

HEMODIALYSIS FOR METFORMIN-ASSOCIATED LACTIC ACIDOSIS

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Introduction

We describe a case of metformin-associated lactic acidosis (MALA) in which prompt initiation of hemodialysis done urgently, prevented complications and death.

Case

A 77 year-old lady was admitted for abdominal pain. After admission, cardiopulmonary arrest and intubation, she developed acute renal failure and severe metabolic acidosis. Arterial pH was 6.9; serum lactic acid level was 45mmol/L. Past medical history included NIDDM and hypertension. Medications prior to admission included Metformin, Glucotrol, Aspirin, Actose, Diovan, and Cardizem. ICU treatment included IV sodium bicarbonate, vasopressors, and Flagyl. Unresponsive, her vital signs were: T 99.5, HR 78, BP 109/49, and BPM 33. Laboratory studies revealed: WBC 34.9, Hb 11.1g/dL, platelets 444, Sodium 150 meQ/L, Potassium 3.7 meQ/L, Chloride 88meQ/L, $t\text{CO}_2 < 5$, Glucose 126, BUN 19 and Creatinine 1.7, AST 70, ALT 46. ABGs revealed pH 7.04, $p\text{CO}_2$ 15, $p\text{O}_2 = 400$, and $\text{HCO}_3 = 4$. Cortisol 74.4 and cardiac enzymes were normal. Abdominal and pelvic CT were unremarkable. Six-hour sodium bicarbonate hemodialysis (HD) therapy was performed; lactic acid decreased to 10.9. After 6 hours of CVVHD, lactic acid decreased to 2.8. Severe metabolic acidosis resolved after 4 days of hospitalization; extubation was accomplished 48 hours post hemodialysis. Previously ordered metformin levels demonstrated 33 at baseline, 6.3 after 6 hours of HD, and further decline to 4.8 following CVVHD.

Discussion:

Metformin, a widely used agent for NIDDM, is a rare cause of severe lactic acidosis. Overall mortality of lactic acidosis is approximately 50%. Aggressive early treatment of metabolic acidosis with continuous bicarbonate infusion along with prompt hemodialysis intervention improves outcome in patients with MALA.