
Pere Clavé
Educational Session.
Assessment and treatment of dysphagia – What is the evidence?
33nd ESPEN Congress, 6 September 2010

Normal and Abnormal
Oral and Pharyngeal Swallow.
Complications.

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CIBEREHD. Instituto de Salud Carlos III.
ESSD MISSION

- To promote care, education and research in oropharyngeal dysphagia
- Cooperation with other societies (ESPEN).
- To consolidate the society as the society for dysphagia in Europe.

European Society for Swallowing Disorders
www.myessd.org
Hospital de Mataró, Catalonia, Spain.

Autonomous University of Barcelona.
OROPHARYNGEAL DYSPHAGIA:

1. **Serious symptom / specific complications.**
   - Aspiration pneumonia / malnutrition

2. **Can be diagnosed.**
   - VFS / Pharyngeal Swallow Response.

3. **Can be treated.**
   - Therapeutic effect of bolus viscosity.

4. **Multidisciplinary approach.**
   - Nutritional domain.
OROPHARYNGEAL DYSPHAGIA

• **Difficulty** from the mouth to the stomach.

• **Functional Oropharyngeal Dysphagia.**

• **Prevalence:** >50%
  
  – Neurological diseases.
  
  – Neurodegenerative diseases.
  
  – Older people.

• >30,000,000 EU citizens with dysphagia
COMPLICATIONS:

• Impaired Efficacy of deglutution:
  – Malnutrition.
  – Dehydration.

• Impaired Safety:
  – Chocking.
  – Aspiration (50% pneumonia).
  – Aspiration Pneumonia (mortality 50%).
VIDEOFLUOROSCOPY

Dynamic exploration of swallowing:

• X Ray-tube. Lateral plane.
• Hydro soluble contrast.

  Viscosity: Liquid-nectar-pudding.
  Volume: 5-10-20 ml

Healthy volunteer. 10 ml nectar.
VIDEOFLUOROSCOPY

Aims:

• Evaluate **safety** and **efficacy** of swallow.
• Identification of **VFS signs**.
• Effect of **treatments**.
• **Measurements** of swallow response.
Oral phase. Efficacy.

- Tongue propulsion (abnormal).
- Tongue control (abnormal).
- Oral residue (abnormal).

Apraxia.

Impaired tongue motion.
Oral phase. Safety.

Glossopalatal seal.
Soft Palate.
Bolus.
Tongue.
Aspiration.

Pre-deglutitive Aspiration.
Pharyngeal phase. Efficacy.

Vallecula.

Pyriform Sinus.

Unilateral residue in Right Pyriform Sinus.

Pharyngeal residue.
Pharyngeal phase. Safety.

Penetration.

>360 ms.
>440 ms.
Pharyngeal phase. Safety.

Aspiration.

EPIGLOTTIS

Laryngeal Vestibule.

ARYTENOID

VOCAL FOLDS

ASPIRATION.
Aspiration after swallow.

Postdeglutitive Residue in Pyriform Sinus.

Aspiration.

VOCAL FOLDS
## VFS Signs of OD.

<table>
<thead>
<tr>
<th>Disease</th>
<th>I. Efficacy</th>
<th>I. Safety</th>
<th>Aspirations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>39.5%</td>
<td>61.4%</td>
<td>21.9%</td>
</tr>
<tr>
<td>Neurodegenerative</td>
<td>44.4%</td>
<td>45.7%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Mixed (H/N)</td>
<td>45%</td>
<td>45.9%</td>
<td>29.4%</td>
</tr>
<tr>
<td>Frail Elderly</td>
<td>63.3%</td>
<td>57.10%</td>
<td>17.1%</td>
</tr>
<tr>
<td>CA Pneumonia</td>
<td>40%</td>
<td>43.5%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Clavé. APT, 2006.
Rofes, NGM, 2010
Oropharyngeal Swallow Response.

RESPIRATORY

DIGESTIVE

RESPIRATORY

RECONFIGURATION

DURATION

CONCLUSION

GPJO-VPJ
GPJO-LVC
GPJO-UESO

UESC-GPJC
UESC-VPJO
UESC-LVO

GPJO-GPJC
VPJC-VPJO
LVC-LVO
UESO-UESC

TOTAL DURATION
OSR in healthy subjects.

TOTAL DURATION.
- INCREASED by VOLUME
- UNAFFECTED by VISCOSITY

RECONFIGURATION.
- CONSTANT
- VERY FAST

<200 ms (LVC).
<250 ms (UESO).

33.6 cm/s

BOLUS VELOCITY
Total Duration of OSR in Dysphagia.

TOTAL DURATION (GPJO-UESC)

* P<0.05

Timing of OSR in dysphagia.

CNS diseases.

Neurodegenerative disorders.

Clavé P. APT, 2006.
Propulsion Forces. Elderly.

