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Case Report

Case report on anti-tuberculosis drug-induced hepatitis and pancreatitis

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ABSTRACT

Tuberculosis (TB) is a widespread infectious disease primarily impacting the lungs but with potential effects on various organs, such as bones, kidneys, and intestines. This case underscores a rare yet serious complication associated with anti-TB drug (ATD) treatment-the development of drug-induced acute pancreatitis. In this instance, a 65-year-old male undergoing ATD therapy exhibited symptoms including fever, vomiting, and fatigue. Despite receiving medical intervention, including intravenous antibiotics and hepatoprotective drugs, the patient's condition progressively worsened, ultimately resulting in a fatal outcome. This case emphasizes the crucial significance of early identification and effective management of such complications, highlighting the necessity for vigilant monitoring and regular assessment of liver function tests throughout ATD treatment.

Keywords: TB, Drug-induced acute pancreatitis, Drug-induced hepatitis, Infectious disease

INTRODUCTION

TB is an infectious disease that can infect any organ in the body, including the bones, kidneys, and intestines, although it primarily affects the lung parenchyma (Pulmonary TB). Drug-induced acute pancreatitis is a rare cause of acute pancreatitis. Several potentially dangerous routes over 100 medicines have been identified.[1] ATD-induced hepatitis and pancreatitis is a rare but serious complication of anti-tuberculous treatment (ATT) that can cause liver damage and inflammation of the pancreas.[2] The first-line treatments for TB include isoniazid, rifampicin, pyrazinamide, and ethambutol. The toxicity of these drugs differs in different individuals because they may metabolize by different pathways. In addition to hepatotoxicity, there are also reported cases of ATD-induced cutaneous reactions and gastrointestinal disturbances.[3] Studies indicate that 5-28% of antitubercular medication patients develop hepatotoxicity.[4]

CASE REPORT

A 65-year-old male presented to the emergency department due to fever and vomiting for 5 days with associated dizziness and tiredness.

His previous medical history included uncontrolled type 2 diabetes. He had a 2-month history of fever and cough for which he was subsequently diagnosed to have pulmonary TB and was started on ATT with ethambutol, rifampicin, pyrazinamide and isoniazid on 17/01. There was no history of alcohol abuse, self-medication. All his oral medications including ATT were withheld on 25/01.

On examination, his abdomen was tender and investigation showed he had severe hypotension and features suggestive of acute hepatitis. He was admitted to the intensive care department, laboratory and imaging tests were performed. Liver function test showed elevation with serum alanine

aminotransferase (ALT) level of 220 U/L and serum aspartate aminotransferase (AST) level of 423 U/L. USG imaging showed features suggestive of acute pancreatitis. He was advised to correlate serum amylase and lipase levels to rule out pancreatitis and CECT abdomen for further evaluation. The results indicated the patient had acute pancreatitis, with serum amylase and lipase levels increasing at 3743 U/L and 67250 U/L, respectively.

Table 1: Results of liver function test.

Lab test	Values
ALT	220 U/L
AST	423 U/L
Sr. amylase	3743U/L
Sr. lipase	67250 U/L

The patient was managed with IV antibiotics followed by bronchodilators, pain medications, hepatoprotective drugs, and other supportive measures. His general condition worsened and gradually succumbed to his illness.

DISCUSSION

The development of acute or chronic hepatitis is common in patients using antitubercular medication.[5] Isoniazid (INH), rifampicin (RMP), pyrazinamide (PZA), and ethambutol (EMB) are the presently approved first-line therapy for TB. Some risk factors for this condition include chronic hepatitis B, hepatitis C infection, low body weight, HIV co-infection, high alcohol intake, and pre-existing liver disease.[2,6] According to Naranjo's causality evaluation methodology, anti-tubercular medications were the patient's likely cause of hepatitis in a case report involving a patient who has been prescribed it for three months.[7]

One of the most common and significant adverse reactions of anti-TB drugs is hepatotoxicity, which can affect treatment regimens and decrease the efficacy of the treatment.[8] Hepatotoxicity is characterized by anorexia, lethargy, low-grade fever, nausea, and vomiting.

INH and RFP, two essential TB drugs, frequently trigger DILI through various mechanisms. The most likely cause of hepatocyte death, which raises the level of transaminase, is direct INH toxicity or toxicity due to an INH metabolite. Additionally, it has been found that the PZA increases the possibility or severity of hepatotoxicity.[9] Rifampicin has been linked to adverse therapeutic events such as hepatitis, epigastric discomfort, anemia, thrombocytopenia, and interstitial nephritis.[10]

The two main antitubercular medications associated with severe pancreatitis are isoniazid and rifampin. Pancreatic duct constriction, cytotoxic and metabolic effects, the buildup of a toxic metabolite or intermediate, and hypersensitivity reactions are a few potential pathways for drug-induced acute pancreatitis.[11,12]

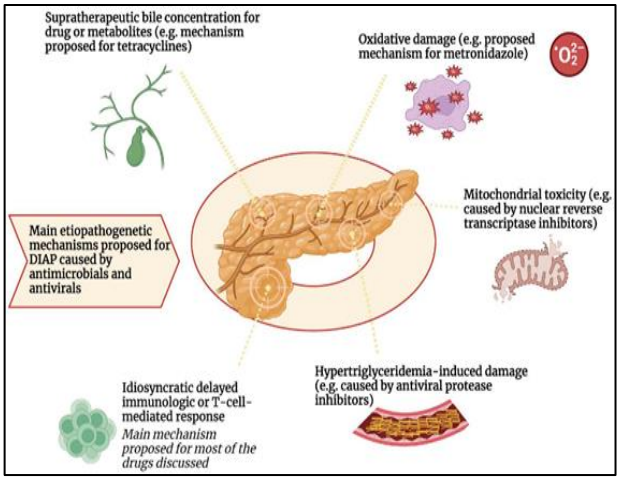

Figure 1: Causes for acute pancreatitis.

Pancreatitis-causing drugs should be avoided or replaced with those from a different class. Treatment of ATD drug-induced hepatitis involves discontinuation of the offending drugs and supportive care. Re-challenging with ATDs should be done cautiously and only after a careful risk-benefit analysis.

CONCLUSION

Hepatitis and pancreatitis induced by ATD treatment are rare with significant side effects. To reduce morbidity and death, these side effects should be promptly identified and managed which is crucial in preventing severe complications. Clinicians should be aware of these possible side effects and actively follow patients taking ATD treatment for any hepatitis and pancreatitis signs and symptoms and monitor liver function tests regularly.

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