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Sitagliptin-Induced Acute Necrotizing Pancreatitis : A Case Report

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Abstract

Introduction: *Sitagliptin is a dipeptidyl peptidase IV (DPP-IV) inhibitor used as an oral hypoglycemic agent in the treatment of type 2 Diabetes Mellitus. Acute pancreatitis is a rare known complication of sitagliptin, which can occur at any time after initiation of the drug therapy.*

Case Presentation: *A 41 year-old female patient with type 2 diabetes mellitus presented with signs and symptoms of acute necrotizing pancreatitis. Recently, her GP added sitagliptin for more control on her disease. This drug induced acute pancreatitis. We admitted the patient to the ICU for monitoring after cessation of the causative agent. Fluid resuscitation and intravenous antibiotics were the definite treatment. Follow-up for three months showed no recurrence.*

Clinical Discussion: *Our patient had a fatal complication after the use of sitagliptin drug. Computed tomography scan with contrast is usually enough to reach the diagnosis. Early treatment is very important in these cases.*

Conclusions: *Sitagliptin is a good oral hypoglycemic agent to control glucose in patients with diabetes. Serious side effects should be monitored to avoid morbidity and mortality.*

Keywords: Sitagliptin, diabetes mellitus, acute necrotizing pancreatitis

Introduction

Acute pancreatitis is one of the leading causes of gastrointestinal-related hospitalizations in the United States. Around 20% of patients with acute pancreatitis are characterized as severe and develop complications, including necrotizing pancreatitis [1].

Dipeptidyl peptidase-4 (DPP-4) inhibitors and glucagon-like peptide-1 (GLP-1) analogs are incretin-based drugs; these drugs have found widespread use as a new class of anti-hyperglycemic agents effective for treating diabetes mellitus. GLP-1 is reported to slow food absorption, improve insulin production by the pancreas, and increase beta cell mass, whereas DPP-4 inhibitors act by delaying the breakdown of GLP-1. Both types of agents lower glucose levels without weight gain and with a reduced risk of hypoglycemia, representing clear advantages over other glucose-lowering agents [2].

Using these types of drugs long time may result in some complications. One of these complications is acute necrotizing pancreatitis. Here, we report a rare case of acute necrotizing pancreatitis related to the use of sitagliptin drug.

Case Presentation

A 41-year old female patient presented to the emergency department complaining of mild fever, malaise, abdominal pain, and repeated vomiting. Past medical history was remarkable of type 2 diabetes mellitus controlled with 0.6 mg of voglibose and 500 mg of metformin per day initiated 4 years ago. In addition to this, atorvastatin 20 mg and sitagliptin 50 mg were added 5 months ago to have more control on HBA1c. The family history demonstrated hashimoto disease in her mother. Three years ago, our patient underwent right ulnar fixation after a trauma.

Vital signs were as follow: blood pressure was 100/60 mmHg, pulse was 86/min, respiratory rate was 22/min, and temperature was 38 C0. Laboratories at presentation are shown in table 1. She had an elevation in pancreatic and liver enzymes. Aspartate aminotransferase level, 207 IU/L; alanine aminotransferase level, 120 IU/L; amylase level, 2900 IU/L; and pancreatic amylase level, 3001 IU/L.

Wight blood cell count	Hemoglobine	Platelets	Creatinine	CRP	Urea	Glucose	Na+	K+
20×10^5/ml	11×10^5gr/dl	310×10^5/mcl	1.1 mg/dl	32	34 mg/dl	194 mg/dl	142 mEq/L	4.9 mEq/L

Table 1: Laboratory tests at presentation.

Her latest fasting glucose and glycosylated hemoglobin levels were 117mg/dL and 6.1 %, respectively. Physical examination revealed generalized abdominal pain mainly in the epigastric region with no rebound or rigidity. Her BMI was 24.7 kg/M2. Abdominal ultrasound was unremarkable. A computed tomography CT for the abdomen and pelvis showed acute necrotizing pancreatitis (ANP) with no signs of common bile duct dilatation, choledocholithiasis, or gallstone incarceration (Figure 1).

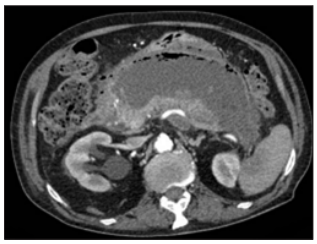

Figure 1: Computed tomography scan showing necrotizing pancreatitis.

We suspected that sitagliptin was the cause of ANP. We stopped it immediately. Based on these findings, we admitted the patient to the intensive care unit and we started resuscitation with fluids and intravenous antibiotics (third generation of cephalosporin and fluoroquinolone). Daily monitoring of vital signs and laboratories was done.

After three weeks of ICU admission, the patient had a good response to conservative treatment. Based on clinical and laboratory tests, we discharged the patient to the ward for more evaluation and monitoring.

She stayed in the ward for two weeks, and then we discharged her home. Laboratories at discharge are shown in Table 2. She continued taking metformin and voglibose for diabetes control. Follow-up for three months revealed no complaints.

Wight blood cell count	7×10^5/ml
Hemoglobine	10.1×10^5gr/dl
Creatinine	1 mg/dl
CRP	8
Urea	19 mg/dl
Glucose	163 mg/dl
Na+	135 mEq/L
K+	3.9 mEq/L
ALT	37 IU/L
AST	65 IU/L
Amylase	53 IU/L
Lipase	66 IU/L

Table 2: Laboratory tests at discharge.

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 [3].

Most common causes of acute pancreatitis are alcoholism, hypertriglyceridemia, gallstones, obesity, and advanced age [4].

Drug-induced pancreatitis (DIP) is considered rare.

Several case reports have been published about sitagliptin-induced pancreatitis with the varying interval from initiation of the drug and occurrence of pancreatitis.

Our patient had type 2 diabetes mellitus controlled with metformin and voglibose. To have good control of her glucose levels, her GP added sitagliptin five months ago.

Later, she developed acute necrotizing pancreatitis induced by the use of the sitagliptin drug. Immediately, we stopped the causative drug. Intravenous antibiotics and resuscitation with fluids were the corner stone of treatment. After 5 weeks of hospital admission, our patient had a good recovery clinically and in the laboratory. Three months after discharge was enough to follow-up.

Conclusion

Drug-induced pancreatitis is considered a rare but serious complication. Physicians should suspect acute pancreatitis in patients with recent use of sitagliptin. Some cases can be managed conservatively by antibiotics and fluids. Surgery can be a choice for fatal cases.

Ethics Approval

Written informed consent was obtained from the patient for the publication of the details of this case and the accompanying images.

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