Reduced Tongue Propulsion  Residue

PATHOPHYSIOLOGY OF DYSPHAGIA

- **Impaired OSR** in patients with O. Dysphagia:
  - Prolonged duration of OSR
  - Delayed LVC and UESO.
  - Weak tongue propulsion.

- **Silent aspirations:**
  - 55% aspirations in stroke.
  - 21% aspirations in neurodegenerative ds.
  - 44% aspirations in frail elderly.

SWALLOWING THERAPY.

VFS signs

EFFICACY +  → - EFFICACY
SAFETY +  → - SAFETY

1) FREE
2) VOLUME & CONSISTENCY
3) POSTURE
SENSORY INPUT
MANEUVERS

ORAL FEEDING

4) PEG +/-
REHABILITATION

NON ORAL FEEDING

FAMILIES / NURSES

SWALLOWING THERAPISTS / DIETITIANS

DOCTORS
The effect of Bolus Viscosity

Dysphagia (2010) 25:40–65
DOI 10.1007/s00455-009-9239-7

REVIEW ARTICLE

Effects of Therapy in Oropharyngeal Dysphagia by Speech and Language Therapists: A Systematic Review

Renée Speyer · Laura Baijens · Mariëlle Heijnen · Iris Zwijnenberg

Effect of bolus modification / Level of evidence:
All studies in pubmed on treatment up to November 2008 (59)
A. High quality randomized controlled trials.
B. Well-Designed non randomized controlled trials.
C. Consensus or expert opinions.

The effect of Bolus Viscosity on Dysphagia

A) **Level A. High quality, randomized.**

B) **Level B. Well-designed, non-randomized.**
- Bisch EM, 1994 Thickened Fluids
- Groher and McKaig, 1995 Pureed Diet
- Bhattachary N, 2003 Thickened Fluids
- Clavé P, 2006 Thickened Fluids

<table>
<thead>
<tr>
<th></th>
<th>Dynamic viscosity.</th>
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<tbody>
<tr>
<td><strong>Bolus</strong></td>
<td>Thin / Liquid.</td>
<td>1-50 mPa.s</td>
</tr>
<tr>
<td></td>
<td>Nectar.</td>
<td>51-350 mPa.s</td>
</tr>
<tr>
<td></td>
<td>Honey</td>
<td>351-1750 mPa.s</td>
</tr>
<tr>
<td></td>
<td>Pudding.</td>
<td>&gt;1750 mPa.s</td>
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Therapeutic Effect of Viscosity.

5 ml liquid

Aspiration.

5 ml nectar

No Aspiration.
Impaired safety in the frail elderly.

Penetration.

Aspiration.

# Strong Therapeutic effect of bolus viscosity.
Nutritional Status in O. Dysphagia.


16-24%. 21-23-%. 66%.

Malnutrition.

**b) OD in hospitalized elderly patients.**

**Geriatric Unit. Hospital de Mataró.**

Admissions. N = 1160.  
Age = 84

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<tr>
<th></th>
<th>Dysphagia</th>
<th>NO Dysph.</th>
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<tbody>
<tr>
<td>Prevalence</td>
<td>44%</td>
<td>66%</td>
</tr>
<tr>
<td>Malnutrition (MNA&lt;17)</td>
<td>33.3%*</td>
<td>16%</td>
</tr>
<tr>
<td>Grip Strength (Kg)</td>
<td>16.2*</td>
<td>19.9</td>
</tr>
<tr>
<td>Stage (days)</td>
<td>12.2*</td>
<td>10</td>
</tr>
<tr>
<td>Barthel at discharge</td>
<td>49.5*</td>
<td>67.2</td>
</tr>
<tr>
<td>1 yr Mortality</td>
<td>40.4%*</td>
<td>30.6%</td>
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d) Aspiration Pneumonia in Older Adults.

139 elderly patients admitted for pneumonia. Prevalence of dysphagia (VVS-T): 55%.

- **1-YEAR MORTALITY:**
  - 55.4% dysphagia
  - 26.7% safe swallow

SUMMARY

• More than 40% patients with stroke, neurodegenerative diseases or frail elderly patients presented alterations on safety of swallowing (liquids) due to slow pharyngeal response, and are at risk of aspiration pneumonia or respiratory complications.

• Up to 2/3 patients with neurological diseases presented alterations of efficacy of deglutition caused by impaired tongue propulsion and pharyngeal clearance leading to high prevalence of malnutrition.
CONCLUSION

- **Neurogenic dysphagia / older people:**
  - High prevalence of malnutrition and respiratory complications.

- **Uniting Europe Against O. Dysphagia.**
- Raising awareness, providing education and standardizing measurements and methods on diagnosis and treatment of OD:
  - Clinical Guidelines.
  - Dysphagia Day
  - EU Consensus on Stages and Viscosities
Support the European Society for Swallowing Disorders (ESSD).

www.myessd.org

Thank You