Recognising and preventing dehydration among patients

Water is our primary and most important nutrient. It makes up approximately two-thirds of our body. We need to maintain a healthy level of body water content by regularly drinking enough to replace the natural water loss filtered by the kidneys, in the form of essential healthy urine production to remove waste products. Insufficient water leads to dehydration, which is the underlying cause of many common conditions including: constipation; falls; urinary tract infections; pressure ulcers; malnutrition; incontinence; and confusion. Dehydration can also lead to life-threatening conditions, such as acute kidney injury, cardiac disease and venous thromboembolism.

Understanding thirst

The sensation of thirst is the body’s way of prompting us to drink to replace fluid loss to maintain adequate hydration levels. This “thirst response” is a complex negative hormonal feedback system controlled by osmoreceptors in the brain that monitor sodium levels, along with baroreceptors in the great blood vessels that detect changes in blood volume and pressure.

When the body loses more water than it consumes, the sensation of thirst is triggered and an antidiuretic hormone is released instructing the kidneys to reduce urine output. When hydration is restored, sensation of thirst disappears and the kidneys are instructed to release more water (Begum and Johnson, 2010).

The natural ageing process reduces the effectiveness of the “thirst response”. This explains why older people often do not feel thirsty, sometimes forgetting to have a routine drink, those with dementia being particularly vulnerable. Therefore anyone over 65 years should be considered at increased risk of dehydration (Mentes, 2013).

Recommended intake of water

On average, healthy kidneys produce 1,500ml of urine a day to remove waste products, so adults are recommended to drink at least this amount in the form of pure water or hot and cold drinks (British Dietetic Association, 2012).

However, many people may need to drink as much as 2.5-3l, depending on the environmental temperature, level of exertion, sweating, body size or other types of fluid loss from wounds, drains, stomas, diarrhoea and vomiting, or blood loss. In more specific terms, water intake is sometimes calculated in relation to body weight, at 30-35ml/kg; this same calculation is used to reflect a healthy hourly urine output.

There is evidence that some people can remain adequately hydrated on less than 1,500ml, but this is dependent on a good food intake and a sedentary lifestyle (Lecko and Best, 2013; Begum and Johnson, 2010).

Detecting dehydration

Early signs of dehydration include:

- Thirst sensation;
- Dry mouth;
- Headaches;
- Reduced concentration;
- Darker, more concentrated urine.

If fluid intake is not increased the symptoms will worsen and moderate dehydration will develop.

Signs of moderate dehydration

- Reduced urine output, increasingly darker colour and stronger odour (Mentes, 2006);
- Increasingly dry mouth, cracked lips;
- Dry eyes due to reduction in tears;
- Lethargy and increased sleepiness;
- Mild or increased confusion;
- Irritability and agitation;
- Worsening constipation;
- Dizziness due to postural hypotension (drop of systolic BP by 20mmHg), often resulting in falls;
- Sunken eyes;
- Unexpected reduction in wound exudate;
- Reduced skin elasticity/turgor.

If not recognised and corrected through increased oral fluid intake, the circulating volume will become so low that the patient will eventually develop hypovolaemic shock caused by acute dehydration.

Signs of acute dehydration

- Low systolic blood pressure (100mmHg or less);
- Rapid, thready pulse;
- Increased respiration rate;
- Cold extremities;
- Reduced capillary refill time due to peripheral shut-down;
- Hyper or hypo delirium (agitation and severe confusion or conversely increased sleepiness and reduced responsiveness);
- Reduced conscious level;
- Greatly reduced urine output (oliguria).

Acute dehydration is a medical emergency requiring intravenous fluid replacement and close monitoring of blood pressure ulcers; confusion; reduced responsiveness;

Nursing Times Learning has launched a new unit on hydration, which discusses how to recognise signs of dehydration and ensure patients receive adequate oral hydration.
Preventing dehydration

Nurses should be familiar with the recommendations outlined in the Francis report (2013), which highlights the need for proper records to be kept of the food and drink supplied and consumed by older patients. A fluid balance chart should be started for patients who are catheterised, supported by clear guidance. Accurate documentation of oral intake and urine output provides essential evidence on a carer for access to oral fluids is a key risk factor for AKI. This emphasises the importance of assessing:

- Patients’ ability to hold and lift a cup safely to their mouth;
- The level of encouragement and prompting needed to drink.

It also highlights the need for adequate staffing levels to ensure all patients receive adequate support to drink in order to reduce avoidable harm caused by lack of essential nursing hydration care.

Early Warning Scores (EWS) should always include review of urine output, as well as highlighting changes to vital signs; this will better support nursing and clinical staff to exclude or identify dehydration as the underlying cause. Nurses should lead by example, taking every reasonable opportunity to encourage hydration and acknowledging and valuing best practice within their team. The following measures ensure optimal fluid intake and management:

- Include in every staff handover a review of patients’ hydration status and the level of support needed to eat and drink;
- Ensure patients’ preferred choice of drinks and food are available at all times, and offer appropriate assistance and encouragement, drinking equipment and social interactions;
- Offer timely contingency support;
- Raise awareness among the care team, patients and their families about the importance of hydration, providing enhanced education.

Nurses must ensure all staff, including healthcare assistants and cleaners responsible for clearing dirty cups or unfinished drinks, are made aware of the importance of accurate documentation and provide them with information about the volume of all drinks containers.

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References


TEST YOUR KNOWLEDGE

Can you answer these questions? To check whether you are correct, go to our learning unit at nursingtimes.net/hydration

1. What does water do in the body?
   A. Enables all essential components, including oxygen and nutrients, to reach the inside of cells to create energy
   B. Controls body temperature
   C. Supports auditory function and reduces deafness
   D. Removes waste products from inside the cells
   E. Maintains an adequate blood pressure
   F. Lubricates joints

2. What is the recommended minimum daily amount that adults should drink to avoid dehydration?
   A. 500mL – any less and they will start to show signs of dehydration
   B. 1,000-1,200mL (5-6 cups) – this replaces all urine and insensible loss
   C. 1,500-1,600mL (6-8 cups) – this replaces the average amount of water loss as urine, which the kidneys need to produce each day to remove waste products
   D. 2,000-2,500mL – this ensures adults of any age and weight have enough to replace all fluid loss

3. How much fluid is lost through breathing and evaporation of the skin per day?
   A. 100-200mL
   B. 200-400mL
   C. 400-600mL
   D. 600-800mL

4. What are the signs of dehydration? Tick all that apply
   A. Dry mouth
   B. Constipation
   C. Reduced urine output
   D. Pinprick pupils
   E. Reduced skin elasticity
   F. Lethargy