P-35 (Resident)

Empagliflozin, Sodium-glucose cotransporter-2 inhibitors (SGLT2-I) may increase the risk of urinary tract infections and diabetic ketoacidosis among patients with type 2 diabetes mellitus (T2D).

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Introduction:

SGLT2-I is a newly approved medicine in Japan in 2014 and it is widely used for patients with T2D since the approval. The side effect of SGLT2-I include genitourinary infections, diabetic ketoacidosis (DKA) and dehydration. Here in, we report a case of DKA and urinary tract infection (UTI) that seems to be caused by SGLT2-I.

Case Description:

A 83-year-old woman with T2D and Alzheimer dementia presented to the hospital with altered mental status 2 days prior to admission (PTA). Two weeks PTA, she started taking empagliflozin. Thereafter, her family member noticed her cognitive function decreased. On physical examination, her JCS was 10-20, her temperature was 36.6 degrees Celsius, blood pressure was 119/60 mmHg, heart rate was 106 beats per minute, and respiratory rate 22 breathes per minute with kussumaul breathing. Oxygen saturation was 98% on room air. Her mouth and armpit were dry. The cost vertebral angle tenderness was present on her left side. The laboratory result showed WBC of 22300 /µl, glucose 571 mg/dl, BUN 93.5 mg/dl, creatinine 2.13 mg/dl, HCO3 18.4 mmol/l and anion gap 24.8 mmol/l. Urinalysis showed pyuria and bacteriuria. We diagnosed her with DKA caused by pyelonephritis. She was treated with intravenous normal saline, insulin and ceftriaxone with good response. The blood and urine culture showed Eshericia coli and completed the course of antibiotics with oral amoxicillin. To avoid recurrence, we discontinued empagliflozin.

Discussion:

In our case, given the timing of starting empagliflozin, the cause of the pyelonephritis and DKA was thought to be from empagliflozin. Although the adverse effect of the SGLT2-I rarely occur, further caution for diabetic ketoacidosis and UTI is necessary in patients taking SGLT2-I.