

Dysphagia and free water protocol in paediatrics: Summary of the evidence

Background

A literature review was conducted with the assistance of the University of Queensland Library for the clinical question, "What is the evidence for a free water protocol in children with dysphagia?". Search terms included: Free water protocol, aspiration, child, childs, children, childrens, childhood, adolescen*, infant, baby, babies, "New Born", New-born, Newborn, Newborns, teen*, deglutition, dysphagia, swallow*, drinking, protocol, water, thin-liquid, water protocol, oral water intake. Databases searched were PubMed, CINAHL and EMBASE.

The search revealed 55 results, 9 of which were relevant to the clinical question.

A summary of relevant information is detailed below.

Free water protocol

The original 'Frazier Free Water Protocol' (FFWP) was developed for the adult stroke population with the aim of providing patients with dysphagia the option to consume thin water in between mealtimes. The protocol was designed in response to the identification that patients on thickened fluids often consumed less than the recommended quantity of oral fluids each day, and the likelihood that patients on thickened fluids would 'sneak' thin fluids at other times. Aspiration of water is described in some literature as a 'benign' event (in adults) and thus the protocol aims to allow patients to quench their thirst without risking their pulmonary status, provided the protocol is fully adhered to.

Essential components of the FFWP

- Patients who have been recommended thickened fluids due to aspiration on thin fluids are allowed 'free' access to thin water only, and then only in between meals (at least 30 minutes after eating).
- During meals, and when taking medications, they must adhere to thickened fluid recommendations.
- Any compensatory swallowing techniques should continue even when drinking free water.
- Mouth cares should occur:
 - o morning and night
 - o before and after meals
 - o before consumption of any free thin water.

A systematic review by Gillman et al. (2016) published in *Dysphagia* reviewed the evidence for use of the FFWP (a specific protocol, not just the allowance of free water in general) and found low level evidence in the inpatient adult rehabilitation context:

- That the FFWP did not result in increased odds of having lung complications.
- That total fluid intake may increase.

The review found insufficient evidence to comment on use of the FFWP in settings other than inpatient rehabilitation.

A study by Bernard, Loeslie and Rabatin (2016) looked at the implementation of a modified FWP in an acute setting with adults who were medically complex patients with dysphagia, who had survived critical illness and had pulmonary compromise. Though a small study size (15), the researchers found that intake of ice chips or water in line with their protocol did not increase the incidence of aspiration pneumonia when compared with a control group.

Paediatrics

No specific literature was found examining the implementation of, or theory of, a free water protocol in infants or children.

A Cochrane Review in 2012 on ‘Restriction of oral intake of water for aspiration lung disease in children’ by Weir et al. found “no RCTs on the effects of restriction or allowing orally ingested water in persons with known primary aspiration of fluids in a paediatric population were found”.

The Review discussed one adult study on stroke patients which did suggest free ingestion of water did not increase pneumonia events (Garon, 1997), however, as suggested by Weir et al. in the Review, it is inappropriate to extrapolate these results directly to a paediatric population given the significant differences between adults and children in terms of anatomy, swallow function and aetiology of dysphagia.

As Weir et al. also note, “causality between primary aspiration of specific food and fluid textures and pulmonary effects in children is yet to be established in controlled trials”.

The Review also found “an absence of evidence of total restriction of water, an intervention that significantly impacts on amount of extra work on carers as well as hydration status of the child”. Importantly, the authors point out “there is no good data on the direct relationship between severity of aspiration and lung disease”. While the relationship between aspiration and lung disease is often thought to be a linear relationship, there is often a discrepancy seen clinically between children with the same degree of aspiration observed on VFSS and their respiratory health.

Additionally, clinicians must consider the potential long term impact on a child’s respiratory potential and capacity if chronic aspiration occurs in childhood (versus aspiration occurring in adulthood, when the lungs have fully developed).

The authors conclude “it is not possible to either recommend total restriction or liberalisation of oral water ingestion to “protect” the pulmonary status of children with thin fluid aspiration demonstrated on a MBS”.

Summary

Currently, there is insufficient evidence to support or deny the concept of utilising a modified free water protocol in the paediatric population in any setting.

Recommendations for use of a Modified Free Water Protocol (MFWP) in paediatrics

1. Consult the child’s respiratory specialist or general paediatrician to discuss:
 - current evidence for MFWP
 - rationale for implementing a MFWP with the child
 - presence of any acute medical issues, precluding “risk feeding” via a MFWP
 - medical plan to monitor the child’s respiratory health
 - plan for reviewing or ceasing the MFWP.
2. Provide education to the parent/carer (and child, if appropriate from a developmental and cognitive perspective) regarding a MFWP, including potential risks such as:
 - aspiration pneumonia, requiring acute medical management
 - recurrent bronchitis, chronic cough
 - long term respiratory disease (e.g. bronchiectasis, where the bronchi become enlarged and permanently full of mucous).

If the parent/carer, child and respiratory specialist/general paediatrician agree to proceed with a MFWP, the following plan should be implemented:

3. Patients who have been recommended thickened fluids or nil fluids orally due to aspiration on thin fluids are allowed 'free' access to thin water only, and then only in between meals (at least 30 minutes after eating).
4. During meals, and when taking medications, they must adhere to the prior recommendation for thickened fluids or nil fluids orally.
5. Any compensatory swallowing techniques should continue even when drinking free water.
6. Oral hygiene cares should occur:
 - morning and night
 - before and after meals
 - before consumption of any free thin water.

Please refer to the Lady Cilento Children's Hospital Speech Pathology and Children's Oral Health Service Guideline: Oral Hygiene in Children with Feeding Difficulties for further detailed information.

7. Clear documentation of the MFWP should be documented:
 - in the child's medical chart, including the plan to monitor the child's respiratory health and for reviewing or ceasing the MFWP (as discussed with the respiratory specialist), and
 - a hard copy of the plan should be provided to the parent/carer and other medical specialists as required.

References

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Developed by Department of Speech Pathology, Lady Cilento Children's Hospital. Updated: April 2017. All information contained in this sheet has been supplied by qualified professionals as a guideline for care only. Seek medical advice, as appropriate, for concerns regarding your child's health.

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