SHORT REPORTS

CEFTRIAXONE-INDUCED ACUTE PANCREATITIS

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OBJECTIVE: To report a case of probable ceftriaxone-induced acute pancreatitis.

CASE SUMMARY: A patient with a history of short-bowel syndrome on home total parenteral nutrition developed fever, chills, and right flank pain. She was diagnosed with gram-negative catheter sepsis and prescribed antibiotic therapy to be administered for four weeks. After completion of the first week of therapy, the antibiotic regimen was changed to intravenous injections of ceftriaxone to be given daily at home. Prior to discharge the patient developed acute abdominal pain, leukocytosis, jaundice, and markedly elevated lipase and amylase concentrations consistent with acute pancreatitis. The patient's condition improved upon discontinuation of the ceftriaxone and the remainder of her stay was uneventful.

DISCUSSION: There is only one other case report in the literature of probable ceftriaxone-induced pancreatitis. Multiple other medications have been implicated in causing acute pancreatitis. The exact mechanism of this uncommon adverse effect of ceftriaxone is unknown.

CONCLUSIONS: There was a temporal relationship between the development of this patient's signs and symptoms and the administration of ceftriaxone. We could not identify any other factors that may have been responsible for the development of her acute pancreatitis. Ceftriaxone should be considered as a possible etiologic agent in patients who present with acute abdominal pain and elevated lipase and amylase concentrations.

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NUMEROUS CASES OF ACUTE PANCREATITIS have been reported in association with over 40 different medications. A definitive relationship has been shown to exist with such agents as the thiazides, sulfonamides, furosemide, estrogens, tetracyclines, azathioprine, and pentamidine.[1,2] A probable or possible association has been established with other drugs, such as the corticosteroids, procainamide, erythromycins, metronidazole, and enalapril.[1,3,4] To our knowledge, only one case of ceftriaxone-induced pancreatitis has been reported in the literature.[5] In this patient, pancreatitis developed secondary to a reversible, ceftriaxone-induced pseudolithiasis. We report the first case of probable primary, reversible, ceftriaxone-induced pancreatitis.

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CASE REPORT

A 71-year-old woman was admitted to the hospital with complaints of fever, chills, and right flank pain of three days' duration. She had not been taking any medications, but was receiving home total parenteral nutrition (TPN). Her past medical history was significant for short-bowel syndrome secondary to a partial bowel resection with colostomy 14 months prior, recurrent episodes of catheter sepsis, and radiotherapy for cervical cancer three years prior to admission. She denied any history of tobacco or alcohol use. Her significant vital signs on admission were: BP 102/52 mm Hg, RR 18 breaths/min, HR 100 beats/min, and T (oral) 37.6 °C. Laboratory data revealed a blood urea nitrogen (BUN) of 23.56 mmol/L of urea (normal range 3.57–7.14); serum creatinine (SCr) 141 µmol/L (62–150); alkaline phosphatase 166 units/L (35–115); alanine aminotransferase 51 units/L (0–45); aspartate aminotransferase (AST) 43 units/L (0–40); lactate dehydrogenase (LDH) 447 units/L (297–537); hematocrit (Hct) 0.286 (0.35–0.47); hemoglobin 6.01 mmol/L (7.44–9.93); platelet count 61×10^9/L (150– 400); white blood cell (WBC) count 21.3×10^9/L (4.5–11.9) with 0.13 bands, 0.80 segs, and 0.03 lymphocytes; triglycerides 2.53 mmol/L (0.38–1.48), and amylase 56 units/L (30–110). The initial presenting diagnosis was gram-negative sepsis. Blood cultures from two peripheral sites and a Hickman catheter were positive for *Klebsiella pneumoniae* sensitive to gentamicin and cefotaxime. The patient was started on gentamicin 80 mg iv q8h, cefotaxime 1 g iv q6h, acetaminophen 650 mg po q4h prn, meperidine 25 mg im q4–6h prn, hydroxyzine 25 mg im q4–6h prn, and 3:1 peripheral parenteral nutrition (PPN) therapy. She was scheduled to receive antibiotic therapy for four weeks in order to preserve the central line.

