Hydration in Adults on Enteral Feeding

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Introduction

Recent years have seen an increasing focus towards the problems of malnutrition in patients in both hospital and the community. Guidelines have sought to improve the practice of nutritional support so that malnutrition is recognised and treated by the best form of nutrition support at the appropriate time in all care settings. This has been driven by the fact that it has been estimated that malnutrition affects over three million people in the UK, with approximately 1.3 million being over the age of 65,[1] and an associated cost of over £13 billion.[1]

However, from a national perspective, little is currently known about hydration practices in particular, in relation to patients totally reliant on enteral tube feeding. This is surprising when we bear in mind that in 2010 it was estimated that there were over 48,700 patients being enterally fed at home in the UK (31,776 adult and 16,986 paediatric).[2]

The findings of a recent survey of BAPEN, PEN Group and National Nurses Nutrition Group (NNNG) members, which were presented as a poster session at the ESPEN Congress (Barcelona, Sept 2012), suggest that there is now a need for attention to be extended beyond nutrition and given to hydration practice in the UK, particularly for those patients who are on enteral tube feeding. This need is further supported by comment in recently published articles from two prominent UK-based Nutrition Nurse Specialists, Wilson and Best, who, when discussing hydration, stated: *'The emphasis over recent years in ensuring patients receive adequate nutrition may have had the impact of inadvertently contributing to the most basic essential component for life being forgotten or sidelined.'* [3]

This article summarises the results of the survey, highlights the need to develop simple tools to assist staff in determining fluid requirements and highlights the need to develop practical solutions to deliver water to adult hospital patients in general and to those on enteral tube feeding.

Survey methods

An online survey was developed in association with BAPEN and the PEN Group of the British Dietetic Association (BDA). Members of the Associations, as well as members of the NNNG and other specialist groups of the BDA with a professional interest in clinical nutrition (such as NAGE and GSG), were invited to complete the survey during July 2012. The survey was designed with closed questioning where possible, to assess if there were any differences between hydration practices in all patients and those enterally fed. Questions included:

- What guideline(s), if any, do you use for hydration?
- Who is responsible for administering the guideline(s)?
- What is the current recommendation for fluid intake per day?
- How do you identify patients 'at risk' of dehydration?
- How would you identify if a patient on enteral feeding is dehydrated?
- What method do you use to give fluid to a patient solely dependent on enteral feeding?
- What practical challenges do you face when giving water via the enteral route?

Survey findings

More than 1500 professionals were invited to participate, 429 completed the survey – a response rate of 28 per cent. More than two thirds (72%) of respondents were hospital based. The breakdown of respondents by professional type is shown in **Figure 1**. The majority (57%) had been qualified for more than ten years, and 41 per cent were members of their nutrition team where this applied. These factors suggested the respondents included a significant number of experienced healthcare professionals.

When asked about hydration guidelines, less than a third (31%) of respondents stated their Trust had guidelines to ensure patients are adequately hydrated, and less than a quarter (20%) had specific hydration guidelines for patients on enteral tube feeding – **see Figure 2**. When asked how much fluid is recommended by the guidelines in place (where guidelines existed), only 32 per cent of respondents provided an answer. Of these, the majority stated that 30-35 mls/kg body weight per day was recommended.

Answers to questions asking who was responsible for implementing general hydration guidelines, and guidelines specific for patients on enteral tube feeding are illustrated in **Figure 3.**

Whilst the responsibility for the implementation/adherence to hydration guidelines for patients in general is spread evenly across the various stakeholder teams, the responsibility shifts substantially towards the dietetic team in patients on enteral tube feeds.

Respondents were asked to indicate what methods they would use to assess if a patient on an enteral feed was considered dehydrated. The three main methods stated were urine output/colour (90%), closely followed by fluid balance chart (87%) and biochemical markers (87%). Interestingly, clinical examination such as talking to the patient and assessing their skin, mouth and other signs, was lower at 64 per cent – **see Figure 4.**

Amongst patients on enteral tube feeding in need of additional fluid (particularly in the acute setting), virtually all (99%) respondents appeared to rely initially on the IV route and few specified that the enteral tube is utilised. When water is administered through the enteral tube, by far the most common method of administration was via a manual flush (67%), usually pre or post medication, with only 16 per cent reporting that they used a pump – **see Figure 5.**

