

Managing Hydration in Dysphagia

A Practical Guide



Christina Connolly, Stroke Specialist Dietitian, London North West University Healthcare NHS Trust, UK, and **Danielle Welsh**, Speech & Language Therapist, Oxleas NHS Foundation Trust, UK

Dysphagia describes difficulties swallowing and can be transient, persistent or deteriorating depending on the underlying pathology, which may be neurological, surgical, mechanical or psychological.¹ Symptoms of dysphagia include oral leakage, coughing, choking, difficulty chewing and difficulty moving food or fluids around the mouth. It is acknowledged that thin fluids are more commonly affected.^{2,3} Texture modification is common practice in the management of dysphagia.^{4,5} It is suggested that thickened fluids may increase sensory awareness and delay oral and pharyngeal transit allowing an individual time to coordinate a safe swallow.^{4,6,7} However, thickened fluids aren't always effective in eliminating aspiration or reducing the incidence of pneumonia^{2,4,8,9} and there is evidence that thickened fluids can lead to reduced oral fluid intake.^{10,11} McGrail *et al.* found that, on average, the oral fluid intake of acute stroke patients was substandard, regardless of viscosity; however, patients on thickened fluids consumed significantly less than patients on thin fluids.¹² Rowat *et al.* found that 56% of dysphagic stroke patients become dehydrated during hospital admissions.¹³ Poor oral fluid intake is also common among the elderly.¹⁴ The major consequences of dehydration are urinary tract infections, pneumonia, pressure ulcers, hypotension, fever, constipation, vomiting, mucosal tissue dryness and confusion.¹⁴ Dehydration is also associated with an increased mortality rate and a higher likelihood of patients being discharged to institutionalised care.¹³

Challenges and strategies

The reasons for inadequate fluid intake are multifactorial. Outlined below are some common challenges in maintaining adequate hydration in dysphagic patients, as well as some strategies to overcome these challenges.

Thickened fluids

Research shows that the use of thickeners in fluids does not reduce the bioavailability of water in the product;

therefore thickener use alone does not contribute to dehydration.¹¹ However it is evident that patients on thickened fluids consume less than patients on normal fluids.^{12,11} Thickened fluids have been frequently associated with poor patient satisfaction,^{11,15,16} significantly so with increasing viscosity.¹⁷ It is suggested that thickened fluids have reduced thirst quenching ability and decreased flavour-release which further impacts on patient compliance¹¹ and, therefore, the amount of fluids consumed.

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Strategies

Thickened fluids should only be used when other strategies have failed and at the lowest level of viscosity possible.^{4,11} A multidisciplinary team (MDT) approach should be used to ensure dysphagia management takes into account the risk of aspiration, risk of dehydration and the patient's quality of life. Enteral feeding should be considered if oral fluid intake is unmanageable. Risk-managed feeding should be considered if a patient is consistently dehydrated and/or finds thickened fluids unpalatable where enteral feeding is not indicated. It may also be appropriate to consider a water protocol. This permits and encourages oral intake of water for appropriate dysphagic patients. Evidence suggests that a water protocol, when used appropriately, can improve hydration and quality of life without an increased risk of pneumonia.^{18,19,20}

The palatability of thickened fluids can be managed by using strong flavours, such as fruit cordials. It may also be appropriate to consider trialling different thickening agents to see if they are more preferable. Gum-based thickeners are clear compared to the cloudy appearance of starch-based thickeners and may, therefore, increase visual appeal and palatability. The use of pre-thickened drinks should also be considered as they have been demonstrated to improve oral fluid intake, likely due to ease of preparation as well as palatability.²¹

Physical and cognitive challenges

Dysphagia is common in neurological conditions, such as stroke, multiple sclerosis and dementia, with prevalences reported as 78%,²² 33%²³ and 68%²⁴ respectively. There are often concomitant physical, cognitive and communication difficulties which can further impact a patient's ability to express thirst and drinks preferences, purchase suitable drinks, prepare drinks, lift cups to their mouths and take appropriate sized mouthfuls. Due to both cognitive and physical difficulties, patients can struggle to self-regulate bolus size which may increase their risk of aspiration. It is suggested that those with a lower functional level, and therefore increased dependency level, tend to drink less fluids.^{21,10}

Strategies

An MDT approach to improving a patient's independence is vital. Physiotherapy and occupational therapy can assist with a patient's posture and positioning as well as advising on specialist equipment to support and enable self-feeding. Specialist cups or straws can help regulate bolus size and can help reduce dependency and/or supervision

needs. Speech and language therapy can work with patients and their families to create communication charts to enable a patient to express their needs, such as thirst and drink preferences, e.g. coffee with two sugars and milk. Simple strategies such as ensuring drinks are within reach should also be encouraged.

