



The Importance of Hydration in the Enterally Fed Patient



Carolyn Best, Nutrition Nurse Specialist, Winchester and Eastleigh Healthcare Trust and Communications Officer for the National Nurse Nutrition Group (NNNG), and **Neil Wilson**, Senior Lecturer, Manchester Metropolitan University and Secretary of the National Nurse Nutrition Group (NNNG)

Introduction

The National Patient Safety Agency,¹ supported by the Royal College of Nursing,² have attempted in recent years to raise awareness of the importance of hydration for all patients. The ‘water the forgotten ingredient’ campaign and subsequent toolkit ‘Hospital Hydration Best Practice Toolkit’ were launched to attempt to push hydration to the forefront of clinical practice. Most recently, the issue of hydration has been raised again by the NACC, who have launched ‘Dehydration in Older People Awareness Week’ and have produced their own ‘Tool Box Talk’ kit.³

Few articles are published discussing the issues surrounding hydration and clinical outcomes, indicating that hydration is often not seen as important an issue as nutrition. Although one accepts that some of our fluid requirements will be met via our nutrition intake, and vice versa, it is important that both elements are treated with equal importance. The emphasis over recent years in ensuring patients receive adequate nutrition^{4,5,6,7} may have had the impact of inadvertently contributing to the most basic essential component for life being forgotten or sidelined.

Where oral intake of fluid is suboptimal, one method of ensuring the most vulnerable patients receive hydration is that of enteral tube feeding.

Dehydration

Dehydration is one of the most common fluid and electrolyte imbalances in older adults.⁸ Adequate hydration is essential as it ensures good physiological function and has a strong correlation to maintaining good cognition and alertness.^{9, 10, 11} Consuming adequate amounts of water per day has an impact upon many activities of living, such as satisfactory urinary and faecal elimination. However, any reduction in fluid consumption can result in constipation, urinary tract infections, pressure ulcer formation, as well as other skin conditions.¹⁰ Fluid balance is principally determined by the volume of fluid one consumes, against the normal excretion of fluid occurring via the kidneys, skin, faeces and lungs. Much of the fluid held within the body is contained within the body's cells, with just over 30 per cent sitting extracellularly. Constant physiological osmotic processes ensure that fluid balance does not shift greater than one per cent. If this occurs in the absence of a negative energy balance then dehydration can be assumed, resulting in headaches, fatigue in the short-term, and in prolonged periods the above potential eliminatory problems.¹² Mild dehydration can usually be treated fairly easily by replacing lost fluids. However, if left untreated the cumulative effects of severe dehydration can be serious, and possibly life threatening. It has been noted that clinical outcomes for patients who are dehydrated can be significantly different compared to those who receive their full fluid requirements. One particular study, conducted by Warren *et al.*,¹³ demonstrated that older patients admitted with dehydration had a higher mortality rate within 30 days than those dehydrated patients who were younger. Furthermore, Warren *et al.* suggested that the management of hydration requirements need to remain an essential component of care of the hospitalised patient.¹³

However, the identification of dehydration does rely upon the clinical judgement of the healthcare professional caring for the patient. Dehydration can be identified with a thorough visual assessment (see **Figure 1**). If looked at in isolation, symptoms (see **Figure 1**) may not flag up the issue of dehydration, but if the patient exhibits two or more of these symptoms the

possibility of dehydration should be raised so that appropriate levels of additional fluid can be considered. Many suggestions have been put forward recommending adequate levels of fluid intake ranging from 1.5 litres to three litres per day.^{14, 2, 15} The appropriate amount for an individual will depend upon their height, weight, level of activity, as well as their surrounding temperature and possible fluid losses.

Assessment

The Care Quality Commission,¹⁶ in their recent review of hospital care, found that in one hospital some patients needed to be prescribed 'water' just to ensure they received it. Their damning reports indicated that vulnerable patients who are able to drink orally are, in some cases, being denied access to adequate hydration.

Contributory factors to the development of dehydration may include:

- A deterioration in cognitive abilities, e.g. ageing, confusion, dementia
- Changes in functional ability, e.g. the ability to safely hold a glass or mug and raise it to the mouth; deterioration in the ability to swallow
- Regular administration of medication, such as laxatives, diuretics or hypnotics
- The inability to swallow their own saliva (as this is fluid that would normally enter the digestive system)
- An increase in fluid requirements due to increased losses, e.g. burns, high output stomas.