Figure 1: Survey Respondents

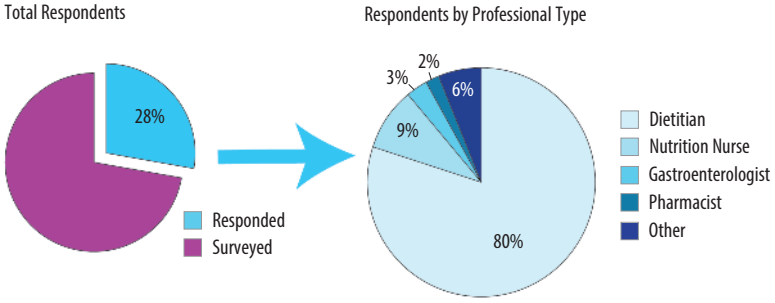


Figure 2: Hydration Guidelines

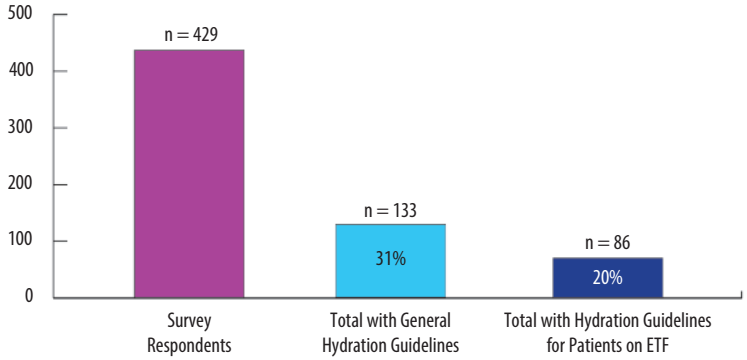


Figure 3: Guideline Implementation

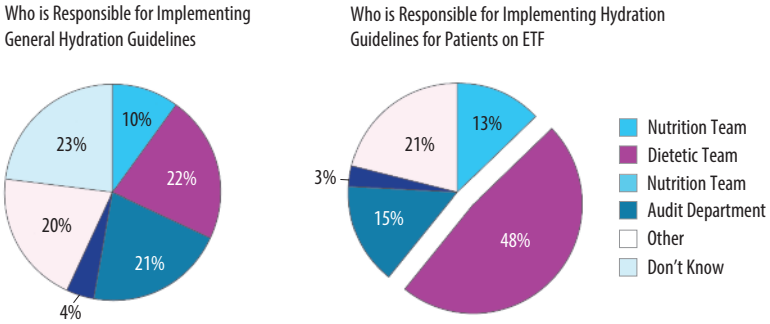
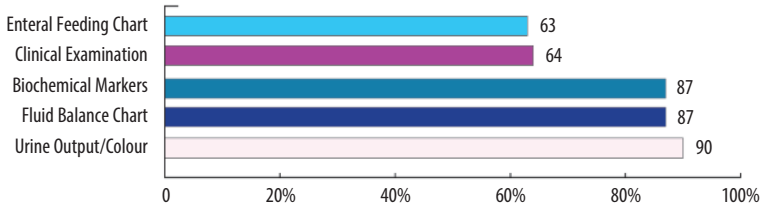


Figure 4: Methods Used to Assess Dehydration in Patients on Enteral Tube Feeding (option to select more than one answer)



The survey also explored the practical challenges faced when giving water to patients via the enteral route. The main challenge reported by over half (55%) of respondents was available nursing time, with fitting around the patients feeding regimen/medication the second biggest challenge – **see Figure 6.**

The side effects of dehydration, according to level of clinical concern, are highlighted in **Figure 7.**

Discussion

The provision of adequate fluid (and nutrition) is considered a core fundamental element of patient care, yet these results demonstrate improvements in hydration policies are required. The findings suggest a need for cross-disciplinary education and empowerment to encourage consideration of the enteral tube route as part of normal hydration practice rather than an over reliance on IV fluids. This recommendation was also made by Best and Wilson.[4] The 'releasing time to care' programme of work for frontline nurses has had widespread adoption in the NHS, so it is interesting that respondents reported lack of nursing time as a key barrier. When water is administered through the enteral tube, by far the most common method of administration was via a manual flush (67%), usually pre or post medication, with only 16 per cent reporting that they used a pump – **Figure 5**. Further work is required to determine if the administration of fluid via a pump is more efficient for nurses and more acceptable to patients.

The majority of healthcare professionals are aware of the dangers of dehydration and few nurses would actively deny their patients water, yet the provision of adequate fluid does not always translate into routine clinical practice. Dehydration has an enormous impact on avoidable harms, for example, pressure ulcers, falls and urinary tract infections in patients with catheters and mortality, yet we continue to fail to manage hydration well.

