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***Please read this bit first***

The HPCSA and the Med Tech Society have confirmed that this clinical case study, plus your routine review of your EQA reports from Thistle QA, should be documented as a "Journal Club" activity. This means that you must record those attending for CEU purposes. Thistle will **not** issue a certificate to cover these activities, nor send out "correct" answers to the CEU questions at the end of this case study.

The Thistle QA CEU No is: **MT00025.**

Each attendee should claim **THREE** CEU points for completing this Quality Control Journal Club exercise, and retain a copy of the relevant Thistle QA Participation Certificate as proof of registration on a Thistle QA EQA.

# August 2008

## Hyponatraemia

### Case presentation

A 72-year-old woman of slight build who lived on her own was found unconscious at home. On admission she was semi-conscious and found to have a left hemiparesis consistent with a cerebrovascular catastrophe. Her supine blood pressure was 140/90 mm Hg, her pulse rate, 82 per rate minute, and her state of hydration 'adequate'. She was a known hypertensive and had been on chlorothiazide therapy (500 mg three times daily) for the past eight months.

The admission plasma electrolyte concentrations revealed a combined hyponatraemic and hypokalaemic state. A spot urine sample was also forwarded to the laboratory for electrolyte determinations. Her admission plasma and urinary electrolyte, urea and creatinine values were:

| **Plasma** | | | | **Urine** | | |
|---|---|---|---|---|---|---|
| Na | 128 | mmol/L | (132-144) | Na | 46 | mmol/L |
| K | 2.4 | mmol/L | (3.2-4.8) | K | 54 | mmol/L |
| Cl | 83 | mmol/L | (98-108) | Creat | 11.4 | mmol/L |
| $HCO_3$ | 36 | mmol/L | (23-33) | Osmo | 638 | mmol/kg |
| Urea | 11.6 | mmol/L | (3.0-8.0) | | | |
| Creat | 120 | µmol/L | (60-120) | | | |
| Osmol | 265 | mmol/kg | (275-295) | | | |

The admission biochemical values suggests that the patient was possibly mildly dehydrated.

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**Final diagnosis**

*Hyponatraemic dehydration secondary to diuretic therapy*.

Therapy was switched to intravenous physiology saline ([Na]) of approximately 150 mmol/L at the about three litres in the first twenty-four hours followed by the two litres in the next twenty-four hours. This was supplemented with potassium (~80 mmol/24 h). After forty –eight hours the plasma electrolyte values were: sodium 137 mmol/L, potassium 3.8 mmol/L, chloride 101 mmol/L, bicarbonate 25 mmol/L, urea 4.4 mmol/L, creatinine 0.06 mmol/L. Clinically the patient was well hydrated and there was no evidence of fluid overlaod ( during this period there was a positive fluid balance of some three litres).

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***CPD Questions:***

1. What are the commonest causes of hyponatraemia?
2. Why is the patient also hypolkalaemic?

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