NSW Speech Pathology
Evidence Based Practice Interest Group

Critically Appraised Paper (CAP)

CLINICAL BOTTOM LINE: There is no significant relationship between aspiration and changes in Sp02 levels during feeding, identified using pulse oximetry. However, individuals with neurogenic dysphagia are more likely to have lower Sp02 levels, or larger changes in SP02 levels, after oral feeding, regardless of the presence or absence of aspiration.

Clinical Question [patient/problem, intervention, (comparison), outcome]: In patients with neurogenic dysphagia is pulse oximetry a reliable assessment tool for identifying episodes of aspiration?

Citation: Sellars, C., Dunnet, C., Carter, R., (1998). A Preliminary comparison of videofluroscopy of swallow and pulse oximetry in the identification of aspiration in dysphagic patients. *Dysphagia*, *13*; 82-

Design/Method: Non-randomised, unblinded control trial; control and experimental groups did not receive equal treatment.

Participants: 11 participants:

- Experimental: 6 subjects with neurogenic dysphagia, range of aetiologies, 2 months –30 years post onset, age range 32 – 89 years.
- Control: 5 subjects, age range 25 – 44 years.

Experimental Group:
Baseline Spo2 levels taken prior to videofluoroscopy. Subjects underwent videofluoroscopy, receiving 2 liquid boluses, 1 paste and 1 water. SpO2 and pulse rate taken continuously and 2 min post. Evidence of laryngeal penetration and aspiration noted.

Control Group:
Baseline SpO2 levels taken. Subjects then received 2 juice boluses, 1 yoghurt, 1 biscuit and 1 water. Control subjects did not undergo videofluoroscopy. Evidence of audible laryngeal penetration/ aspiration noted. SpO2 and pulse rate taken continuously and 2 min post.

Results:

- No significant variation in Sp02 among 'normal' subjects on swallow.
- Following feeding, small but significant drop in Sp02 for dysphagic patient group but not normals.
- Found no statistical link between aspiration and Sp02 fluctuations.

Comments

- Small sample size
- Procedures differed for experimental and control groups: 'normal' subjects did not undergo a videofluoroscopy for ethical reasons.
- Heterogeneous patient group
- Attempts made to standardize videofluoroscopy procedure, despite heterogeneous population.
- Experimental and control groups not age-matched

Level of Evidence (NH&MRC): III (2)

Appraised By:
Adult Swallowing EBP Group

Date: Sept 2009

Guidelines for completion of the CAP

Clinical Bottom Line
The consensus of the reviewers on implications of the paper on clinical practice. Whilst this may be somewhat subjective, it is hoped that robust discussion, the Level of Evidence and your comments on the design will enable you to produce a practical/realistic 'bottom line'. Many of the papers in Speech Pathology may have limitations, but the Clinical Bottom line should be aimed to help clinicians apply what evidence there is.

Clinical Question
This should ideally include four components:

- the patient or problem
- the intervention (or diagnostic test or prognostic factor)
- the comparison intervention or test *(optional)*
- the outcome

Design
Refer to pages 12 to 15 of the EBPIG Resource Package for guidance in reviewing the design used.

Comments on Design
Pages 12 to 15 of the Resource Manual should again assist here. You may also find it useful to refer to the forms 'Evaluating case studies/case series' and 'Critical appraisal sheet' adapted from Dr Lil Mikuletic's (see 'Critiquing/Appraising the Evidence).

Level of Evidence
It is recommended that the paper you are reviewing be rated against the NH&MRC Levels of Evidence, as reproduced here. The levels may be updated from time to time by the NH&MRC, but use of the ratings listed here will ensure consistency across CATs and groups. These levels are listed with comments on pages 15 and 16 of the Resource Package.

LEVEL

I. Evidence obtained from a systematic review of all relevant controlled trials

II. Evidence obtained from at least one properly designed randomised controlled trial

III. **1** Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method)
2 Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group
3 Evidence obtained from comparative studies with historical control, two or more single-arm studies or interrupted time series without a parallel control group

IV. Evidence obtained from case series, either post-test or pre-test and post-test