There may be a case for developing national guidelines on hydration, but this is difficult to determine given the absence of a strong evidence base. There is, however, definitely a need for the development of a consensus document around what constitutes good basic hydration care for hospitalised patients, focusing on doing simple things really well, and recognising that patients in different settings (critical care, medical wards, community settings) have different needs. A good example of a model for this multidisciplinary, multi-stakeholder approach is provided in the 2007 Council of Europe Resolution on Food and Nutritional Care in Hospitals. This document sets out the 10 key characteristics of good nutritional care in hospitals, and was supported by an implementation toolkit. The document is being updated, which affords an opportunity to give equal weight to both nutrition and hydration, outlining which patients to assess, how to assess them, and assign responsibility for care. The focus of this document is on the whole spectrum of hospitalised patients, and it stresses that the same principles would also apply to enterally fed patients.

Conclusions

Ensuring that hospitalised patients under our care receive enough fluid to maintain their health is a core element of clinical care. Yet, this element of care is one that is frequently overlooked, whether due to the high demands on healthcare professionals, or because of poorly designed systems and unclear lines of clinical responsibility. Most patients with an enteral tube will have been through a traumatic experience, for example, a neurological condition, trauma or head and neck cancer. As healthcare professionals we must do everything we can to ensure that our patients, many of whom are frail and vulnerable, receive the best possible care. High quality clinical care should never be compromised by denying patients adequate fluid.

Figure 5: Methods Used to Administer Water to Patients on Enteral Tube Feeding

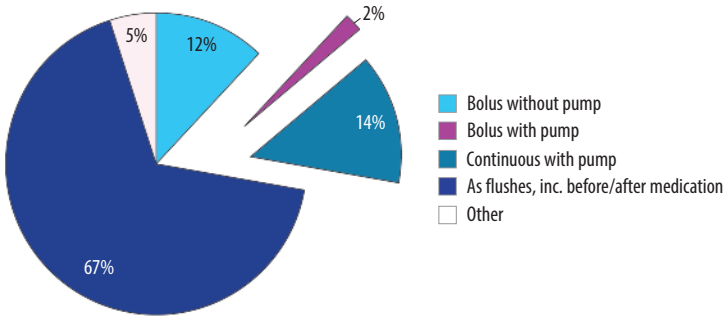
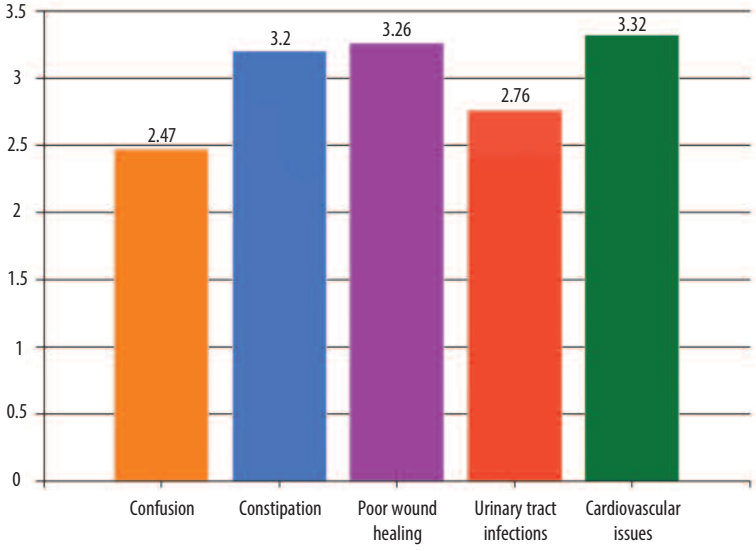


Figure 6: Practical Challenges Faced when Giving Water via Chosen Method (ranked in order of most challenging first)

- Available nurses/nursing time
- Fitting around feeding regimen/medication
- Knowledge levels of those administering
- Equipment difficult to use
- Equipment not available

Figure 7: Dehydration Side Effects of Greatest Clinical Concern (1= greatest concern; 5 = least concern)



References: **1.** Elia M, Russell CA (eds) (2009). Combating Malnutrition; Recommendations for Action. A report from the Advisory Group on Malnutrition, led by BAPEN. Redditch: BAPEN. **2.** Annual British Artificial Nutrition Survey Report 2011, BANS a committee of BAPEN. **3.** Best C, Wilson N. The Importance of Hydration in the Enterally Fed Patient. Complete Nutrition; 11(3): 37-39. **4.** Wilson N, Best C. Is Nasogastric Tube Intubation an Alternative Method to Intravenous Fluid Replacement for Dehydration? Complete Nutrition; 11(6): 21-23.