

Pass the water (answers on page 44)

Part one

Jerome, a 37-year-old healthcare assistant, came to see his doctor because, around 3 weeks before, he had become very thirsty and was passing much more urine, much more often, than normal. The change had been abrupt – the symptoms were new to him: he had enjoyed good health and a fit and active lifestyle until then. He felt well, apart from the inconvenience of getting up several times a night to micturate. He estimated that he was drinking around 2 litres of water (including two or three cups of tea and coffee) more than before.

He had no past history of significant illnesses, had not lost weight, there was no change in his bowel habit, and he was taking no prescription drugs or herbal remedies. There was no family history of diabetes or of kidney disease.

- Q1 Sudden onset of polyuria and polydipsia may have several causes, among which the commonest is diabetes mellitus. However Jerome does not seem ill. How many of the following causes of polyuria does his apparent good health and absence of other symptoms rule out?**
- Diabetes mellitus.
 - Hypercalcaemia.
 - Hyperthyroidism.
 - Chronic renal failure.
 - Primary polydipsia.
 - Diabetes insipidus.

Part two

- Q2 Jerome is not taking any medication, so his polyuria is not drug-induced, but which of the following drugs has been linked most commonly with initiating polyuria?**
- Diuretics.
 - Betablockers.
 - Vitamin D supplements.
 - Caffeine-containing analgesics.
 - Lithium.

Part three

- Q3 Having examined Jerome you find he has a regular heart rate of 70 beats/minute, his blood pressure is 120/75 mmHg, and his chest and abdomen are free of any clinical signs. He has a body mass index of 22, his weight having been steady for years. Which of the following investigations do you, as his general practitioner, undertake?**
- A 24-hour fluid balance chart.
 - Urinalysis.
 - Random blood glucose test.
 - Blood urea and electrolytes.
 - Urine specific gravity.

Part four

- Q4 The fluid balance chart shows that he is actually drinking 3 litres of extra fluids a day over and above that in his meals, so you pass him on to the endocrine department. There it was found that his urine had a very low specific gravity (below 1.005) and that his renal function and blood calcium and potassium levels were normal. Plasma osmolality at 325 mmol/kg was high (normal range is 280–295) and urine osmolality was low at 145 mmol/kg (normal between 300 and 900). Water deprivation had no effect on the urine osmolality. Which of the following possible diagnoses did these test results rule out?**
- Diabetes mellitus.
 - Primary polydipsia.
 - Primary renal disease.
 - Diabetes insipidus.
 - Pituitary tumour.

Part five

- Q5 Jerome was given desmopressin by nasal spray which led to an increase in urine osmolality. Which of the following further tests did the endocrinologist order?**
- Antidiuretic hormone levels.
 - CT scan of the head.
 - MRI scan of the head.
 - Pituitary hormone levels.
 - Autoantibody screening.
 - None of the above.

Jerome recovered well with simple treatment, which he takes once a day. His urine flow is now normal and he no longer has nocturia. Every few months his doctor checks his blood sodium levels and plasma osmolality to make certain that he is maintaining a correct fluid balance.