On day 6, gentamicin cefotaxime, and PPN were discontinued, and ceftriaxone 2 g iv q24h and 3:1 TPN were started in preparation for the patient's discharge within the next 24–48 hours. Her laboratory values at this time were: BUN 22.50 mmol/L of urea, SCr 247 µmol/L, alkaline phosphatase 229 units/L, AST 48 units/L, Hct 0.271, WBC count 15.7×10^9/L, phosphate 2.33 mmol/L, calcium 2.14 mmol/L, total bilirubin 29.0 µmol/L, albumin 27 g/L, and glucose 6.71 mmol/L. By day 9 she developed increasing abdominal pain (abdomen tender to palpation) with marked jaundice. On day 10 the following laboratory findings were significant (and consistent with a diagnosis of acute pancreatitis): WBC count 30.6×10^9/L, amylase 413 units/L, and lipase 2400 units/L (normal range 23–208). Other pertinent values were as follows: BUN 34.98 mmol/L of urea, SCr 336 µmol/L, glucose 10.49 mmol/L, Hct 0.242, total bilirubin 23.9 µmol/L, AST 28 units/L, calcium 2.29 mmol/L, and triglycerides 2.72 mmol/L. A dry computed tomography (CT) scan of the abdomen revealed no intraabdominal abscesses or gallstones, but was significant for an enlarged pancreas—findings consistent with a diagnosis of acute pancreatitis. On day 11 ceftriaxone was discontinued upon recommendation of the infectious diseases consultant, this agent having been implicated as the most likely cause of the patient's pancreatitis.

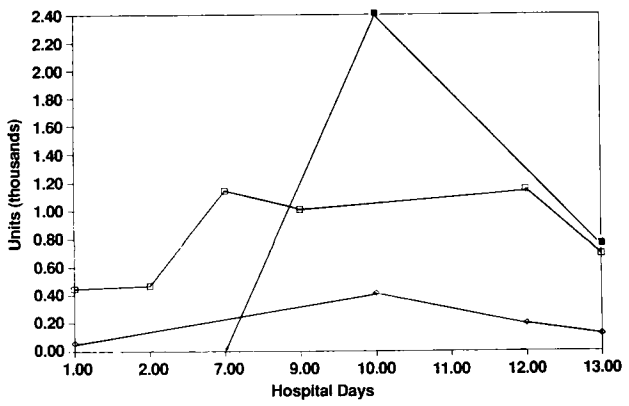

Figure 1. Effect of ceftriaxone on lactate dehydrogenase (LDH), amylase, and lipase concentrations. Ceftriaxone administered on days 6–11. ◇ = amylase; □ = LDH; ■ = lipase.

Cefotaxime 1 g iv q8h was restarted along with clindamycin 300 mg iv q6h and famotidine 20 mg iv q24h. On day 13 the patient's WBC count was decreased to 18.7 × 10^9/L; the amylase and lipase concentrations were 119 and 742 units/L, respectively (Figure 1). Follow-up dry CT scan of the abdomen on day 15 showed a decrease in the size of the pancreas, consistent with resolution of the pancreatitis. The scan also was negative for pancreatic pseudocysts. The remainder of the patient's hospital stay was unremarkable.

Our review of the literature produced only one other case report of probable ceftriaxone-induced pancreatitis. We could not identify a temporal relationship between any other potential etiologic factors (e.g., alcohol use; biliary tract disease [gallstones]; postoperative, metabolic, infectious, or connective tissue disorders; other drugs) and the development of acute pancreatitis in this patient. There is a strong temporal correlation between the onset and resolution of her pancreatitis and ceftriaxone therapy. Because the patient had acutely declining renal function, the administration of a high dosage of ceftriaxone may have resulted in markedly increased biliary excretion of the drug, with concomitant increases in the gallbladder and pancreas, leading to the acute episode of pancreatitis. A review of our patient's laboratory results reveals consistent minimal elevation of her liver enzyme concentrations over the last 14 months, but normal liver function. These elevations may reflect early osteoblastic cancer metastasis to the bone. We did not perform a ceftriaxone rechallenge in the patient.

We present this case to remind clinicians to consider ceftriaxone as a possible cause of pancreatitis in patients who present with acute abdominal pain and elevated serum amylase and lipase concentrations.≏

References

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