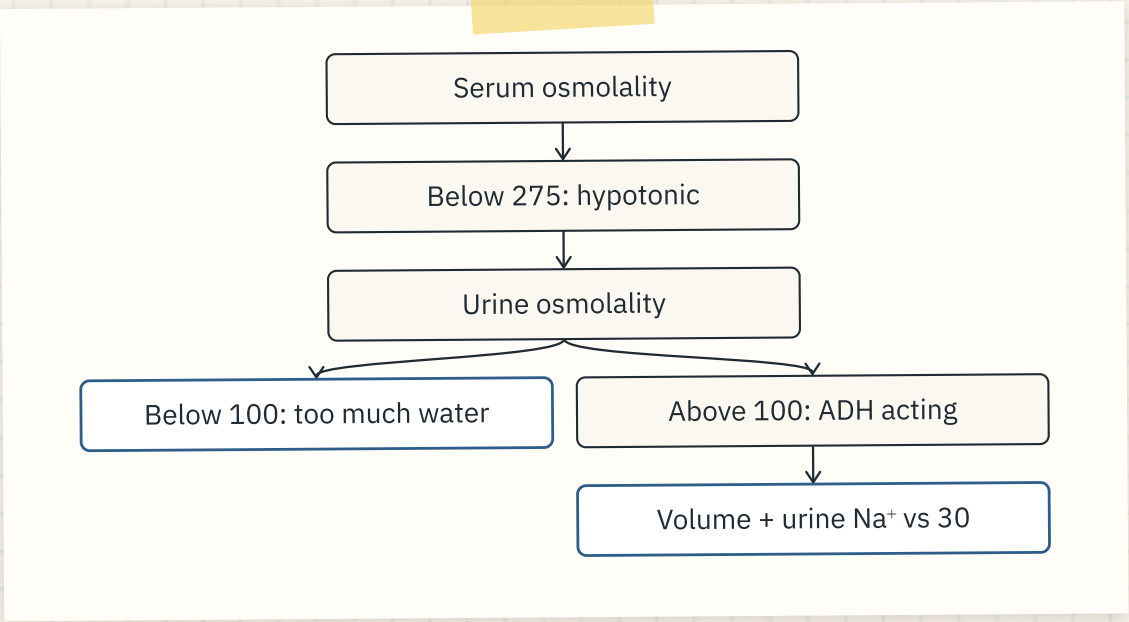
Hyponatremia in 3 questions

Serum osm, urine osm, then volume plus urine Na



Step by step

1. Serum osmolality below 275: true hypotonic hyponatremia
2. Normal osmolality: usually pseudohyponatremia; above 295: classically glucose
3. Urine osmolality below 100: too much water; above 100: ADH acting
4. Volume status plus urine Na^+ (cut-off 30) gives the cause

GLUCOSE EFFECT

Na^+ falls about 1.6–2.4 mmol/L per extra 100 mg/dL glucose

Use when a high glucose is lowering the measured sodium

Volume status	Urine Na^+	Usual cause
Hypovolemic	30 or less	Extrarenal loss (vomiting, diarrhea)
Hypovolemic	Above 30	Kidney loss (diuretics, adrenal insufficiency)
Hypervolemic	Low	Heart failure, cirrhosis, nephrotic syndrome
Hypervolemic	High	Kidney failure
Euvolemic	Above 30	Usually SIADH

Volume status and urine Na^+ (cut-off 30 mmol/L), ADH acting

Rule of thumb

Hyponatremia is mainly a water problem, not a salt problem

Cut-offs to remember: 275, 100, 30

Hook case: sodium 126, three different causes

Exam traps

- A normal serum osmolality is usually pseudohyponatremia (unless high urea or alcohol is raising it).
- Urine sodium is unreliable with diuretics, kidney disease and vomiting with alkalosis.
- A saline challenge helps hypovolemic patients, but SIADH does not improve and can worsen.

Hyponatremia workup: the three-question approach

Video, written lesson, practice question and sources: medservatory.com/usmle-step-2-ck/nephrology-electrolytes/hyponatremia-diagnostic-approach-osmolality-urine-sodium

For exam study only, not medical advice. Follow local guidelines and your lab's ranges.
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