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Loperamide induced acute pancreatitis in pediatrics

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Abstract

Presentation
A 13-year-old boy was admitted to the hospital following an accidental ingestion of 12 mg of loperamide hydrochloride. His main complaint was abdominal pain, especially in his right hypochondrium and epigastrium.

Diagnosis
He was diagnosed with acute pancreatitis secondary to the use of loperamide. His lipase and amylase were indeed raised showing an acute and reversible trend. Infections and cholelithiasis were ruled out by blood tests and US abdomen.

Treatment
The patient was treated with a single dose of activated charcoal and improved with no further treatment.

Discussion
Loperamide is an opioid-receptor agonist and acts on the μ-opioid receptor. This causes spasms and dysfunction of the sphincter of Oddi resulting in obstruction of the pancreatic drainage and leading to acute pancreatitis. This case report shows the first case of loperamide induced acute pancreatitis in pediatrics.

Introduction

Loperamide is an antidiarrheal drug that is part of the WHO model list of essential medicines. It's an over-the-counter medication and therefore easily available. Recent studies have shown that loperamide could cause acute pancreatitis in adults. Drug-induced acute pancreatitis currently counts for 0.1-2% of cases but it's believed to be the cause of pancreatitis in a much higher number of cases, including part of those classified as "idiopathic". [1]

This case report shows the first case of loperamide induced acute pancreatitis in pediatrics. A detailed explanation of the pathological mechanism responsible for this phenomenon is also provided.

Case report

A 13-year-old boy was admitted to the hospital following an accidental ingestion of 12 mg of loperamide hydrochloride in the form of 6 tablets of 2mg each. He was alert and oriented with a GCS score of 15/15. His neurological examination did not show any pathological findings. On auscultation, normal breath sounds were heard throughout the lung fields. He reported abdominal pain, especially in his right hypochondrium and epigastrium. On palpation, his abdomen was soft with tenderness in the upper quadrants. Bowel sounds were present.

He had no history of pre-existing conditions.

At admission, his vital signs were the following: BP 95/60 mmHg, HR 50 bpm, sats 98%, temperature 37.1°C.

An ECG was performed showing sinus bradycardia with a heart rate of 50 bpm.

Laboratory tests were performed and showed abnormal results with raised amylase, lipase and CRP. The trend of his pancreatic enzymes as well as the trend of his inflammatory markers are reported in the table below [Figure 1].

	Day 1 (13:55)	Day 1 (20:49)	Day 2 (03:15)	Day 2 (08:29)	Normal range
Amylase (U/L)	168	595	242	143	30-120
Lipase (U/L)	2402	3995	880	371	23-300
CRP (mg/dL)	5.40	8.90	6.10	6.00	< 1.00

[Figure 1] Laboratory results of pancreatic and inflammatory markers.

The patient was also tested for cytomegalovirus infection. The laboratory results showed the following values: IgM negative, IgG = 125 U/ml (immune).

An abdominal US demonstrated a distended gallbladder with no stones. His pancreas was not well visualized due to intestinal meteorism.

This case was discussed with the National Poisons Information Centre and the patient was treated with a single dose of activated charcoal (40g). No gabexate mesilate (also known as "Foy") was given to the patient. He was admitted for observation and improved with no further treatment.

Discussion

Acute pancreatitis is defined as reversible inflammation of pancreas. It may be caused by different etiological factors, including drugs. The most common drugs that cause pancreatitis

are corticosteroids, estrogens and azathioprine. Other causes include viral infections with cytomegalovirus being one of the most common ones.

Loperamide is an opioid-receptor agonist and acts on the μ-opioid receptor. This causes spasms and dysfunction of the sphincter of Oddi resulting in obstruction of the pancreatic drainage and leading to acute pancreatitis.

Ruling out other potential causes of pancreatitis was crucial in this instance. In fact, the results showed that there was no active cytomegalovirus (CMV) infection. In addition, the blood results supported the hypothesis that no viral or bacterial infections played a role in this clinical case. The white blood cells (WBCs), lymphocytes (Ly) and neutrophils (Ne) were within normal range (WBCs – 6.1 x 10^3 μL, Ly – 1.6 x 10^3 μL, Ne – 3.8 x 10^3 μL).

In conclusion, this article represents a case of loperamide induced pancreatitis as proven by the anamnesis, clinical manifestation and diagnostic tests.

Declarations of Conflicts of Interest:
None declared.

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