The pros and cons of videofluoroscopic assessment of swallowing in children

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CRD summary
This review examined the evidence for using videofluoroscopy to assess impaired swallowing in children. The overall conclusion was that the evidence is limited and further research is required. The limited search strategy, poor reporting of review methodology, and lack of a quality assessment mean that the completeness and reliability of the evidence base identified are uncertain.

Authors' objectives
To evaluate the evidence base on videofluoroscopy (VFSS) for the assessment of swallowing in children.

Searching
The Cochrane Library, PubMed and CINAHL were searched for publications in the English language. The dates of the searches were not reported, but the search terms were. Key journals were also handsearched.

Study selection
Study designs of evaluations included in the review
No explicit inclusion criteria for study design were specified. The authors stated that they would group the included studies, based on level of evidence, from randomised controlled trials (highest form of evidence) to expert opinion (lowest form of evidence).

Specific interventions included in the review
Studies of VFSS used for the assessment or management of dysphagia were eligible for inclusion. The included studies were mainly concerned with the diagnosis or management of velopharyngeal dysfunction in the cleft lip or palate, and other craniofacial disorders rather than dysphagia. The use of VFSS in gastric disorders was also examined in five of the included studies.

Reference standard test against which the new test was compared
Studies comparing assessment by VFSS with any other form of assessment of dysphagia, such as clinical bedside examination (CBE), in children were eligible for inclusion; no studies of this nature were identified.

Participants included in the review
Studies of children with oropharyngeal dysphagia were eligible for inclusion. The participants in the included studies ranged from infants aged less than 1 year to adults aged up to 34 years, and the majority had cerebral palsy and dysphagia. Three studies included only participants with Retts Syndrome.

Outcomes assessed in the review
Any health outcome relevant to children with dysphagia assessed by VSFF was eligible for inclusion. The included studies assessed VSFF using observational changes in swallow and lingual dysfunction, such as pharyngeal transit times and aspiration of stomach contents. No studies directly assessed the effectiveness of VSFF on improving health outcomes such as pneumonia, although two studies evaluated improvement in feeding and nutrition based on recommendations made as a result of VSFF.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.
Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Observed data on the effectiveness of VFSS appear to have been extracted as reported in the original studies.

Methods of synthesis
How were the studies combined?
The studies were grouped according to design and research question. A narrative synthesis was undertaken and tables were presented.

How were differences between studies investigated?
Differences between the studies were evident in the data tables and were discussed in the text.

Results of the review
Seventeen studies (n=684) were included in the review: two case studies, one prospective controlled case study, ten case series (eight prospective and two retrospective), three retrospective data reviews and one reliability study.

All of the studies stated that VFSS was a useful adjunct to the examination of the child with dysphagia. One study assessed the reliability of the ratings from VFSS and found high inter-reliability between two raters. No studies compared the results from the VFSS assessment with other forms of assessment such as the CBE. One study considered health outcome measures by predicting the risks factors for pneumonia using VFSS to quantify the levels of aspiration. Only one study examined the potential age effects, and age of less than 1 year was found to be a significant risk factor for pneumonia.

Authors’ conclusions
The review highlighted the paucity of data on VFSS in children and further research is warranted. The authors also noted that they found no evidence to suggest that VFSS was harmful.

CRD commentary
The review question was clear in terms of the interventions and participants, and broad, but appropriate, in terms of the study design and outcomes. The search strategy was limited to English articles only and it was unclear whether any attempt was made to locate unpublished studies; this means that some relevant studies might have been omitted from the review. The methodological quality of the original studies was not assessed, which made it difficult to assess the reliability of the authors’ conclusions. There was no description of the review methodology employed, so it is uncertain whether there was a potential for bias or error to be introduced throughout the review process. The authors’ use of a narrative summary was appropriate given the variety of the included studies. The conclusion that there is a need for further research follows from the evidence identified.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that further research is needed to establish whether VFSS leads to improved patient outcomes, whether VFSS is superior to other instrumental forms of examination, and whether VFSS actually assists in the diagnosis of aspiration in children.

Bibliographic details
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Subject indexing assigned by CRD

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.