Inspirationsforum .. att tänka på

1. Min forskning o varför jag började forska.
2. Hur kan jag inspirera mina kollegor till att börja forska?

What is the evidence for what we do?

1. My research study investigated:
   • Evidence for assessing dysphagia with cervical auscultation?


Presented at the European Society of Swallowing Disorders (ESSD), Barcelona, Spain, 2012.
**Background to study**

1. **Dysphagia**
   - 39-80% incidence in stroke patients
   - Martin et al., 2005

2. **Consequences**
   - affect a person's nutrition, hydration, health
   - lead to malnutrition, pneumonia, increased hospital stay, increased costs, death
   - Ahmad et al., 2011; Bours et al., 2009; Öberg et al., 2002; Martin et al., 2009

3. **Assessment methods**
   - Klinisk 'bedside' sväljningsbedömning
   - Videoradiografi (VRG/Röntgen)
   - Fiberskopisk Undersökning av Sväljning (FUS)

**Assessment: Current practice**

1. (Dysphagia screen)

2. **Clinical Swallow Examination (CSE)**

3. Instrumental = gold standard (FUS / VRG)

4. **Cervical auscultation (CA)**
   - one of several adjuncts to the CSE

**Clinical Swallow Examination (CSE)**

- **Evidence** (Rosenbek et al., 2004)
  - **Case history**
    - Patient / family report: 38% 80%
    - Pneumonia: 32% 92%
    - Poor nutrition: 50% 76%
    - Feeding tube: 36% 95%
    - Need for suctioning: 5% 100%
    - COPD: 23% 82%
  - **Oromotor Assess**
    - Tongue strength / ROM: 50% 74%
    - Lip strength / ROM: 84% 76%
    - Palatal move: 50% 71%
    - Pharyngeal gag: 91% 18%

- **Oral trials**
  - Voicing post swallow: 50% 84%
  - Laryngeal Palpation (delayed swallow): 25% 86%
  - (Walsh et al., 2011)

- **Overall dysphagia rating**
  - Combining clinical components = improve accuracy!
  - 91%
  - Rosenbek et al., 2004

- **Not a new idea!**
  - Lm et al., 2001; Rofes et al., 2014
  - Lip movement + residue
  - Cough / voice changes: 94% 81%
  - Oxygen desaturation

**Cervical Auscultation (CA)**

- **Question:** Does CA add to the clinical swallow examination?
- **What is the evidence?**
  - Variable reports of validity and reliability
  - Setal et al., 2002; Leslie et al., 2007; Barr et al., 2007

- **Influences for study = Controversial history**
  - Replace instrumental assessment (NO!)
Study Aims

- Investigate the validity and reliability of CA – under 2 conditions
  1. CA-only (using isolated swallow clips)
  2. CSE + CA (reflect clinical practice)
- These 2 CA conditions were compared against FEES* reference test

*FEES = Fibreoptic Endoscopic Evaluation of Swallowing

Methods

1. 13 experienced dysphagia clinicians - trained in CA!
2. Rate 2 separate swallow samples (18 swallows each)
3. Answer set clinical questions
4. Answers compared against FEES reference test

Swallow samples

- All patients consecutively referred to Tues FEES clinic
- Comprehensive case history
- Oromotor assessment
- FEES assessment
- 2 x experienced FEES assessors analyse & answer 'set clinical questions'

Answer set clinical questions

1. Is the swallow dysphagic or normal?
2. Would you consider the patient to be safe on this consistency? Y/N
3. Dysphagia severity

Results

Q1. Dysphagic
Q2. Safe
  - Sensitivity, specificity
  - Statistical significance (p-value) calculated using logistic regression analysis (CA-only vs. CSE+CA)
  - Intra-rater reliability was calculated using total percentage of absolute (perfect) agreement.
Q3. Dysphagia severity rating
  - ICC for inter-rater reliability
  - Spearman's correlation coefficient for each CA condition as correlated with FEES
  - Intra-rater reliability

