Interventions for oropharyngeal dysphagia in children with neurological impairment

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Authors' objectives

Background: Oropharyngeal dysphagia encompasses problems with the oral preparatory phase of swallowing (chewing and preparing the food), oral phase (moving the food or fluid posteriorly through the oral cavity with the tongue into the back of the throat) and pharyngeal phase (swallowing the food or fluid and moving it through the pharynx to the oesophagus). Populations of children with neurological impairment who commonly experience dysphagia include, but are not limited to, those with acquired brain impairment (for example, cerebral palsy, traumatic brain injury, stroke), genetic syndromes (for example, Down syndrome, Rett syndrome) and degenerative conditions (for example, myotonic dystrophy). Objectives: To examine the effectiveness of interventions for oropharyngeal dysphagia in children with neurological impairment.

Search methods: We searched the following electronic databases in October 2011: CENTRAL 2011(3), MEDLINE (1948 to September Week 4 2011), EMBASE (1980 to 2011 Week 40), CINAHL (1937 to current), PsycINFO (1806 to October Week 1 2011), Science Citation Index (1970 to 7 October 2011), Social Science Citation Index (1970 to 7 October 2011), Cochrane Database of Systematic Reviews, 2011(3), DARE 2011(3), Current Controlled Trials (ISRCTN Register) (15 October 2011), ClinicalTrials.gov (15 October 2011) and WHO ICTRP (15 October 2011). We searched for dissertations and theses using Networked Digital Library of Theses and Dissertations, Australasian Digital Theses Program and DART-Europe E-theses Portal (11 October 2011). Finally, additional references were also obtained from reference lists from articles.

Selection criteria: The review included randomised controlled trials and quasi-randomised controlled trials for children with oropharyngeal dysphagia and neurological impairment.

Data collection and analysis: All three review authors (AM, PD and EW) independently screened titles and abstracts for inclusion and discussed results. In cases of uncertainty over whether an abstract met inclusion criterion, review authors obtained the full-text article and independently evaluated each paper for inclusion. The data were categorised for comparisons depending on the nature of the control group (for example, oral sensorimotor treatment versus no treatment). Effectiveness of the oropharyngeal dysphagia intervention was assessed by considering primary outcomes of physiological functions of the oropharyngeal mechanism for swallowing (for example, lip seal maintenance), the presence of chest infection and pneumonia, and diet consistency a child is able to consume. Secondary outcomes were changes in growth, child’s level of participation in the mealtime routine and the level of parent or carer stress associated with feeding.

Main results: Three studies met the inclusion criteria for the review. Two studies were based on oral sensorimotor interventions for participants with cerebral palsy compared to standard care and a third study trialled lip strengthening exercises for children with myotonic dystrophy type 1 compared to no treatment (Sjogreen 2010). A meta-analysis combining results across the three studies was not possible because one of the studies had participants with a different condition, and the remaining two, although using oral sensorimotor treatments, used vastly different approaches with different intensities and durations. The decision not to combine these was in line with our protocol. In this review, we present the results from individual studies for four outcomes: physiological functions of the oropharyngeal mechanism for swallowing, the presence of chest infection and pneumonia, diet consistency, and changes in growth. However, it is not possible to reach definitive conclusions on the effectiveness of particular interventions for oropharyngeal dysphagia based on these studies. One study had a high risk of attrition bias owing to missing data, had statistically significant differences (in weight) across experimental and control groups at baseline, and did not describe other aspects of the trial sufficiently to enable assessment of other potential risks of bias. Another study was at high risk of detection bias as some outcomes were assessed by parents who knew whether their child was in the intervention or control group. The third study overall seemed to be at low risk of bias, but like the other two studies, suffered from a small sample size.

Authors’ conclusions: The review demonstrates that there is currently insufficient high-quality evidence from randomised controlled trials or quasi-randomised controlled trials to provide conclusive results about the effectiveness of any particular type of oral-motor therapy for children with neurological impairment. There is an urgent need for larger-scale (appropriately statistically powered), randomised trials to evaluate the efficacy of interventions for oropharyngeal dysphagia.


Bibliographic details

AccessionNumber
10000009456

Date abstract record published
13/07/2012

Record Status
This is an abstract for a Cochrane review