Nirmatrelvir/Ritonavir (Paxlovid)- A New Culprit of Acute Pancreatitis

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Introduction

- Nirmatrelvir/ritonavir, also known as Paxlovid, is a new medication approved for the treatment of mild to moderate COVID-19 infection.
- It prevents viral replication by inhibiting the SARS-CoV-2 main protease.
- While mild adverse effects have been described, such as dysgeusia, diarrhea, hypertension and myalgia[1], there have been no reported cases of pancreatitis.

Case Description

- An 81-year-old female with a past medical history of hypertension and COPD presented to the hospital complaining of abdominal pain and nausea for one day.
- Vital signs were within normal range, and on physical exam the patient had left upper and lower quadrant abdominal tenderness on palpation.
- She had no history of alcohol, tobacco, marijuana or illicit drug use. She had no recent travel, or trauma.
- Long term medications included lisinopril, fluticasone propionate/ salmeterol inhaler and prednisone.
- She had completed a 5-day course of nirmatrelvir/ritoniavir two days prior to this presentation.
- Blood tests revealed an Amylase of 1333 U/L, Lipase of 3779 U/L, Triglycerides of 297 mg/dL and Calcium of 8.7 mg/dL. IgG subclasses 1-4 were normal.
- CT scan revealed an indurated pancreatic body and tail with peripancreatic fluid along the paracolic gutter.
- Ultrasound of the abdomen and MRCP did not reveal any acute findings.

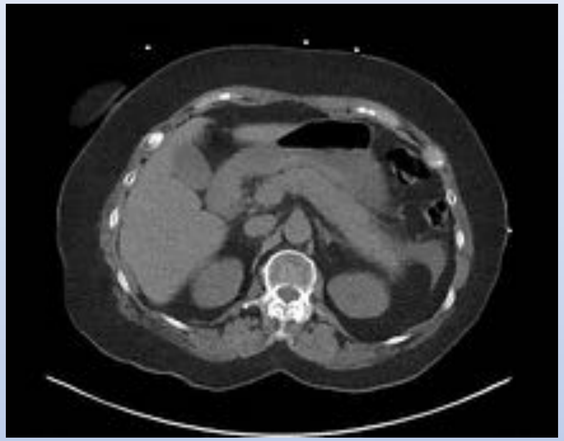

Figure 1. Axial CT scan of the abdomen revealing haziness along the body and tail of the pancreas as well as fluid at the left paracolic gutter consistent with acute pancreatitis.

Discussion

- According to the revised Atlanta criteria, the patient had findings consistent with acute pancreatitis.
- Common causes such as gallstone, alcohol, autoimmune, and hypertriglyceridemia-induced pancreatitis were ruled out.
- There were no masses or structural abnormalities on imaging that might have explained her diagnosis.
- There have been at least two reported cases of lisinopril and prednisone induced pancreatitis, however, according to Badalov et al[2] both medications are class III drugs that lack any rechallenge in the literature.
- Moreover, the patient had been taking these medications for many years, making them an unlikely cause of the presenting diagnosis.
- Nirmatrelvir/ritonavir was the patient's only new medication prior to the onset of her symptoms.
- Administration of nirmatrelvir/ritonavir within 5 days of symptom onset of COVID-19 infection has helped reduce the risk of hospitalization and death by 89% through day 28[1].
- There have been no reports of nirmatrelvir/ritonavir induced pancreatitis or clinically relevant pharmacologic interaction with her home medications.
- In addition, a meta-analysis conducted by Babajide et al[3] revealed no association between acute pancreatitis and COVID-19 infection.

Conclusions

- By ruling out the potential causes of acute pancreatitis and given the sequence of events that precluded the patient's symptoms, nirmatrelvir/ritonavir was presumed to be the likely culprit of the patient's diagnosis.
- To date, there have been no reports of nirmatrelvir/ritonavir associated with acute pancreatitis.

References

1. Lamb YN, Nirmatrelvir Plus Ritonavir: First Approval, 2022, 585-591
2. Badalov N et al, Drug-induced acute pancreatitis: an evidence-based review, 2007, 648-661
3. Babajide OI et al, COVID-19 and acute pancreatitis: A systematic review, 2022, 231-235