

中文題目：「鈉」悶！低血鈉患者的多尿及高尿液滲透壓

英文題目：Hyponatremia in a Patient with Polyuria and High Urine Osmolality

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Background

Hyponatremia is a common disorder in daily clinical practice. According to one's plasma osmolality, urine osmolality and volume status, patients with hyponatremia can be categorized by different etiologies. Psychogenic polydipsia usually causes polyuria, low urine osmolality and hyponatremia. Here we present a case with hyponatremia caused by psychogenic polydipsia, but has a relative high urine osmolality (>100 mOsm/L).

Case presentation

A 67-year-old woman visited our ER due to dizziness and unsteady gait for two weeks. She had history of hypertension, coronary artery disease, Sjögren's syndrome and type 2 diabetes mellitus. Hyponatremia, with a serum sodium level of 118mEq/L, was detected at ER. Physical examination suggested the patient was in euvolemic status.

The Patient's serum sodium level raised 11mEq/L to 129mEq/L in 13 hours after 1000ml of 0.9% saline. In attempt for sodium re-lowering, 1000ml of dextrose 5% in water and DDAVP were prescribed. Surprisingly, her serum sodium level fell to 115mEq/L, which was lower than we estimated.

Further laboratory examination revealed her blood osmolality 247mOsm/L, **urine osmolality 237mOsm/L** and urine sodium level 29mEq/L. Her thyroid and adrenal function were normal. These data seems met the diagnostic criteria of syndrome of inappropriate antidiuresis.

Nevertheless, the patient's chart record showed polyuria, with a **daily urine output of 6020ml**. She confessed to drinking lots of water due to her dry sensation of mouth.

How does polydipsia and high urine osmolality coexist?

We found the answer by reviewing her medications. Jardiance (**Empagliflozin**), a SGLT2 inhibitor, increased urinary glucose excretion and was accounted for her high urine osmolality.

Final diagnosis

Hyponatremia, caused by primary polydipsia, low-salt diet and SGLT2 inhibitor related osmotic diuresis

Discussion

SGLT2 inhibitors reduce blood glucose level by facilitating urinary glucose excretion. The osmotic diuresis effect can exaggerate the thirst sensation and result in excessive water drinking. In combination, patients with psychogenic polydipsia and taking SGLT2 inhibitors for blood sugar control may cause hyponatremia and polyuria with high urine osmolality.

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