Correcting Hypernatremia Cheat Sheet

Rule of Thumb: acute hypernatremia may be corrected more quickly, chronic hypernatremia corrected more slowly

Hypernatremia represents water deficit relative to sodium (Na^+), caused by conditions resulting in free water loss, hypotonic fluid loss, or sodium gain

Hypernatremia is abnormally high serum [Na^+]

Dog: > 155 mEq/L

Cat: > 162 mEq/L

Consider treatment when serum [Na^+]

> 170 mEq/L

or if clinical signs are consistent with hypernatremia

Clinical Signs

Brain cell shrinkage can occur due to water movement out of brain cells. Clinical signs include dehydration, lethargy, anorexia, vomiting, behavioral disorder, disorientation, muscular weakness, ataxia, seizure, coma, and death.

See the Vetpocket app for our amazing Sodium Correction and Fluid Therapy Calculators + Reference Material!

Treatment Guidelines

TREAT LIFE-THREATENING CLINICAL SIGNS FIRST.

Specific Fluid Therapy Treatment

- Typically, the goal is to slowly rehydrate the patient, and to decrease serum [Na^+] towards the high end of the normal [Na^+] reference interval (target [Na^+] = 155 mEq/L in dogs), at a rate of up to 0.5 to 1 mEq/L/hr depending on how rapidly the hypernatremia occurred
- Acute hypernatremia (=< 24 hours), may be corrected more quickly (up to 1 mEq/L/hr)
- Chronic hypernatremia (> 24 hours), needs to be corrected more slowly (up to 0.5 mEq/L/hr)
- The Adrogué-Madias formula is commonly used as a guideline for correcting dysnatremia: Change in Serum [Na^+] from Infusing 1 L of Fluids = (Fluids [Na^+] + Fluids [K^+] - Serum [Na^+]) ÷ (Total Body Water + 1), where Total Body Water = 0.6 × BW_{kg}
- See the Vetpocket app for our beautiful Sodium Correction and Fluid Therapy Calculators!
- Fluid infusate of choice is typically 5% dextrose in water (D5W) administered IV
  Caution: patients in hypovolemic shock to be treated using a fluid isotonic to their serum. Do not use a hypotonic fluid (e.g. D5W) to treat hypovolemic shock. Once hypovolemia has been addressed, treatment for hypernatremia may be started.
- If not contraindicated, measured hourly oral water may be supplemented
- In rare cases of sodium gain, a loop diuretic (e.g. furosemide 1 to 2 mg/kg PO or IV q 8 to 12 hr)

Supportive Care Considerations

- IV fluid therapy using a balanced electrolyte crystalloid to help maintain perfusion, correct fluid deficit, and correct electrolyte disturbances

Symptomatic Care Considerations

- Monitor and treat: vomiting, seizures, etc.
- Potential complications: cerebral edema is the primary complication when treating patients for hypernatremia, and can present as obtundation, behavior disorder, movement disorder, head pressing, seizures, coma, etc.

Monitoring MONITOR FOR FLUID OVERLOAD

- Monitor serum electrolytes initially every 1 to 2 hours, then every 2 to 4 hours pending clinical response. Adjust the fluid therapy plan as needed.
- Monitor clinical signs, particularly CNS status, continuously