In-SALT to Injury: Psychiatric management in severe hypernatremia

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Background

Severe hypernatremia, usually characterized as a sodium greater than 155 mmol/L, is a medical emergency with 30-day mortality rates up to 30-50% in some studies.[2] Psychiatric manifestations are rare but can complicate and worsen preexisting psychiatric symptoms, making management challenging. Generally, psychotropics are delayed until stability, but here, the patient's severe psychosis and depression were the primary contributors to her medical instability. This case showcases the patient's dramatic improvement with psychotropics and highlights the consideration of earlier psychiatric intervention.

Images

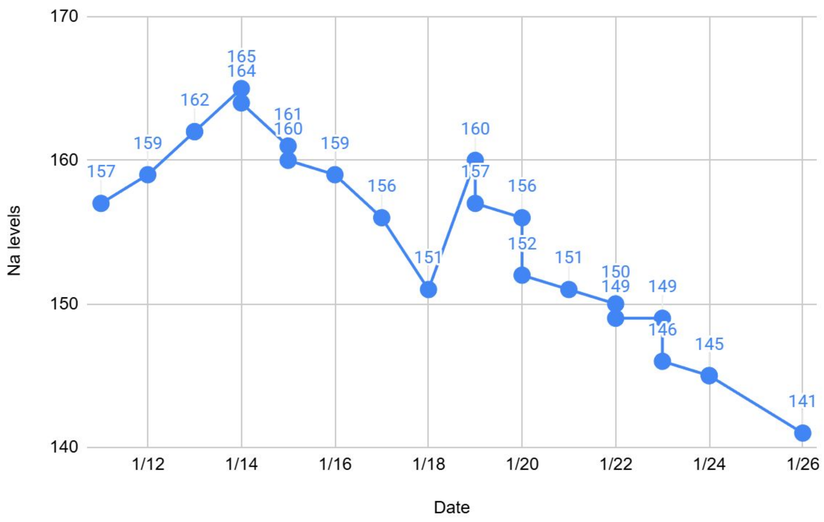

Figure 1. Trending Sodium Levels during her hospital stay on the medical floor

Case Presentation

A 68 y.o. female with a history of schizoaffective disorder bipolar type, generalized anxiety disorder, and hypertension presented to the hospital for **suicidal ideation** in the context of medication nonadherence, severe depression, and severe psychosis. **She refused to drink or eat a week prior to hospitalization as she believed that if she did so, a family member of hers would go from heaven to hell.** Upon ED arrival, she was found to have severe hypernatremia at 157 and was admitted to the medical floor with a psychiatry consult.

She was noted to be dysphoric, malodorous, distracted at times, and demonstrated increased speech latency. She was alert and oriented x4. **She made multiple suicidal statements** like wishing she was dead and asking multiple staff members to kill her in various ways like burning her alive or smothering her with a pillow. She was **paranoid and religiously preoccupied,** believing God is angry with her for not studying the Bible, believing she is going to Hell, believing God wants her to burn, and that a spirit is out to get her spine. **At one point, patient was afraid to walk on the floor because she was afraid she will "catch on fire."** She reported multiple depressive symptoms. She was nonadherent with her prescribed home medications of aripiprazole 10mg daily, mirtazapine 7.5mg nightly, and bupropion 150mg daily. Other medication trials include risperidone and escitalopram.

During the initial days of hospitalization, patient refused all medical care, including meals. Her **sodium** continued to uptrend to a peak of **165 mmol/L**. However, after psychiatry was involved, she was agreeable to start IVF and the following day, **haloperidol**. Due to high acuity of her psychotic symptoms, we increased by 5mg increments every day or two until **she reached 15mg bid**. Her sodium levels were resistant to treatment in part to her IV line needing replacement multiple times due to a distal occlusion and her only being agreeable to a new IV line once she spoke to psychiatry again the following day. **With the haloperidol initiation and uptitration, she became more agreeable to the treatment and started consuming nutritional drinks as well.** Once we achieved our targeted dose of haloperidol, she was initiated on **mirtazapine 7.5mg nightly** for sleep and as an appetite stimulant. Her initial EKG showed a qtc of 453 and repeat EKG a week later showed qtc of 439. **Gradually, her psychotic symptoms improved, and she stopped expressing suicidal statements.** Once her sodium levels normalized, she was transferred from her 15-day medical floor stay to the psychiatric unit where she began to engage more with peers and consume solid foods in addition to increasing her fluid intake.

Conclusions

We considered hypernatremia may have been worsening her depressive symptoms and psychosis. **Hypernatremia is a risk factor for qtc prolongation and arrythmias and thus, the risk of starting a qtc-prolonging agent like haloperidol was considered**. Additionally, the sedation caused by antipsychotics can lead to decreased fluid intake, possibly worsening hypernatremia. Starting an antipsychotic can come with electrolyte changes but **typically it would cause hyponatremia via SIADH and psychogenic polydipsia**. Thus, that would help improve, not worsen hypernatremia.[3] A rare cause of antipsychotic induced hypernatremia would be in **neuroleptic malignant syndrome** from hyperthermia, altered mental status limiting water intake, and autonomic dysfunction.[4] **Choice of haloperidol was strategic as patient had a significant history of nonadherence and we wanted a medication with a long-acting injectable and intravenous option**. Other options were excluded due to poor tolerance (risperidone), renal concerns with AKI (risperidone, paliperidone), or slow titration (aripiprazole). **Studies have shown that the onset of therapeutic antipsychotic effects is within 2 weeks but can even occur within the 1st 24 hours like in this case.**[1] We believe starting haloperidol early was vital for her improvement as it helped her become more agreeable to treatment. There were concerns that if she remained psychotic, she would pull out her IV lines. This case shows the fast-acting effects of antipsychotics as there was a dramatic improvement in cognition, psychosis, and adherence to treatment upon haloperidol initiation. This highlights the importance of early psychiatric intervention in appropriate cases.

References

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