



CASE STUDY - HYPONATREMIA

HISTORY

55 year old lady diagnosed with mesothelioma, admitted with nausea, vomiting, vague abdominal pain. She is increasingly fatigued.

Vomiting for past 3 days, no blood, non bilious. Poor appetite. Vague abdominal pain, mild 3/10. Ondansetron not helping.

h/o exposure to asbestos. Nil other significant PMH. Performance status at baseline = 0
Regular gym and swimming prior to illness.

Progressed on first line chemotherapy. Now on 3rd cycle of trial of immunotherapy (pembrolizumab). last treatment 1 week ago.

Meds: lansoprazole

Physical examination:

Looks tired. Dry mucous membranes
Chest clear, abdomen soft.
No peripheral edema

BP 90/60, HR 90, Temp 36.7, RR 18

Bloods:

Na+: 120 (severe hyponatremia)
K+: 4.9 (upper end of normal)
Cl - 112 (mildly raised)
Calcium = normal. Urea= normal, Creatinine normal.
pH = mild acidosis. (normal Anion gap)

Plasma osmolality = 270 mosm/L
Urine osmolality = 210 mosm/L
Urine sodium = 30 mEq/L

Clinical Reasoning

Approach to hyponatremia using flow chart.

- 1. Is this a neurological emergency - No
- 2. Possible causes on clinical review:

hypovolemia due to nausea and vomiting:	However, Urine sodium likely to be <20 due to intravascular volume contraction and hypovolemia. Also would expect to see hypokalemia due to gastric vomiting and metabolic alkalosis.
lansoprazole very rarely causes hyponatremia (no conclusive evidence despite large scale studies)	Unlikely cause or main cause
Other causes of hypoosmolar hyponatremia with high Urine Na?	SIADH? thiazide use? (not a regular medication), Endocrinopathies related to immunotherapy? Cerebral salt wasting? - CT head would help Renal salt wasting ? unlikely. Urine dip would help identify any obvious renal pathology. Urea and Cr normal.

Plan:

Trial of NaCl 0.9% to replace intravascular volume loss. 1 L given over 8-12 hours cautiously
Sodium monitored

Update:

Patient now well hydrated. Euvolemic.
Na improved to 127.
Urine dip - no blood, no glucose no protein.
CT head felt not necessary - no clinical evidence of head injury

Clinical picture remains not fully explained.
As Na showed mild improvement with NaCl - unlikely SIADH (diagnosis of exclusion in any case)

Next step: Any investigations missing?

Check Cortisol and T4 levels - BOTH RETURN VERY LOW!

Adrenal insufficiency can explain potassium level, non AG metabolic acidosis, and hyponatremia. This might have been precipitated by immunotherapy. Hyponatremia was likely exacerbated by hypovolemia due to nausea and vomiting. The clinical picture was consistent with adrenal insufficiency.

Management:

Check ESMO guidelines/liase with team and start IV steroids accordingly for suspected immunotherapy toxicity and wean

Discuss with endocrinology regarding plans for hydrocortisone replacement

Replace thyroid hormones ONLY after adequate steroid replacement (48 hrs).

eDAN

Patient improves and discharged on regular oral hydrocortisone, levothyroxine and with information about sick day rules. Referred to OP Endocrinology due to 2 organ endocrinopathy. Pembrolizumab to be reviewed at next clinic appointment, all further treatments currently suspended.