Short communication

Tigecycline-induced acute pancreatitis: case report and literature review

Whitney Y. Hung\textsuperscript{a,}*, Laura Kogelman\textsuperscript{b}, Gretchen Volpe\textsuperscript{b}, Mark Iafriti\textsuperscript{c}, Lisa Davidson\textsuperscript{b}

\textsuperscript{a} Department of Pharmacy, 800 Washington Street, Tufts Medical Center #420, Boston, MA 02111, USA
\textsuperscript{b} Division of Geographic Medicine and Infectious Diseases, 800 Washington Street, Tufts Medical Center, Boston, MA 02111, USA
\textsuperscript{c} Division of Vascular Surgery, 800 Washington Street, Tufts Medical Center, Boston, MA 02111, USA

\textbf{A B S T R A C T}

Tigecycline is a broad-spectrum antimicrobial agent structurally related to minocycline. Pancreatitis has been associated with the tetracycline class of antibiotics and concerns about tigecycline-induced acute pancreatitis have recently been raised. We describe a 69-year-old female who received tigecycline for treatment of a complicated skin and skin-structure infection. Following 7 days of tigecycline she developed severe abdominal pain and elevated pancreatic enzymes suggesting acute pancreatitis. According to the Naranjo adverse drug reaction probability scale, tigecycline was the probable cause of her acute pancreatitis. Clinicians should be aware of this potential adverse effect of tigecycline. We recommend that clinicians monitor patients for signs and symptoms of pancreatitis, including abdominal pain, during treatment with tigecycline.

\textsuperscript{*} Corresponding author. Tel.: +1 617 636 6243; fax: +1 617 636 5638.
E-mail address: whitney0522@gmail.com (W.Y. Hung).

1. Introduction

Tigecycline is the first member of the glycylcycline class of antimicrobials. It was approved by the US Food and Drug Administration (FDA) in June 2005 for the treatment of complicated skin and skin-structure infections (cSSSIs) and complicated intra-abdominal infections caused by susceptible Gram-positive, Gram-negative and anaerobic organisms [1]. In March 2009, tigecycline was approved for the treatment of community-acquired bacterial pneumonia [1]. Tigecycline is structurally related to minocycline and shares similar pharmacokinetic properties and side effects with the tetracyclines. The most frequent adverse effects associated with tigecycline are nausea, vomiting and diarrhea. Pancreatitis has been associated with tetracycline, but it was not listed as an adverse drug reaction in the product label when tigecycline was originally approved. Concerns about tigecycline-induced acute pancreatitis have recently been raised [2–4].

We report a case of tigecycline-induced acute pancreatitis and compare the clinical presentations of tigecycline-induced pancreatitis with those of the tetracyclines, which has not been performed to date.

2. Case report

A 69-year-old Caucasian female with extensive peripheral vascular disease and chronic left limb ischaemia was transferred from an outside hospital for evaluation of a failed left femoral distal popliteal bypass, which required multiple revisions. Her past medical history included chronic obstructive pulmonary disease, coronary artery disease and hypertension. She had no known history of kidney, liver or biliary tract disease prior to admission to the outside hospital. The patient reported a history of allergic reactions to several medications including sulphonamides, which caused a rash, ciprofloxacin, which caused an unknown adverse reaction, and penicillin, which was associated with a maculopapular rash. She denied receiving any \textit{\beta}-lactam antibiotics within the past 10 years. Her social history was negative for alcohol consumption or injection drug use.

On admission she was alert and oriented to person and time and her vital signs were significant for a temperature of 38.3 °C, blood pressure of 129/59 mmHg, heart rate of 92 beats/min and respiratory rate of 16 breaths/min. Physical examination demonstrated three surgical wounds on her left lower extremity, including one in her groin, a second in her mid thigh at the vein harvest site and a third long incision along her left medial calf. Her left lower extremity was cold with absent dorsalis pedis, posterior tibial and anterior tibial pulses. Her white blood cell (WBC) count was elevated at 14.5 × 10^3/\mu L and haemoglobin and haematocrit were 9.7 g/dL and 30.6%, respectively. Baseline serum creatinine was 0.63 mg/dL (estimated creatinine clearance 42 mL/min) and her serum liver enzymes were as follows: aspartate aminotransferase 23 IU/L; alanine aminotransferase 10 IU/L; and total bilirubin 0.4 mg/dL.

Left femoral bypass revision was performed on hospital Day 3 for critical limb ischaemia. The pre-existing prosthetic graft was partially but not completely excised and a new gortex graft...
Fig. 1. Amylase and lipase concentrations following initiation and withdrawal of tigecycline.
Tigecycline-induced acute pancreatitis is still considered a rare phenomenon. Among four case reports (including our patient), the mean time to the onset of symptoms was 11 days. There are insufficient data to identify significant predictors of tigecycline-induced pancreatitis. Currently, the manufacturer does not recommend routine monitoring of serum amylase and lipase. However, we recommend that clinicians monitor for symptoms of abdominal pain during treatment with tigecycline and have a low threshold to order amylase and lipase concentrations if the clinical presentation is compatible with acute pancreatitis. Knowledge of this adverse effect of tigecycline is critical to promote prompt and appropriate management of pancreatitis, including drug cessation. Future studies should focus on identifying the mechanism leading to this adverse reaction and a possible cross-reaction between tigecycline and the tetracycline class.

4. Conclusion

Tigecycline-induced acute pancreatitis is still considered a rare phenomenon. Among four case reports (including our patient), the mean time to the onset of symptoms was 11 days. There are insufficient data to identify significant predictors of tigecycline-induced pancreatitis. Currently, the manufacturer does not recommend routine monitoring of serum amylase and lipase. However, we recommend that clinicians monitor for symptoms of abdominal pain during treatment with tigecycline and have a low threshold to order amylase and lipase concentrations if the clinical presentation is compatible with acute pancreatitis. Knowledge of this adverse effect of tigecycline is critical to promote prompt and appropriate management of pancreatitis, including drug cessation. Future studies should focus on identifying the mechanism leading to this adverse reaction and a possible cross-reaction between tigecycline and the tetracycline class.
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References
