Clinical evaluation of dysphagia
Educational session;
Assessment and treatment of dysphagia
What is the evidence?
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Clinical evaluation of dysphagia

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Clinical swallowing examination

What do we want to know??

WHY?
To identify aspiration and its impact on the swallowing physiology and thereby be able to find the optimal treatment to establish a safe and efficient swallowing

HOW?
May be differently performed due to the condition of the patient. A complete swallowing trial should, if possible, involve both liquid and solid consistencies, due to the fact that different textures affect the physiology differently

In severe cases a clinical exam is often not enough. An instrumental examination has also to be performed; Videofluoroscopy or FEES, depending on what you want to know

Is the information from a clinical examination enough?
Nursing staff could be trained to recognize swallowing symptoms

- Abnormal eating behaviour
- Cough during mealtime – Aspiration?
- Weak cough - Unable to cough effectively if an aspiration occur
- Wet gurgly voice
- Difficulties in starting the pharyngeal swallow
- Perception
- Swallowing apraxia
- Neglect
- Oral health – chewing
- Feeding - respiratory pattern - Inhalation during swallowing?
Aspiration

Signs of aspiration:
• Cough; before, during and post swallow
• Change of voice quality: “wet voice”
• Breathing pattern
• Skin colour

Silent aspiration

How serious is it to aspirate?
It depends on several factors, for example:
The condition of the patient
Diagnosis
Oral health – oral bacteria
“Wet voice” as a predictor of penetration and aspiration in oropharyngeal dysphagia

- A wet voice identifying dysphagic patients with laryngeal dysfunction – and therefore at risk of penetration/aspiration any type of material.

Warms T, Richards J
Dysphagia 2000;15:84-88
Silent aspiration: What do we know?

In acute stroke 2% - 25% may aspirate silently due to;
- Central or local weakness/incoordination of pharyngeal muscles
- Reduced laryngeo-pharyngeal sensation
- Impaired ability to produce a reflexive cough
- Low substance P or dopamin levels

Some degree of silent aspiration at night may be normal in healthy individuals

Ramsey D, Smithard D, Karla L. Dysphagia 20;218-225, 2005
Silent aspiration

May be difficult to identify at a clinical examination
Guidelines???
Evidence?
Which test should we use? 
Is a water swallow test enough?

• The clinical application of the 100mL water swallow test in head and neck cancer. Patterson JM et al (2011)


• Are we testing true thin liquid? Fink TA, Ross JB (2009)


• Bedside assessment of swallowing in stroke: water tests are not enough. Marques CH, Rosso AL, André C (2008)

• Screening test for silent aspiration at the bedside. Wakasugi Y et al (2008)


• Three tests for predicting aspiration without videofluoroscopy. Tohara H et al (2003)
Bedside assessment of swallowing in stroke: water tests are not enough

OBJECTIVE:
The clinical functional evaluation is the usual method for Dysphagia screening in patients with acute stroke. This study compared two methods of evaluation -- with liquid and semisolid viscosities.

METHOD:
Twenty-six patients with stroke onset within 7 days - -with a mean age of 63.5 +/- 12.4 years--were prospectively evaluated for deficit severity, swallowing mechanisms, chest X-ray studies, and late (30 days after discharge) assessment of disability with the modified Rankin Scale.

Bedside assessment of swallowing in stroke: water tests are not enough

RESULTS:
• Tests using water and pudding correlated poorly (p < .001). The water test exhibited higher sensitivity for detection of problems in laryngeal protection, and the test with pudding was more sensitive for the functional analysis of dysphagia itself. Abnormalities in the water test were associated with weak spontaneous cough, while a normal pudding test correlated well with oral feeding 30 days after hospital discharge. The initial neurological severity correlated with results from both tests. No patient had pulmonary infiltrates 72 hours after testing or pneumonia up to 30 days after hospital discharge.

CONCLUSION:
• The two evaluation methods should be used to both decrease the risk of aspiration and increase the likelihood of a safe and early reintroduction of oral feeding.

Value of the Cervical Auscultation in Patients Affected by Neurogenic Dysphagia

• **Introduction:** The cervical auscultation is an instrumental resource used in the functional clinical phonoaudiological approach of feeding and the pulmonary auscultation is a semiotic method for clinical exploitation of the thorax and the heart. **Objective:** To relate noises from cervical and pulmonary auscultations. **Method:** Prospective, clinical and experimental, quantitative and comparative study between the cervical and the pulmonary auscultations and sample composed by 19 adult patients with clinical diagnosis of oropharyngeal neurogenic dysphagia, after encephalic vascular accident, with mean age of 59.11 years. We established percentages for variables considering two evaluators. The statistical analysis confirms the presence of slight dysphagia in 66.67%; moderate dysphagia in 16.67% and severe dysphagia in 16.67%. In the cervical auscultation the presence of dry clicks occurred between 42.11% and 78.95% for the different evaluators, and we observed a higher frequency of alterations for evaluator 1. In the pulmonary auscultation the higher frequency was of normal vesicular respiration for both evaluators. We also verified a significant difference between the levels of dysphagia for the cervical and pulmonary auscultations variables, whose correlation shows a low concordance; and a significant discordance between the evaluators for the cervical auscultation and perfect concordance for the pulmonary auscultation.

