Proceeding

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Hyponatremic seizure associated with concomitant use of standard dose trimethoprim-sulfamethoxazole with a diuretic

Volume 4 Issue 2 - 2016

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Received: January 26, 2016 | **Published:** February 11, 2016

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Trimethoprim-Sulfamethoxazole (TMP-SMX) is an antimicrobial agent used to treat infectious disease pathogens.[1] Electrolyte abnormalities, primarily hyperkalemia and hyponatremia, are rare adverse effects reported with higher doses of trimethoprim use.[2] Paucity of data exists for similar effects in patients using standard doses of TMP- SMX,[3] with no previous reported case of trimethoprim induced hyponatremic seizure in the literature. We illustrate a case of severe hyponatremia and hyponatremic seizure in a patient on regular dose of TMP-SMX who was concomitantly using a diuretic.

A 64-year old hypertensive female taking Lisinopril-HCTZ (20-12.5mg) combination pill was started on TMP-SMX (160-800 mg) twice daily for left fourth toe blister. She presented to the emergency room four days later with fatigue, confusion, and a witnessed grandmal seizure. Physical examination, electrocardiogram, urinalysis, chest X-ray, and cranial computed tomography were unremarkable. Serum Na was measured at 119mmol/L (136-145mmol/L) compared to 131mmol/L last week prior to antibiotic use. Other labs included TSH 0.94U/L, glucose 109 mg/dl , K 3.9 (3.5-5.1mmol/L), SOsm 245mOsmL/kg (280- 303mOsm/Kg), BUN 10mg/dL (7-18mg/dl), SCr 0.9mg/dL (0.4-0.9mg/dL), BUN: SCr 11.1 (10.0-20.0) and creatinine clearance 52.2 mL/min using Cockcroft-Gault equation. Urinary indices showed UOsm 205mOsm/kg (50-800 mOsm/kg), UNa 22mmol/L, UCr 24.5mg/dL and FENa 0.7%. TMP-SMX and Lisinopril-HCTZ were discontinued. The patient received hypertonic saline. Serum Na gradually improved to 131mmol/L over 24 hours and the patient's confusion resolved without further seizures.

Trimethoprim, a heterocyclic weak base, structurally mimics potassium-sparing diuretics, and at higher doses causes natriuresis by blocking sodium reabsorption in the distal nephron.[4] Hyponatremia, while usually asymptomatic, can exert neurological sequelae. In our case, standard dose TMP-SMX lead to salt wasting and severe hyponatremia which manifested as seizure; its dose- dependent effect was perhaps potentiated by the concomitant use of a diuretic which can induce renal dysfunction and affect sodium and water hemostasis.

Acknowledgments

None.

Conflicts of interset

Author declare that there is no conflict of interest.

Funding

None.

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