Physiological challenges

The elderly have physiological changes which can contribute to dehydration. The secretion of the hormones renin and aldosterone, which regulate blood pressure and thus urine output, are reduced. The kidneys then have a reduced ability to concentrate urine, meaning a patient's urine output is not adjusted adequately to a patient's hydration status. This can also have an effect on a patient's thirst reflex, reducing their awareness of needing fluids, further exacerbating dehydration.¹⁴ The awareness of a patient's fluids requirements by patients, their family and healthcare staff can be varied. Beattie *et al.* found that only 15% of nursing home staff showed awareness of the fluid requirements of their patients.²⁵ McGrail *et al.* found that patients on thickened fluids were offered less fluids compared with patients on thin fluids¹² and this may be partly due to preparation time.

Strategies

It is imperative that carers are well educated on the importance of hydration and of the early signs of dehydration. Fluid charts can be helpful for patients, families and carers in monitoring oral fluid intake. Gum-based thickeners can remain a consistent viscosity for up to 12 hours,²⁶ therefore larger volumes of thickened fluids can be prepared in advance, reducing preparation time.

Quality of Life

Texture modification can have a huge impact on a patient's self-esteem, socialisation and quality of life.^{1,27,28} Research shows that 36% of dysphagic patients reported avoiding eating around others.²⁷ It is likely this also extends to drinking and is related to dysphagia symptoms, including oral leakage, coughing, discomfort in swallowing and/or having to prepare thickened drinks.

Strategies

A patient-centred approach is needed to ensure that quality of life is taken into account when managing hydration and dysphagia. Understanding patient preferences and routines can be helpful in creating an oral fluid intake plan that works for the patient. Risk-managed feeding may be an option for some patients and consideration of quality of life and nutritional status are important factors in this decision.

Case Study

Mrs X is a 70-year-old female who was admitted to hospital with a right sided basal ganglia infarct on the background of a previous stroke resulting in profound oropharyngeal motor and sensory dysphagia. She also presented with severe dysarthria and apraxia of speech, intact cognition and left upper limb weakness, however, she remained independently mobile.

During her hospital admission there was minimal improvement in her swallow, therefore a PEG was inserted and she was discharged home nil by mouth meeting her full nutritional requirements via PEG.

She was seen intensively by the speech and language therapist at home under the early supported discharge pathway. Swallow therapy involved retraining the swallow reflex through thermal-tactile stimulation²⁹ and sensory stimulation using hot, cold, sour and salty boluses.

Following this, oral trials were gradually introduced as part of therapy. Significant gains were made and Mrs X was commenced on Level 6 soft & bite sized diet and Level 1 thickened fluids. Mrs X's reliance on PEG feeds gradually reduced. However, her oral intake of fluids fluctuated between 0 and 500 mls per day, therefore, she continued to require regular fluid flushes via her PEG. Working alongside the home enteral feeding dietitian and Mrs X's family, the following advice and strategies were introduced to support her aim of removing the PEG tube:

1. Water protocol.
2. Naturally thick fluids – Mrs X trialed a number of naturally thick fluids, including shop bought and homemade smoothies and milkshakes which were appropriately matched to IDDSI Level 1 texture.
3. Liquid based meals – Mrs X was encouraged to choose fluid-rich meals, e.g. soups and dishes with additional sauces. Vivanti *et al.* (2009) found that two thirds of patients fluid intake in hospitalised dysphagic patients came from food.¹⁰
4. Fluid diary – Mrs X was provided with a fluid diary to complete daily with hourly targets agreed.
5. Little and often approach – Mrs X was encouraged to take small sips of fluids throughout the day as part of her swallow therapy as well as to increase fluid intake.
6. Water bottles – Mrs X purchased a water bottle with fluid markers which provided additional prompting as well as motivation.
7. Use of reminders and alarms – Mrs X trialed setting alarms on her phone to prompt her to have regular sips of fluid.
8. Risk feeding discussions – Mrs X was avoiding herbal tea as she disliked it thickened, however it was established that pre-stroke this was her primary fluid intake. Therefore, due to a plateau in her swallow recovery and stable chest status throughout, risk feeding was discussed and agreed to enable her to have this drink unthickened, with acknowledged risk, for both her quality of life and hydration status.

Mrs X achieved her goal of improving her fluid intake to adequate levels to enable safe removal of her PEG tube. Her swallow function and secretion management also improved, likely as a result of more frequent swallowing required to increase her fluid intake.

Conclusion

Hydration is an important factor to consider in dysphagic patients, particularly those on modified fluids. A variety of strategies should be trialed to maximise a dysphagic patient's fluid intake to reduce their risk of aspiration and dehydration. A multidisciplinary team (MDT) approach should be used to ensure that dysphagia management takes into account the risk of aspiration, risk of dehydration and the patient's quality of life.

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