UCLA Health

Abstract Form

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Project Title:	Metformin Induced Lactic Acidosis: A Case Report

Research Category (please check one):

☐	Original Research	☒	Clinical Vignette	☐	Quality Improvement	☐	Medical Education Innovation

Abstract

Introduction: Metformin is the most prescribed and preferred initial drug therapy for type 2 diabetes. Metformin is the only FDA-approved biguanide, due to its lower risk for lactic acidosis. Although rare, metformin-associated lactic acidosis (MALA) has a mortality rate of 31%, which underscores the importance of early diagnosis and treatment.

Case Report: We report on a 75-year-old female with diabetes mellitus type 2 with HbA1c 13.6% and hypertension presented to the emergency room complaining of 2 episodes of clear, watery diarrhea, nausea, and 2 episodes of nonbloody nonbilious emesis for 2 days. Labs were significant for acute kidney injury (AKI) with creatinine of 5.65 mg/dL, anion gap metabolic acidosis (Na of 129 mmol/L, Cl of 96 mmol/L, HCO_3 of 20 mmol/L, and corrected anion gap of 19 mmol/L), and severe lactic acidosis of 8.4 mmol/L. Over 3 days, the lactic acid levels were labile at 8-9 mmol/L, despite aggressive fluid resuscitation. Computerized tomography (CT) abdomen/pelvis, retroperitoneal ultrasound, comprehensive stool panel, blood cultures, and wound cultures were negative for infection, while urinalysis and culture were positive for yeast. Patient's kidney function progressively worsened with oliguria, requiring hemodialysis (HD). After 2 HD sessions, the patient's lactic acidosis and anion gap metabolic acidosis resolved.

Of note, the patient was admitted and treated 1 week prior for intractable nausea/vomiting, acute kidney injury, and urinary tract infection. At discharge, the patient's labs showed blood urea nitrogen of 18 mg/dL and creatinine of 0.86 mg/dL. She was discharged with ciprofloxacin 500 mg twice daily, Metformin 500 mg twice daily, and lisinopril 2.5 mg daily.

Discussion: Metformin is a first-line diabetes medication with a well-known, rare, side effect of lactic acidosis. As a diagnosis of exclusion with a high mortality risk, it is imperative physicians can quickly identify and treat. The treatment for MALA is HD or continuous veno-venous hemofiltration (CVVH) and should be initiated urgently to prevent further morbidity or mortality. Ultimately, this patient's rapid decline following metformin initiation illustrates the importance of early recognition and treatment of MALA.