• **Conclusion:** there is no relationship between the noises listened, even with the respiratory function as a base and with the evaluation region being close; but we confirm a relation between dysphagia and pulmonary auscultation, whose results set a frequency of 100% of alterations in the pulmonary auscultation in the dysphagia pictures, with moderate and severe affection levels.

Screening for oropharyngeal dysphagia in stroke: insufficient evidence for Guidelines

There is no evaluation of the evidence for the screening of oropharyngeal dysphagia in stroke. We reviewed the literature on clinical screening for oropharyngeal dysphagia in adults with stroke to determine (a) the accuracy of different screening tests used to detect dysphagia defined by abnormal oropharyngeal physiology on videofluoroscopy and (b) the health outcomes reported and whether screening alters those outcomes.

Only two screening tests were identified as accurate: failure on the 50-ml water test (likelihood ratio = 5.7, 95% confidence interval = 2.5-12.9) and impaired pharyngeal sensation (likelihood ratio = 2.5, 95% confidence interval = 1.7-3.7). Limited evidence for screening benefit suggested a reduction in pneumonia, length of hospital stay, personnel costs, and patient charges.

**In conclusion**: screening accuracy needs to be assessed by using both abnormal physiology and aspiration as diagnostic markers for dysphagia. Large well-designed trials are needed for more conclusive evidence of screening benefit.

Triaging dysphagia: nurse screening for dysphagia in an acute hospital

AIMS AND OBJECTIVES:
To (1) develop a dysphagia screening tool to triage all patients at risk of aspiration/dysphagia on admission to acute hospital wards, (2) evaluate tool reliability, (3) evaluate nursing compliance and (4) develop a robust dysphagia training programme.

BACKGROUND:
Failure to diagnose dysphagia has significant medical and economic costs. Dysphagia screening reduces pneumonia threefold. Most nurse-screening tools have focused on stroke.
A multidisciplinary team developed a nurse-administered, evidence-based swallow screening tool for generic acute hospital use.

DESIGN:
Prospective, quasi-experimental.

METHODS:
Nurses were assessed for knowledge pre- and post-training. All patients were nurse-screened for dysphagia on admission. All patients were reviewed by speech pathologists to determine screening accuracy. Results were not blinded. The one page tool encompassed (1) diagnostic categories, (2) patient/carer interview, (3) dysphagia indicators and (4) if applicable, water swallow test.
Triaging dysphagia: nurse screening for dysphagia in an acute hospital

RESULTS:
Thirty-eight nurses participated in a seven-week study; 442 patients were screened on two general medical wards. Three speech pathologists counter-assessed each patient by clinical examination or chart review. Sensitivity was 95%; specificity was 97%. Positive predictive value was 92%; negative predictive value was 98%. 3.4% of clinical screening decisions were incorrect. Compliance rate was 85%.

CONCLUSIONS:
Caution is advised in interpretation of the results due to lack of blinding. Initial results suggest that the dysphagia screening tool is a quick and robust tool for triaging individuals with dysphagia. Training is critical to successful screening.

RELEVANCE TO CLINICAL PRACTICE:
Twenty-five to 30% of acute hospitalised individuals have dysphagia. All adult acute patients are screened for dysphagia using the Royal Brisbane and Women's Hospital dysphagia screening tool. Patients are triaged into categories of 'those requiring additional specialist intervention' and 'those who can proceed directly to regular diets and liquids'. Improved quality of care and cost savings is likely.

Cichero JA, Heaton S, Bassett L
J Clin Nurs 1649-1659, 2009
Bedside screening tests vs. videofluoroscopy or fibreoptic endoscopic evaluation of swallowing to detect dysphagia in patients with neurological disorders: systematic review.

**AIM:** This paper is a report of a systematic review conducted to determine the effectiveness and feasibility of bedside screening methods for detecting dysphagia in patients with neurological disorders.

**RESULTS:** Thirty-five out of 407 studies were included in the review. Eleven studies with sufficient methodological quality revealed that trial swallow tests using water had sensitivities between 27% and 85% and specificities between 63% and 88%. Trial swallow tests with different viscosities led to sensitivities ranging from 41% to 100% and specificities of 57% to 82%. Combining water tests with oxygen desaturation led to sensitivities between 73% and 98% and specificities between 63% and 76%. Single clinical features, such as abnormal gag, generally had low sensitivity and specificity.
Bedside screening tests vs. videofluoroscopy or fibreoptic endoscopic evaluation of swallowing to detect dysphagia in patients with neurological disorders: systematic review.

