
Lung injury

Pneumonia
Algorithmic Recommendations

<table>
<thead>
<tr>
<th>Problem</th>
<th>Adjustment</th>
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<tbody>
<tr>
<td>Delayed triggering of pharyngeal swallow</td>
<td>Thickered liquids and pureed foods. Cold or stimulating foods. Avoid thin liquids</td>
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<tr>
<td>Reduced lingual control</td>
<td>Thickered liquids are usually required. Chopped, ground, or pureed foods may be required with gravies or sauces to help hold foods together</td>
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<td>Reduced airway protection</td>
<td>Puried foods and thickened liquids</td>
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<td>Pharyngeal dysfunction</td>
<td>Consistency is dependent on the severity of the dysfunction.</td>
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<td>Liquids are necessary for patients with a more severe dysfunction.</td>
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<td>Those less impaired will tolerate more solid foods or alternating solid and liquids</td>
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<tr>
<td>Reduced oral awareness</td>
<td>Thickered liquids and cold or stimulating foods. Patients should alternate bites of cold foods with those of other temperatures</td>
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For patients who do not tolerate thin liquids, fluids are being thickened in our facility with Thick-It (Milani Foods). Fluids can be thickened to the desired consistency using this product.

Algorithmic Recommendations

- Consideration of biomechanical impairments
- Confirmed effectiveness with instrumentation
- Lack of shared decision-making with patients

McCurtin et al., 2017
Systemic Sequelae

Dehydration
Cichero, 2013
Early satiety
Flavor deterioration

Medication Absorption
Cichero, 2013
Impaired bioavailability

Pulmonary Injury (Rabbit Model)
Nativ-Zeltzer et al., 2018
Cornstarch thickener
- Death
- Intra-alveolar hemorrhage
Xanthan gum thickener
- Pulmonary inflammation
- Interstitial congestion
- Alveolar edema
Aspiration Pneumonia

- Thin vs. thick liquids and pneumonia
- No difference in pneumonia rates across
  - Water
  - Thin liquids with compensatory strategies
  - Thickened liquids

Kaneoka et al., 2017
Aspiration Pneumonia

- Chin tuck with thin liquids vs. thickeners
  - No difference in pneumonia development
  - Longer hospital stay with honey thick liquids
  - Adverse events with thickened liquids
Medical Status
• COPD
• GI disease
• Co-morbidities
• Polypharmacy

Functional Status
• Dependent for oral care
• Dependent for feeding

Dental Status
• Decayed teeth
• Edentulous
• Oral hygiene

Swallowing Status
• Feeding tube
• Dysphagia

Langmore et al., 1998
Clinical Utility

- Temporizing measure
- Last resort intervention
- Confirmed effectiveness
- Translates into improved clinical outcome
- Absence of adverse consequences
- Shared decision-making
Thank You

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