



A Rare Cause of Acute Necrotizing Pancreatitis: A Case Report

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Abstract

Introduction: Sitagliptin is a class of medications called Dipeptidyl Peptidase-4 (DPP-4) inhibitors. It used to lower blood glucose levels in adults with type 2 diabetes. In rare cases, it may cause acute pancreatitis.

Case Report: We report a rare side effect of the administration of sitagliptin in a 47 years old male patient who had diabetes mellitus. He developed acute abdominal pain, nausea, and vomiting after two months of consuming sitagliptin. Abdominal computed tomography showed acute necrotizing pancreatitis. We admitted the patient to the intensive care unit for ten days. Fluid resuscitation and intravenous antibiotics were the definite treatment. Observation for another 20 days in the ward showed a full recovery clinically and laboratory. He had near normal amylase and lipase at home discharge. Follow-up for 12 weeks showed no accidents.

Discussion: Acute necrotizing pancreatitis is a fatal condition that really needs emergent diagnosis and treatment. Fluid resuscitation and intravenous antibiotics are the definite treatment.

Conclusion: Physicians should suspect acute pancreatitis in patient with abdominal pain and recent use of sitagliptin.

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Received Date: 29 May 2023

Accepted Date: 06 Jun 2023

Published Date: 10 Jun 2023

Citation:

Matalqah H, Yaseen R, Al-Hajjaj M, Matalkeh L, Matalkeh M, Al Taani B. A Rare Cause of Acute Necrotizing Pancreatitis: A Case Report. *Clin Case Rep Int.* 2023; 7: 1559.

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Keywords: Sitagliptin; Diabetes mellitus; Pancreatitis

Introduction

Acute pancreatitis is the most common gastrointestinal pathology requiring hospital admission. From all the studied causes of acute pancreatitis, drug-induced acute pancreatitis is an uncommon etiology when compared to obstructing gallstones or alcohol use, accounting for 0.1% to 2% of identified causes [1].

Sitagliptin, a Dipeptidyl Peptidase IV (DPP-IV) inhibitor, enhances control of type 2 diabetes by prolonging the duration of active incretin hormones such as Glucagon-Like Peptide 1 (GLP-1) in the bloodstream. Pancreatitis is a known, although rare, side effect of DPP-IV inhibitors [2].

Here, we reported a rare case of acute necrotizing pancreatitis in a male patient with type 2 diabetes mellitus treated controlled with sitagliptin recently.

Case Presentation

A 47-year-old male patient presented to our department of emergency after one hour of acute abdominal pain and malaise. Past medical history was remarkable for type 2 diabetes mellitus five years ago controlled with Metformin 500 mg and glipizide XL 10 mg PO with breakfast. He had knee joint replacement three years ago after a trauma. Two months ago, his blood glucose was high, so his doctor added sitagliptin 50 mg to control the levels of glucose. Two weeks ago, his HBA1c level was 6.7%. His pain was severe with nausea and vomiting. He had mild fever 37.9°C. His blood pressure was 110/60 mmHg; pulse was 98/min; respiratory rate was 22/min. On physical examination, he had upper abdominal tenderness without guarding or rigidity. White blood cell count was 18000/ μ L. Other laboratory tests are shown in Table 1. Further tests showed that his pancreatic and liver



Figure 1: Computed tomography scan showing necrotizing pancreatitis.

Table 1: Laboratory tests at presentation.

Wight blood cell count	Hemoglobin	Platelets	Creatinine	CRP	Urea	Glucose	Na+	K+
18 × 10 ⁵ /ml	13 × 10 ⁵ gr/dl	380 × 10 ⁵ /mcl	1.1 mg/dl	14	30 mg/dl	189 mg/dl	142 mEq/L	4.9 mEq/L

enzyme tests were elevated. Aspartate aminotransferase level, 310 IU/L; alanine aminotransferase level, 190 IU/L, pancreatic amylase level, 2759 IU/L; and lipase level 3310 U/L.

Abdominal Computed Tomography (CT) scan demonstrated acute necrotizing pancreatitis (Figure 1).

Based on clinical history, we suspected this acute pancreatitis due to the recent use of sitagliptin. We admitted the patient to the intensive care unit. We started with intravenous fluid resuscitation and antibiotics in addition to stop oral antihyperglycemic agents. We admitted fourth generation of cephalosporin with vancomycin and insulin. Daily monitoring of the vital signs and laboratory tests were considered. Ten days of admission to ICU, his made a good response, so he was discharged to the ward for additional monitoring. A completion of 20 days in the ward was enough to regain his health. On day 30 of hospital admission, his laboratory tests were near normal (Table 2).

Follow-up for the next three months showed no important complaints.

Discussion

Acute pancreatitis is known to be fatal, with a mortality rate of nearly 10% if severe disease is not diagnosed and if appropriate treatments are not initiated immediately. Even in cases in which diagnosis and treatment are rapid, severe pancreatitis can prove life threatening. Various causes for pancreatitis include alcohol consumption, gallstones, idiopathic chronic pancreatitis, endoscopic retrograde cholangiopancreatography or endoscopic sphincterotomy, trauma, malignancy, autoimmune hypercalcemia, hyperlipidemia, or certain drugs [3,4].

With the increased use of incretin-related drugs, a few cases of acute pancreatitis that had been suspected to be related with DPP-4 inhibitors or GLP-1 agonists have been reported [5].

Patients with T2DM have approximately two times more risk for acute pancreatitis because of insulin resistance and hyperglycemia compared to non-diabetic persons [6].

Inconsistent results have been documented about the association of sitagliptin with acute pancreatitis. A population-based matched case-control study observed an association of increased odds of

Table 2: Laboratory tests at discharge.

Wight blood cell count	9 × 10 ⁵ /ml
Hemoglobin	12.1 × 10 ⁵ gr/dl
Creatinine	1 mg/dl
CRP	10
Urea	21 mg/dl
Glucose	177 mg/dl
Na+	135 mEq/L
K+	3.9 mEq/L
ALT	40 IU/L
AST	70 IU/L
Amylase	63 IU/L
Lipase	81 IU/L

acute pancreatitis among T2DM patients treated with sitagliptin and exenatide. The study reported statistically significantly higher odds of acute pancreatitis after adjusting for available confounders like metformin use, current use within 30 days and recent use [7].

Our patient is a male who had a previously diagnosed type 2 diabetes mellitus. He had no history for alcohol consumption or obesity. Because of relatively controlled diabetes, his doctor added a new medication for more control of the disease. He started with sitagliptin 50 mg daily. Later, he had a good control of blood glucose levels. Unfortunately, he developed an acute pancreatitis. Several reports showed a link between the administration of sitagliptin and acute pancreatitis. We admitted our patient to the ICU for monitoring vital signs. First, we discontinue sitagliptin and other oral antihyperglycemic drugs. Fluid resuscitation and intravenous antibiotics were the corner stone of treatment. Daily monitoring for one month was enough to resolution of the pancreatitis.

Follow-up for the next three months was uneventful.

Conclusion

GLP-1 agonists such sitagliptin are widely used in type 2 diabetes mellitus. Several cases reported a link between sitagliptin and acute pancreatitis. Physicians should suspect pancreatitis in patients with abdominal pain and recent administration of sitagliptin.

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