

# Hypernatremia



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# Causes

- diabetes insipidus (lack of ADH or lack of renal response to ADH)
- diarrhea
- Vomiting
- Diuretics
- hypertonic saline
- sodium bicarbonate administration
- Cushing's syndrome.



# Treatment

- Do not correct  $\text{Na}^+$  concentration faster than  $1\text{mmol/L/hr}$ .
- Use 0.9% saline to correct hypovolaemia (patients who have tachycardia, hypotension, or postural hypotension).



# Treatment

- Once the patient is euvolaemic, use an infusion of 0.45% saline or 5% glucose. The *free water deficit* can be calculated using the formula:

Freewater deficit (L) =  $0.6 * \text{weight (kg)} * [(\text{serum Na} + / - 140) - 1]$

- Replace the deficit over 48hr (in addition to normal maintenance fluids).

Check serum Na<sup>+</sup> after 2–3hr to monitor correction rate.



# Complications

- Seizures
- subdural and intracerebral haemorrhages
- ischaemic stroke
- dural sinus thrombosis.
- Rapid correction of  $\text{Na}^+$  levels (particularly in chronic hypernatraemia) can cause cerebral oedema and further neurological complications.



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