Fluid administration

Where oral intake of fluid is suboptimal, one method of ensuring the most vulnerable patients receive hydration is that of enteral tube feeding. This can be an effective method of delivering nutrition, hydration and medication into the gastrointestinal tract. This is achieved by using a tube either via the nasal, gastric or jejunal route.¹⁷ This type of intervention can be supplementary (in addition to eating and drinking) or provide full support (where the individual takes nothing by mouth). When patients commence enteral feeding, they often commence slowly, usually either by pump feeding (using a machine to infuse an amount over a period of time, such as 25mls per hour) or using a bolus method (50-100mls using a

Figure 1: Signs and Symptoms of Dehydration

The patient may complain of /display some or all of the following:

- Thirst
- Headache
- Dry mouth and lips
- Tiredness
- Feeling dizzy or lightheaded
- Passing small levels of dark coloured concentrated urine infrequently
- Dry sunken eyes
- Fragile skin
- Confusion

syringe, gravity and increasing volume). The individual may often be given supplementary fluids either intravenously (IV) or subcutaneously (SC) whilst their regime of enteral feeding gradually increases. This may then reduce their need for supplementary fluid support, phasing the IV or SC fluids out completely. What is important is that the patient is allowed to build up their nutrition requirements at a sensible rate enterally before supplementary fluid support is removed. The enteral feed itself will contribute towards the patient's daily fluid requirements. If additional fluid is required in relatively large amounts, 200-300mls of fluid can be administered fairly easily via the enteral feeding tube. It is more convenient, less restrictive and carries fewer risks, while negating the need for the reinsertion of a subcutaneous or peripheral cannula.

The method chosen (pump/bolus) will depend upon the patient's medical condition, their fluid requirements, level of activity and ability to safely administer fluid requirements into the gastrointestinal tract.

The type of water used will depend upon the location of the feeding tube and local policy. The general rule is that for patients who are not immuno-compromised and who have an enteral feeding tube that sits in the stomach, e.g. a nasogastric tube or gastrostomy tube, cooled boiled water or freshly drawn tap water should be used.¹⁸

For those patients who are immuno-compromised, sterile water should be used. Sterile water should also be used for patients with a feeding tube that sits in the small bowel, e.g. nasojejunal tube, PEGJ or surgical jejunostomy.

A dietitian will calculate a patient's nutritional and fluid requirements on an individual basis. However, it is worth remembering that the patient's requirements may change. If the patient's general condition changes, e.g. they develop a pyrexia, their fluid losses increase, or their level of activity changes, then their fluid requirements are likely to rise. As we would increase the level of fluid we drink in such situations it is important for nursing staff to recognise the need to increase the level of fluid administered to the patient with an enteral feeding tube, even in the absence of a formal dietetic review.

In the stable patient, one indicator of their hydration level will be the concentration of their urine. In a patient who is adequately hydrated, urine should be straw coloured. If the patient complains of thirst, or their urine is dark yellow/brown in colour, they probably require additional fluid. It is essential that nurses act upon this as they would for patients who are consuming fluid orally.

The patient's regimen should be monitored to ensure all feed and water flushes are being given as sometimes individuals or their carers may be concerned regarding urinary incontinence, and periodically reduce water flushes as a means of managing this. This is where accurately completed fluid balance charts become very important in the monitoring process.

It is not sufficient for nursing staff to administer the regimen blindly. If they identify that a patient in their care is becoming dehydrated through the delivery of insufficient fluid or an increase in fluid losses they have a responsibility to act.

Mouth care

Oral hygiene is important and should be performed even if a patient is taking nil orally. Their mouth may still feel dry, particularly if they are mouth breathing or receiving oxygen. Regular tooth brushing with toothpaste should be encouraged. This is effective in removing plaque and preventing tooth decay. The use of mouth swabs will not clean teeth or remove plaque effectively, they will merely moisten the mouth. If a dry mouth is a problem rinse regularly with water, if safe to do so. Artificial saliva, an ice-cube, pineapple juice, or frozen fruit juice may also be helpful.

Conclusion

Although hydration has not always been given the same level of recognition as nutrition, it is probably more important physiologically in the short-term because of the rapid onset of symptoms the patient may experience. Nurses have a responsibility to ensure that enterally fed patients' fluid and nutritional requirements are met. This should be in accordance with not only their documented regime, but also in relation to their ever changing clinical condition and nursing assessment.



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