International Clinical and Medical Case Reports Journal
Case Report (ISSN: 2832-5788)

Bactrim Induced Hyponatremia- A Case Report

Shravan Gangula

MD FAAFP- Coffeyville Regional Medical Center

Citation: *Shravan Gangula. Bactrim Induced Hyponatremia- A Case Report. Int Clinc Med Case Rep Jour. 2025;4(5):1-3.*

Received Date: 07 May, 2025; **Accepted Date:** 08 May, 2025; **Published Date:** 10 May, 2025

*Corresponding author: Shravan Gangula, MD FAAFP- Coffeyville Regional Medical Center

INTRODUCTION/ABSTRACT

Bactrim, which is a combination of trimethoprim and sulfamethoxazole, is a widely prescribed antibiotic and is used for treating a wide range of infections caused both by gram negative and gram-positive bacteria. Despite its effectiveness, Bactrim is associated with several adverse effects, one of which includes hyponatremia. Hyponatremia is an uncommon complication of treatment with trimethoprim-sulfamethoxazole (Bactrim).[1] Hyponatremia is less common with low-dose Bactrim and can occur in about 17.5% of patients. Bactrim induced hyponatremia is especially prominent in elderly patient's with other comorbidities like hypothyroidism, chronic kidney disease, history of being on thiazide diuretics.

We report a case of a 75-year-old female who presented with confusion and ataxic gait secondary to hyponatremia after she was treated with Bactrim for cellulitis.

Keywords: Bactrim; Antibiotic; Infections

CASE PRESENTATION

A 75-year-old female presented to the emergency department with symptoms of confusion, lethargy and ataxic gait. She had recently completed a 7-day course of Bactrim for cellulitis of her left lower extremity. The patient's past medical history is significant for well controlled hypertension and diabetes. Her medications included metoprolol tartrate 50 mg BID and Metformin 1000 mg BID. She was not on any diuretics. There was no evidence of any chronic kidney disease.

The patient's vitals were within normal limits. She was confused and was alert only to self. The patient had signs of mild dehydration evidenced by decreased skin turgor on exam. Laboratory investigations revealed a serum sodium level of 117 mmol/L, confirming the diagnosis of hyponatremia. The rest of the labs including a random cortisol level, serum aldosterone and TSH were within normal limits. Urine studies pointed out to SIADH as the cause for the hyponatremia.

Bactrim induced hyponatremia is typically treated with volume expansion with isotonic normal saline and discontinuing the offending drug. However, we used hypertonic saline for treatment of our patient as the patient had symptoms of confusion and gait ataxia associated with the hyponatremia. 3% normal saline was used as an infusion to target a serum raise in sodium of 4-6 meq/L in the first 6 hours. Bactrim was discontinued at presentation. This gradually increased her sodium levels and got her confusion better. Sodium was up to 127 mmol/L in 24hr's and the patient's mentation got back to normal. At this point of time, the hypertonic saline was discontinued and the patient was started on fluid restriction of 1500 cc/day. The patient was discharged in 72 hours when her serum sodium level was 135 mmol/L. She followed up for an outpatient transitional care management visit in 7 days when repeat blood work revealed that her sodium was up to 141 mmol/L. She has been advised to refrain from taking Bactrim in the future due to a high chance of having a recurrence of hyponatremia.

DISCUSSION

Hyponatremia is defined as a serum sodium level less than 135 mmol/L. It is a very common electrolyte abnormality but can be challenging to diagnose the etiology. Bactrim can induce hyponatremia through several mechanisms. Trimethoprim, one of its components, acts similarly to the potassium-sparing diuretic amiloride, leading to a decrease in sodium reabsorption in the distal tubules.[2] Additionally, sulfamethoxazole may interfere with renal function, exacerbating the electrolyte imbalance. Bactrim also blocks the aldosterone mediated sodium reabsorption in the collecting ducts causing hyponatremia.

Certain factors increase the risk of developing hyponatremia while on Bactrim therapy. These include advanced age, pre-existing renal impairment, and concomitant use of other medications that affect electrolyte balance.[3]

The primary goal in managing Bactrim-induced hyponatremia is to correct the serum sodium levels. In this case, our patient was treated with intravenous hypertonic saline and supportive care, resulting in gradual improvement of her symptoms and normalization of serum sodium levels. Bactrim was discontinued, and alternative antibiotics were prescribed for future infections.

CONCLUSION

Bactrim-induced hyponatremia is a rare but significant adverse effect that clinicians should be aware of, particularly in vulnerable populations. Prompt recognition and appropriate management are crucial in preventing complications associated with severe hyponatremia. This case report highlights the importance of monitoring electrolyte levels in patients receiving Bactrim.

REFERENCES

1. Revekka Babayev, Sofia Terner, Subani Chandra, Jai Radhakrishnan, Sumit Mohan. Trimethoprim-associated hyponatremia. Am J Kidney Dis 2013;62(6):1188–1192.

2. Ghali MGZ, Kim MJ. Trimethoprim-sulfamethoxazole-induced hyponatremia in an elderly lady with Achromobacter xylosoxidans pneumonia: case report and insights into mechanism. Medicine. 2020; 99(33):e20746.
3. Tony Antoniou, Tara Gomes, Muhammad M Mamdani, Zhan Yao, Chelsea Hellings, Amit X Garg, Matthew A Weir, et al. Trimethoprim-sulfamethoxazole induced hyperkalaemia in elderly patients receiving spironolactone: nested case-control study. BMJ. 2011;343:d5228.