CONCLUSION:
A water test combined with pulse oximetry using coughing, choking and voice alteration as endpoints is currently the best method to screen patients with neurological disorders for dysphagia. Further research is needed to establish the most effective standardized administration procedure for such a water test, and to assess the value of pulse oximetry, in addition to a trial swallow to detect silent aspiration.

Inter- and Intrajudge Reliability of a Clinical Examination of Swallowing in Adults

• This study investigates inter- and intrajudge reliability of a clinical examination of swallowing in adults. Several investigations have sought correlations between clinical indicators of dysphagia and the actual presence of dysphagia as determined by videofluoroscopy. Whereas some investigations have reported interjudge reliability for the videofluoroscopic measures employed, none have reported reliability for clinical measures. Without established reliability for rating clinical measures, conclusions drawn regarding the utility of a measure for detecting aspiration can be called into question.

• Results of the present study indicate that fewer than 50% of the measures clinicians typically employ are rated with sufficient inter- and intrajudge reliability. Measures of vocal quality and oral motor function were rated more reliably than were history measures or measures taken during trial swallows.

• There is a need to define more clearly the measures employed in clinical examinations and to be consistent in reporting reliability for clinical measures of swallowing function in future research.

Clinical dysphagia evaluation of oral and pharyngeal swallowing

Requires a trained SLP
Clinical examination incl swallowing trial
Instrumental examination?
Treatment plan
Education of nursing staff

The purpose is to establish a safe and efficient swallowing

An ongoing process with continuous re-evaluations
What causes the problem?

- Patophysiology;
  - oral cavity
  - pharynx
  - esophagus
- Dental health
- Feeding-respiratory pattern
- Painful swallowing
- Meal time problems
SLP clinical swallowing examination

Who is the patient?
What do we need to know?
Observation of the patient regarding;
Consciousness
  • alert enough?
  • Communication
Cognition
  • what is food?
  • potential for strategies
Confounding factors
  • vision/hearing impaired
  • Intubation
Clinical examination
Medical history

Aetiology; neurological, structural, pharmacological

- Feeding history
- Mental and physical status
- Language disabilities - communication
- Respiratory status – related to swallowing
- Airway protection - tracheostomy
- Oral and laryngeal function
- Weight changes
Observation and examination

The SLP follow universal precautions

- Oral anatomy

- Soft palate function and oral reflexes

- Oral sensitivity exam (light touch, identify reduced sensitivity)

- Oral reflexes (gag, palatal)

- Oral motor function according to strength, range and symmetry, (Lips, Jaw, Tongue, Palate, Velum)

- Laryngeal function – voice quality

- Oral health; dental status – gingiva - saliva

- Feeding respiratory pattern
Swallowing trial

Must be performed with a cautious hand, and a sensitive ear, allowing respect for the patient’s situation and special requirements.

Fatigued patient’s may not be able to participate in a complete clinical exam. Perhaps only a limited swallow trial may be possible.
Swallowing trial

- In most cases, if possible, it is important to try different consistencies and not only perform a water swallow test, due to the fact that different consistencies affect the physiology of swallowing differently.

Always start with a very small amount, ½ - 1 teaspoon;
- Smooth pudding consistency
- Sorbet
- Thickened liquid
- Carbonated liquid
Correct positioning of the fingers during the clinical or bed-side swallowing examination
Logemann, 1998
Observations during the swallowing trial

**Observe:** avoidance of certain food and liquids
- Lip closure – any leakage anterior or posterior
- Tongue movement
- Mastication – dentures
- Feeding respiratory pattern

**Listen:** voice quality
- Cough
- Gurgly, wet voice – saliva

**Feel:** finger positioning
- Swallowing movements
- Delayed pharyngeal swallow
After the Clinical Examination

• Formulate a management program
• Determine the need for;
  – further instrumental assessment
  – sub-specialty referral:
    Neurology
    Gastroenterology
    Dietician
Videofluoroscopy
Conclusion

• A clinical swallowing examination is usually an important first step in the management of the dysphagic patient with oral and/or pharyngeal dysfunction. The examination should be performed by a trained SLP.

• It is the responsibility of the dysphagia SLP to know whether further evaluations are necessary, and if so to choose the best instrumental method, due to the actual problem.

• Nursing staff can be regularly educated to be able to identify symptoms of swallowing problems.

• In the field of clinical swallowing screenings we need:
  – More research with better designed studies
  – More evidence-based screening methods with good accuracy
  – Guidelines
Thank you for your attention!