

Supplementary hydration and nutrition is often needed for people with acute stroke. Dehydration is a predictor of poor outcomes including discharge to long term-care

Dehydration in stroke patients admitted to hospital

Many people with acute stroke are unable to swallow safely, and may require supplementary hydration and nutrition.

Dehydration after stroke increases the risk of venous thromboembolism and is associated with poor outcomes (Kelly et al, 2004). Dehydration can be detected with biomarkers of reduced blood water, most commonly using urea:creatinine (U:C) ratio and plasma osmolality.

The advice is that the National Institute for Health and Clinical Excellence (2008) recommends that all people with acute stroke should have their hydration assessed on admission, reviewed regularly and managed so that normal hydration is maintained.

New evidence

A Scottish study examined clinical data from stroke patients in two prospective hospital registers with routine blood urea and creatinine results to determine the frequency of dehydration, risk factors and associations with outcomes at hospital discharge after stroke (Rowat et al, 2012).

A total of 19,503 ratio blood tests were measured on 18,812 days in 2,591 patients. Dehydration was defined by a blood U:C



Stroke patient being given blood test

ratio (mmol:mmol) >80 and ≤ 80 . Blood tests showed that within one day of admission, 927 (36%) patients were dehydrated and 1,606 (62%) were dehydrated at any stage during their hospital stay. Independent risk factors for dehydration included older age, female gender, total anterior circulation syndrome and prescribed diuretics.

Discharge information was available for 2,549 patients. Of these, 687 of 1,580 with dehydration at some point during their hospital stay died in hospital or were discharged to institutional care, compared to 177 of 969 patients who were hydrated.

The researchers concluded that dehydration is common in patients admitted to

hospital following a stroke and is associated with severe stroke and poor outcomes at hospital discharge. They suggest that focusing on interventions to reduce the frequency and duration of dehydration have the potential to improve patient outcomes after stroke. **NT**

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BOX 1. COMMENTARY: RESEARCH

By Professor Caroline Watkins, professor of stroke and older people's care, and school director of research at the University of Central Lancashire.

This study – using an accepted definition of dehydration, the limitations being acknowledged by the authors – shows us the proportion of patients admitted with and without dehydration on admission to hospital (a quarter to a third of patients).

It also shows that, despite being in hospital, and the majority of people being managed by specialist stroke teams on acute stroke units, a significant propor-

tion of patients became dehydrated during their hospital stay.

Those who were most at risk were more dependent patients – those who were older, and those with more severe strokes and requiring parental or enteral supplementation of their fluids. The people who were relying on staff to ensure adequate intake seemed most at risk of dehydration. Dehydration was a predictor of institutionalisation and death.

Although guidelines encourage maintenance of hydration, and encourage the appropriate use of parenteral and enteral feeding, there is limited evidence

on what works for whom in what circumstances to guide care.

In addition, despite the known limitations of existing measurement methods and a lack of a robust definition of dehydration, there is a dearth of research addressing these issues.

This new research, which adds to research demonstrating the difficulties of delivering recommended amounts of fluids, and the feasibility of monitoring actual intake (Watkins et al, 1997), will support future trial design. The impact on patient outcome, particularly if it reduces institutionalisation, gives the potential for significant cost savings.