

Caution in Correcting Hyponatremia in Patients on Vasopressin

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Introduction

- ❖ Vasopressin is commonly used as a pressor agent in the treatment of septic shock.
- ❖ **Despite the frequent use of vasopressin, few cases of hyponatremia have been reported in association with its use.**

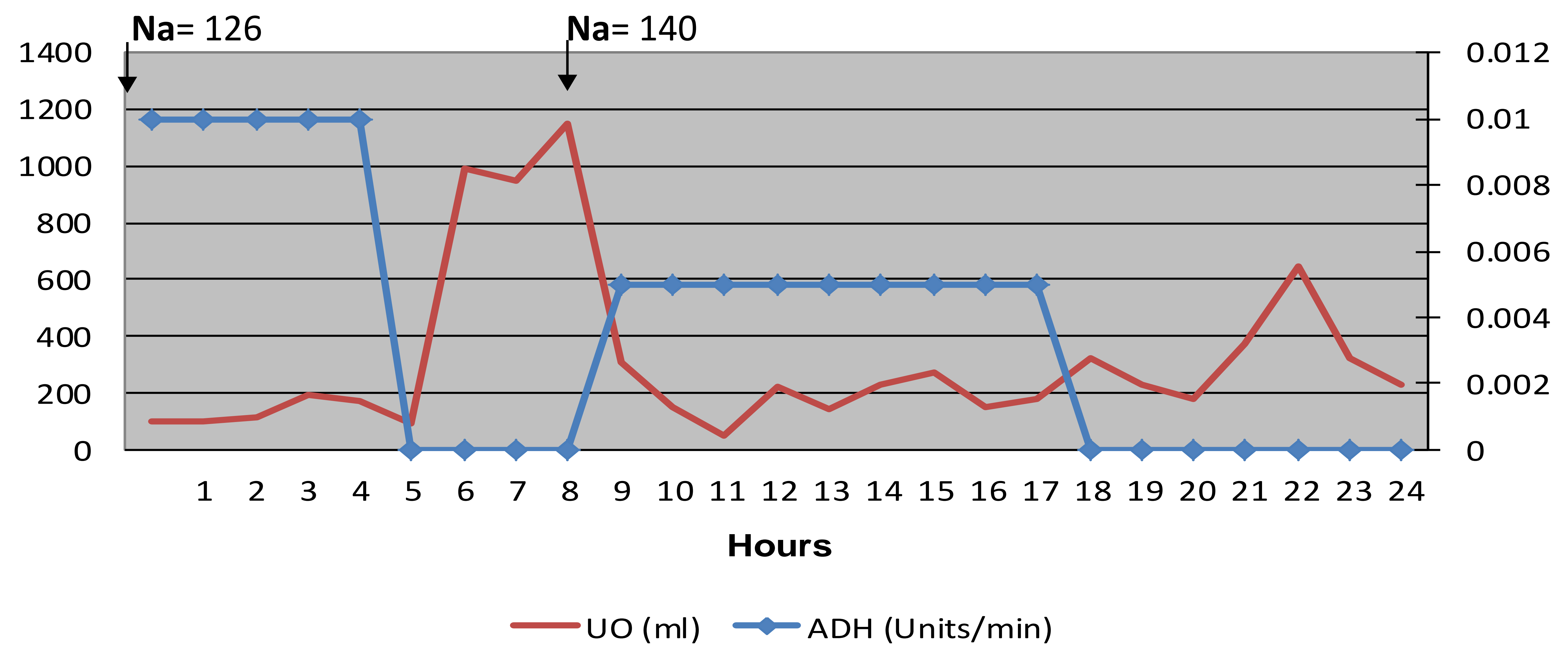
Case Presentation

- ❖ A 24-year-old male presented with status epilepticus requiring mechanical ventilation.
- ❖ The hospital stay was complicated by ventilator associated pneumonia and sepsis requiring vasopressin infusion to maintain his blood pressure.
- ❖ The patient developed hyposmolar hyponatremia (serum Na=126 mEq/L; serum osmolarity=265 Osm/L).
- ❖ Water restriction and discontinuation of vasopressin resulted in **polyuria** and an abrupt rise in serum sodium to 140 mEq/L, **mimicking diabetes insipidus**.

Discussion

- ❖ Vasopressin is synthesized in the hypothalamus and secreted by the posterior pituitary gland.
- ❖ It acts on the V1 receptors on the blood vessels to induce vasoconstriction.
- ❖ It also acts on the distal tubules and collecting ducts in the kidneys via V2 receptors to promote water reabsorption.

Relationship between Urine output (UO) and Vasopressin (ADH) dose



- ❖ Vasopressin is used in the management of septic shock at a maximum dose of 0.04 Units/min.
- ❖ The infusion of vasopressin at this dose or higher is associated with systemic side effects, mainly cardiac ischemia and arrhythmia.
- ❖ Vasopressin also may cause hyponatremia by inducing water reabsorption and hemodilution.
- ❖ In a retrospective review of 102 patients with septic shock on vasopressin, only one case of hyponatremia was reported.

Conclusions

- ❖ Although vasopressin frequently is used in the ICU, it is not frequently associated with electrolyte abnormalities.
- ❖ This case reminds us that **1) vasopressin is rarely associated with hyponatremia, and 2) abrupt discontinuation of vasopressin can result in a rapid and unexpected correction of the serum sodium.**

References

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