



NSW Speech Pathology Evidence Based Practice Interest Group

Critically Appraised Paper (CAP)

CLINICAL BOTTOM LINE: This study concluded that aspirators showed a SpO₂ decline during swallowing procedures, but pulse oximetry monitoring was not statistically significant to predict or detect aspiration. Other events, such as breath-holding, posture change, coughing and compromised pulmonary functioning, may be related to oxygen desaturation.

Clinical Question: In patients with neurogenic dysphagia is pulse oximetry a reliable assessment tool for identifying episodes of aspiration?

Search Terms: See CAT

Search Systems: See CAT

Citation: Higo, R., Tayama, N., Watanabe, T., and Nito, T. (2003). Pulse Oximetry monitoring for the evaluation of swallowing function. *European Archives of Otolaryngology* 260; 124-127.

Design: Case control study

Arterial oxygen saturation (SpO₂) was continuously measured throughout fluorographic examination until an adequate post-examination period afterward. Then, fluorographic findings (aspiration) and SpO₂ levels were compared.

Participants: 204 participants, wide variety of diagnoses, large age range, high mean age for group 4, significantly more males than females. Minimal information on subject recruitment and selection

Experimental Group: Group 2: 110 subjects with symptoms of dysphagia. Nil description of assessment, symptoms, severity of dysphagia, current management. Varied aetiology. Group 3: 9 dysphagic patients required cuffed tracheostomy tube. No background information was provided on the reason for tracheostomy insertion, length of time of tracheostomy, details of management etc.

Control Group: Group 1: 63 subjects with no swallowing disorder however required videofluoroscopy for oesophageal disease

Group 4: 22 Laryngectomees (included to assess for other factors impacting on oxygen saturation levels rather than aspiration).

Results: Aspirators showed a SpO₂ decline during swallowing procedures, but pulse oximetry monitoring was not statistically significant to predict or detect aspiration. Other events, such as breath-holding, posture change, coughing and compromised pulmonary functioning, may be related to oxygen desaturation.

Comments on Design: Nil indication of randomisation, heterogeneous population of dysphagics with mixed aetiologies.

Level of Evidence (NH&MRC): 111 (2)

Appraised By: Adult Communication and Swallowing
Clinical Group

Date: 2004

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