

## **A Case of Anti-Tuberculosis Drug-Induced Liver Injury Complicated by Multisystem Organ Failure Including Acute Kidney Injury – A Case Report**

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The liver is highly susceptible to damage from oxidative stress induced by various drugs. Anti-tuberculosis drugs are a well-known cause of hepatotoxicity, which, although rare, can lead to significant morbidity and even mortality. The incidence of Anti-Tuberculosis Drug-Induced Hepatotoxicity (ADIH) ranges from 2% to 28%, depending on the definition of ADIH and the exclusion of other causes. Drug-induced liver injury (DILI) is characterized by a peak alanine aminotransferase (ALT) level that exceeds five times the upper limit of normal ( $5 \times \text{ULN}$ ), or a combination of ALT levels that are three times the upper limit ( $3 \times \text{ULN}$ ) and total bilirubin greater than two times the normal limit ( $2 \times \text{ULN}$ ). The majority of ADIH cases occur within the first month of initiating the intensive phase of tuberculosis treatment. This report presents a case of ADIH complicated by multisystem organ failure, including acute kidney injury. A 57-year-old male, a former smoker, was diagnosed with pulmonary tuberculosis and had been undergoing anti-tuberculosis therapy for one month. He presented with progressively worsening symptoms, including shortness of breath, right upper abdominal pain, distension, nausea, and vomiting over the past week. Investigations revealed left-sided hilar opacification on chest X-ray, partially compensated respiratory acidosis on arterial blood gas (ABG), and significantly elevated liver transaminases, bilirubin levels, and low albumin. The clinical diagnosis was Anti-Tuberculosis Drug-Induced Hepatitis (ATDIH), complicated by type 2 respiratory failure and acute kidney injury (AKI). The anti-tuberculosis therapy was withheld, and treatment with intravenous N-acetylcysteine (NAC) was initiated for liver failure. The patient also required continuous renal replacement therapy (CRRT), invasive ventilation, and other intensive care management strategies. Despite these interventions, the patient succumbed to multiorgan failure. This case underscores the critical importance of closely monitoring patients undergoing anti-tuberculosis therapy for adverse drug effects. Early detection and management of hepatotoxicity, along with appropriate supportive care, are crucial for preventing further complications and ensuring optimal outcomes in tuberculosis treatment.

**Keywords:** Drug-induced liver injury, anti-tuberculosis therapy, hepatotoxicity, tuberculosis, multisystem organ failure