

Ipragliflozin/tozinameran

S

Diabetic ketoacidosis: 2 case reports

In a case study, 2 women aged 71 years and 52 years were described, who developed diabetic ketoacidosis following vaccination with tozinameran or during treatment with ipragliflozin for type-1 diabetes mellitus [*routes and duration of treatments to reaction onsets not stated; not all dosages stated*].

Case 1: A 71-year-old woman had a medical history of hyperthyroidism under remission with unspecified antithyroids and type-1 diabetes mellitus diagnosed at 56 years of age. Thereafter, she was commenced on unspecified drugs for diabetes mellitus. Due to an increased anti-glutamic acid decarboxylase antibody level, additional treatment with insulin glulisine, insulin degludec and a sodium-glucose transporter 2 (SGLT-2) inhibitor ipragliflozin 25mg daily was initiated. At 71 years of age, she underwent vaccination with tozinameran [BNT162b2], following to which she immediately developed fatigue and nausea along with a decreased dietary and water intake. The next day, she exhibited impaired consciousness; thus, making it impossible for her to continue with ipragliflozin and insulin therapy. Due to gradual deterioration of her symptoms, she was presented to the emergency room and subsequently admitted after 3 days of COVID-19 vaccination. Her fasting blood glucose levels prior to COVID-19 vaccination were reported between 93–169 mg/dL. Her HbA1c levels were at 8.3% and 8.1% prior to 3 months and 1 month, respectively of her admission. Upon presentation (at current admission), she had Glasgow coma scale of 12 (E3V4M5) with tachypnoea and tachycardia. Laboratory investigations revealed severe acidosis, ketonaemia and ketonuria. Her glycated albumin levels, HbA1c, plasma glucose, arterial pH, serum bicarbonate were 27.7%, 8.0%, 944 mg/dL, 7.049 and 3.3 mEq/L, respectively with anti-glutamic acid decarboxylase antibody and urinal ketone body positivity. Thus, a diagnosis of diabetic ketoacidosis was confirmed and she was commenced on a treatment with insulin, calcium-chloride/potassium-chloride/sodium-chloride [Ringer's solution] and glucose in ICU. Her ketoacidosis showed gradual improvement and insulin therapy was resumed with cessation of ipragliflozin. After discharge, her diabetes was managed only with insulin degludec and insulin glulisine. Subsequently, her underlying condition was diagnosed as latent autoimmune diabetes in adults. Based on the presentation, it was noted that, rapid elevation of blood glucose levels and temporary decrease in insulin secretion secondary to tozinameran with metabolic imbalance secondary to ipragliflozin, attributed to the occurrence of diabetic ketoacidosis.

Case 2: A 52-year-old woman was diagnosed with type-1 diabetes mellitus at the age of 47 years and was commenced on an insulin therapy with insulin degludec and insulin aspart. At the time of diagnosis, she was admitted for diabetic ketosis. Further findings confirmed an underlying latent autoimmune diabetes in adults and insulin therapy was continued. At 52 years of age, she underwent vaccination with the second dose of tozinameran [BNT162b2], following to which she immediately developed respiratory distress, palpitation and nausea. Her symptoms showed gradual worsening, because of which she was unable to administer her insulin therapy or consume food. The next day, she presented to the emergency room and was subsequently admitted after 1 day of COVID-19 vaccination. Her fasting blood glucose levels prior to COVID-19 vaccination were reported between 106–262 mg/dL. Due to her drinking habit, she had also consumed alcohol a night prior to her vaccination. Upon admission, she exhibited tachypnoea and tachycardia. Laboratory investigations revealed severe acidosis, ketonaemia and ketonuria with slight detection of urinary C-peptide and serum C-peptide. Her HbA1c level and plasma glucose level were at 11.6% and 494 mg/dL, respectively. A diagnosis of diabetic ketoacidosis was confirmed and she was commenced on a treatment with insulin, glucose and calcium-chloride/potassium-chloride/sodium-chloride [Ringer's solution] in ICU. Her ketoacidosis showed gradual improvement and insulin therapy was resumed with insulin degludec and insulin glulisine. Based on the presentation, it was noted that temporary decrease in insulin secretion secondary to vaccination with tozinameran, attributed to the occurrence of diabetic ketoacidosis.