Chemical-induced Pancreatitis in a Peritoneal Dialysis Patient at South Texas: A Case Report

Elimar Gonzalez Morales
The University of Texas Rio Grande Valley, elimar.gonzalezmorales@utrgv.edu

Yareli l. Durazo Gonzalez
The University of Texas Rio Grande Valley

Jose Gomez Casanovas
The University of Texas Rio Grande Valley

Andres Suarez
The University of Texas Rio Grande Valley

Khairiya Haj-Yahya
The University of Texas Rio Grande Valley

See next page for additional authors

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Gonzalez Morales, E., Gomez Casanovas, J., Durazo, Y., Haj-yahya, K., Tran, V., Suarez, A.

[1]UTRGV KMC Internal Medicine Residents
[2]UTRGV Internal Medicine Faculty

Introduction

Acute pancreatitis is the leading cause of gastrointestinal-related hospitalization in the United States. Pancreatitis is often linked to excessive alcohol consumption or gallstones, accounting for 80% of all cases. However, in some cases, it can be drug-induced acute pancreatitis (DIP) or via chemical injury. Icodextrin (Extraneal) is a high-molecular-weight glucose polymer developed as an alternative osmotic agent to dextrose in peritoneal dialysis (PD). It is regarded as biocompatible due to its iso-osmolarity, making it generally safe and well-tolerated. While rare, cases have been reported associating icodextrin with pancreatitis; nevertheless, specific rates of icodextrin-induced pancreatitis are unknown. In this case, we present a long-term PD patient recently exposed to Icodextrin and presented with acute pancreatitis.

Case Presentation

A 58-year-old male with a significant clinical history of end-stage renal disease on peritoneal dialysis, type 2 diabetes mellitus, and uncontrolled hypertension presented to the emergency department with worsening abdominal pain. The pain was described as sharp in the epigastric area, severe intensity, stabbing-like sensation, and had a sudden onset approximately 6 hours before seeking medical attention. Additionally, he reported associated symptoms of nausea and non-bilious vomiting. There were no other associated symptoms. As relevant past medical history, the patient did mention that 1-2 days prior, he got a new dialysate to continue his dialysis at home, and 6 hours after he had had his first session with this new dialysate, he developed the clinical presentation. Upon arrival, his vital signs were T 98 C, HR 67/min, RR 20/min, BP 127/64 mm Hg, and SPO2 of 98% on room air. Physical examination was remarkable for tenderness in the epigastrium, but there was no evidence of guarding or rigidity. The peritoneal catheter was without any signs of infection. Labs on admission were significant for WBC 8.9 (units and reference values for all the labs), Hb 12.4 (13.5 - 17.5 g/dl), Hct 36.3 (38.8 - 50.0%), Na 136 (136 - 145 mmol/L), K 3.0 (3.5 - 5.3 mmol/L), Cl 97 (98 - 110 mmol/LI), HCO 33.8 (20- 31 mmol/l), and creatinine 7.8.[ASP2] LIPASE[ASP3] 2555 (25-200 U/L). CT of the abdomen with and without contrast reported moderate ascites and a dialysis catheter in place. The patient was admitted due to acute pancreatitis. Fluid and pain management was provided, and a workup to elucidate the cause was started. Gallbladder US was negative for any biliary stones. The lipid panel had no hypertriglyceridemia, and peritoneal fluid analysis did not suggest infection. Since the only apparent cause for this clinical presentation was the new dialysate use, the patient was held his next session of PD, and nephrology consulted for further advice. The patient had interval improvement in the next 24 hours, and Nephrology recommended exchanging the dialysate. The patient was safely discharged after 24 hours, tolerating diet and having no pain.

Discussion

DIP is a multifaceted condition, often arising from various pharmaceutical agents (reference). Maintaining a heightened suspicion of DIP when evaluating patients with pancreatitis symptoms is paramount (reference). This vigilance enables timely diagnosis and the cessation of medications or chemicals responsible for the condition, emphasizing the critical need for close monitoring and swift action in the presence of suspected adverse drug effects on the pancreas (reference). Icodextrin, a common component in peritoneal dialysis solutions, is generally well tolerated and appears to be most helpful in situations of reduced or inadequate UF with dextrose, including in high and high-average transporters, during episodes of peritonitis and patients who have failed dextrose-based dialysis (2). However, it can contribute to Icodextrin-induced acute pancreatitis (reference). Notably, Icodextrin interferes with amylase determination in serum, causing a significantly decreased plasma amylase level, making it unreliable for diagnosing acute pancreatitis (reference). Lipase measurement provides an alternative and accurate method for diagnosing acute pancreatitis (AP) in patients using Icodextrin (3). In this context, it is essential to emphasize the need for cautious monitoring and awareness of potential complications when using Icodextrin in PD. Healthcare providers should remain vigilant and consider this rare adverse event when assessing patients undergoing peritoneal dialysis with Icodextrin-containing solutions and be aware of potential complications and this rare adverse event.

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