2 Swallow Samples

<table>
<thead>
<tr>
<th>CA-only</th>
<th>CSE+CA</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 x swallow recordings (sound clip of 10ml thin fluids)</td>
<td>5 x case history (written information)</td>
</tr>
<tr>
<td>1 x swallow repeated</td>
<td>1 x oromotor assessment &amp; audio recording</td>
</tr>
<tr>
<td>5 x swallow recordings (sound clip of 10ml thick fluids)</td>
<td>5 x swallow recordings of (10ml) thick liquids</td>
</tr>
<tr>
<td>1 x swallow repeated</td>
<td>1 x swallow repeated</td>
</tr>
<tr>
<td>5 x swallow recordings (sound clip of 10ml pudding consistency)</td>
<td>5 x case history</td>
</tr>
<tr>
<td>1 x swallow repeated</td>
<td>1 x oromotor assessment &amp; audio recording</td>
</tr>
<tr>
<td>5 total (15 swallow samples + 3 repeat)</td>
<td>5 total (15 swallow samples + 3 repeat)</td>
</tr>
</tbody>
</table>
Sensitivity, specificity, reliability, correlation

Dysphagia | Safe | Severity
--- | --- | ---

CA-only
- Sensitivity (CI) - 95%
- Specificity - 50%

CSE+CA
- Sensitivity - 88% (98.7 ± 1.3%)
- Specificity - 87% (94.9 ± 4.8%)

 ICC Correlation with FEES
- r = 0.68
- r_s = 0.64

Findings

• Q1 Dysphagia
• Q2 Safe
• Q3 Severity

*Correlation with FEES = substantial agreement (statistically).

Clinical application

• CA has similar and often better validity as compared with current CSE components.

<table>
<thead>
<tr>
<th>Clinical application</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSE components</td>
<td>5 - 91%</td>
<td>18 – 100%</td>
</tr>
<tr>
<td>CA as an adjunct</td>
<td>83 - 95%</td>
<td>60 – 92%</td>
</tr>
</tbody>
</table>

• CA compared with instrumental rater reliability

<table>
<thead>
<tr>
<th>RATER</th>
<th>FEES</th>
<th>VFSS</th>
<th>CA</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRA</td>
<td>r = 0.72 - 0.73</td>
<td>r = 0.51 - 0.64</td>
<td>r = 0.74</td>
</tr>
<tr>
<td>INTER</td>
<td>r = 0.74 - 0.79</td>
<td>r = 0.56 - 0.67</td>
<td>r = 0.74</td>
</tr>
</tbody>
</table>

Kelly et al., 2006 & 2007

Conclusion

• The more clinical information the more accurate results (sensitivity, specificity and correlation w FEES)

• CA has similar and often better validity and reliability as compared with current CSE components.

• Comparable rater reliability to FEES and VFSS.

• Yes! CA is a valuable adjunct to the clinical swallow examination.

Inspirationsforum ..

1. Varför började jag forska? (My research)
2. Hur kan jag inspirera mina kollegor till att börja forska?

"Tänk på: nyttan för patienten/individen och användbarheten för professionen"

1. Clinical question?
2. Research supports?
For example...

Logoped (Per Hjertstrand) from Halmstadsjukhus, Halland

• Undersöker sväljscreening "Hostreflextestet"
• Kan detta användas för att identifiera personer med tyst aspiration?
• Sökte forsknings pengar (från Region Hallands FoU, Parkinsonfonden)
• Lyckades
• Reste till Nya Zealand (Professor Huckabee)
• University of Canterbury Swallowing Rehabilitation Research Lab

Inspirational ideas!

What's happening in dysphagia (or your world of interest)?

• International Dysphagia Diet Standardisation Initiative
  http://iddsi.org/
• Efficacy of MDTP (McNiell Dysphagia Therapy Program)
  (Research other dysphagia rehabilitation?)
• Use of therapy assistants (rehab intensity)
• 7 day week therapy for stroke patients

Inspirational ideas – cont.

• Swallow-IT (computer-app used for swallowing therapy)
• Follow-up post hospital discharge (are patients forgotten?)
  (ESSD) European Society of Swallowing Disorders

More inspirational ideas - where?

• What is relevant for your workplace?
• What resources / evidence could you implement in your practice?

• Ideas from where?
  • Link in with other Swedish / European / International organisations – get ideas / what’s happening in the world?
  • Library to send relevant Journal (Table of Contents)
  • Journal Club

Support - Gothenburg University

• Masters
• Fristående kurser
  • Förduplat självständigt vetenskapligt arbete inom logopedi, 30 högskolepoäng
  • Evidensbaserad logopedi, 15 hp

Inspiration?

• You have it all here!
• Gothenburg University – at your doorstep
• Funding – apply!
• Sweden – leading research
References