University Hospitals of Leicester NHS
NHS Trust

An unusual case of confusion and hyponatraemia

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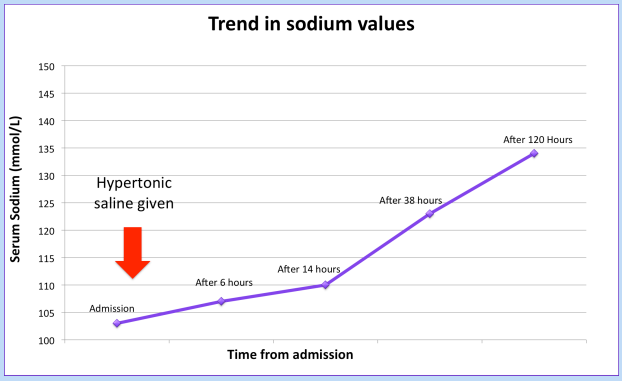
Case Presentation

73 year-old independent female presented with a GCS of 6/15 following a tonic-clonic seizure, preceded by three weeks of cough and thirst.
Past medical history was of TIA. Medications included Lisinopril & Bendroflumethiazide.
Initial investigations are outlined in the table:

Investigation	Results (1st admission)	Reference Ranges	Result (2nd admission)
Na	103	135-145	136
K	3.0	3.5-5.0	4.3
Serum osmolarity	222	282-295	Not repeated
Thyroid	Free T4: 3 TSH: 0.35	9-25 0.3-5.0	Free T4: 18 TSH: 0.95
Cortisol	>2000	n/a	Not repeated
CT Brain	Normal	n/a	Normal
Lumbar puncture	Elevated CSF protein 0.58; otherwise normal	0.1-0.45	Protein 0.5; no other abnormalities
EEG	Non-specific changes	n/a	Non-specific changes



Acute Management

- Controlled hypertonic saline commenced with slow correction of hyponatraemia
- Empirical anti-viral and antibiotic therapy given
- GCS improved to 14/15, but there was evidence of ongoing confusion initially
- Central pontine myelinolysis (CPM) was excluded by MRI brain
- Discharge arranged as patient now independent in her activities of daily living

Re-admission 5 Days Later

- Acute worsening of confusion, new paranoid delusions and emotional lability
- Repeat investigations: no metabolic abnormality (Na 136)
- Paraneoplastic and autoimmune encephalitis antibody serology requested
- Positive Voltage-Gated Potassium-Channel (VGKC) complex antibody titre
- Three days of intravenous Methylprednisolone was given
- Full cognitive recovery, allowing discharge home

Learning Points From This Case

- Hyponatraemia is the commonest electrolyte abnormality in clinical practice[4]
- Endocrinologists are increasingly asked to assess hyponatraemic patients
- Confusion is common with hyponatraemia, but reversible if the metabolic situation is corrected appropriately
- **This shows the importance of considering a diagnosis of auto-immune encephalitis once other causes of SiADH and cognitive impairment have been excluded**

Features of Encephalitis[1]

Presenting features
(1) Sub-acute (days – weeks) memory impairment
(2) Confusion
(3) Alteration of consciousness
(4) Seizures
CSF: variable (pleocytosis/protein/oligoclonal bands)
EEG: mediotemporal abnormalities
MRI: +/- mediotemporal lobe signal changes
Aetiology: Infectious, Paraneoplastic and, of increasing relevance, Autoimmune

VGKC-Complex Encephalitis[2,3]

VGKC complexes
Found throughout the brain
Important in restoring membrane potential
60% of patients with VGKC-Complex Encephalitis have hyponatraemia
CSF: usually normal
EEG: diffuse slowing with occasional epileptogenic foci
MRI: typically bilateral increased mediotemporal lobe signal BUT can be unilateral or normal
Tends to be very responsive to immunotherapy

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