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## **Osmotic Demyelination Syndrome in Hypernatremia secondary to Central Diabetes Insipidus in an Immunocompromised Host: a Case Report**

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**Case Study:** Osmotic demyelination syndrome (ODS) is traditionally associated with rapid correction of hyponatremia. However, reports show that it may also occur in the setting of normonatremia or hypernatremia. Human immunodeficiency virus infection has also been associated with ODS in a pathophysiology independent of sodium disorders. We report a case of a patient suspected of having acquired immune deficiency syndrome, who developed ODS associated with hypernatremia due to central diabetes insipidus.

A 32 year old male came in for diarrhea of 3 weeks duration and oral thrush on physical examination. Workups showed mild hyponatremia (129mmol/L) and severe hypokalemia (1.4mmol/L). CD4 count was 27cells/cu.mm and stool exam was positive for cryptosporidium. He was started on antibiotics, antifungal and antiretroviral therapy. Hypokalemia was aggressively corrected. Hyponatremia was slowly raised by 10mmol for the first 40 hours using isotonic saline solution. On the 3rd day of admission, he had decrease in sensorium and was intubated. Post intubation, he became bradycardic, arrested and was revived after 2 minutes. He then developed polyuria with hourly urine output of 200-800ml/hr. Urine osmolality was 174mmol/L. Serum sodium rapidly increased by 23mmol/L in 22 hours reaching a maximum value of 165mmol/L. MRI of the brain showed central and extrapontine demyelination consistent with ODS. IVF was shifted to 5% Dextrose solution and he was started on desmopressin. After 4 hours, his urine output decreased to 100-130ml/hr and urine osmolality increased to 310mmol/L. Normonatremia was eventually achieved. However, on the 7th day of admission, he developed septic shock and expired.

ODS can occur across all spectrum of sodium levels. The clinician should be wary of this complication specially in patients with risk factors for ODS despite sodium levels close to or within normal limits. HIV infection has also been associated with ODS even with normal sodium levels.

Serum Na and Urine output trends