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CASE REPORT | LIVER

Aspirin-Induced Acute Liver Injury

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Abstract

Aspirin is thought to be a relatively safe drug in adults. The association of aspirin and Reye syndrome in children is well documented. We report a 41-year-old female with pericarditis who was treated with high-dose aspirin and developed subsequent acute liver injury. After discontinuation of aspirin, liver enzyme elevation and right upper quadrant pain both resolved. We conclude that high-dose aspirin should be considered as a potentially hepatotoxic agent.

Introduction

Drug-induced liver injury (DILI) has an estimated incidence of 10 per 100,000 persons.[1,2] The most common offending agent in the United States is acetaminophen, and worldwide is amoxicillin-clavulanate.[1,3] Aspirin-induced liver injury in adults is not well described, but in high doses, should be considered in the differential.

Case Report

A 41-year-old female presented with 3 weeks of upper respiratory illness. She had a history of non-Hodgkin's follicular lymphoma and deep venous thrombosis on chronic anticoagulation therapy. Her symptoms included non-exertional sharp chest pain radiating to the back and left arm, which improved with leaning forward, and had associated fever, chills, nonproductive cough, shortness of breath, dyspnea, and palpitations. Vital signs were normal and physical exam was notable for mildly decreased breath sounds bilaterally at the bases without wheezes. On admission, basic metabolic panel, complete blood count, hepatic function panel, and lipase were all normal. Her labs showed troponin 1.26 ng/mL, creatine kinase-MB 5.1 ng/mL, internal normalized ratio (INR) 2.1, prothrombin time (PT) 22.7 seconds, and partial thromboplastin time (PTT) 48.8 seconds. Electrocardiogram was without ST changes or PR prolongation. She was initially treated for both non-ST segment elevation myocardial infarction and pericarditis in setting of recent suspected viral illness. She was started on metoprolol, atorvastatin, aspirin, clopidogrel, and warfarin was continued. Echocardiogram revealed circumferential pericardial effusion and normal systolic function without evidence of tamponade physiology. Treatment for pericarditis was started with aspirin 975 mg twice daily.

Within 48 hours of aspirin therapy, she began to complain of right upper quadrant pain without delirium. Transaminases increased to AST 7,946 U/L and ALT 5,684 U/L, with normal alkaline phosphatase of 84 U/L and total bilirubin of 0.8 mg/dL. INR increased to >13.8, PT to >100 seconds, and PTT to 46.2 seconds. Vital signs remained normal. Aspirin and warfarin were discontinued, and she was given fresh frozen plasma, vitamin K, and N-acetylcysteine. Right upper quadrant ultrasound revealed normal liver, vasculature, and ductal system. Viral serologies were all negative. She improved clinically with decreased abdominal pain and decline in liver function tests over the next 3 days. Due to progressive improvement, no liver biopsy was performed.

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Discussion

DILI is a leading cause of acute liver injury and may present as a spectrum from asymptomatic elevations in liver enzymes to acute liver failure.[1-6] Estimated incidence is 10 per 100,000 persons.[1,2] Many drugs and herbs have been associated with liver injury and have been subsequently removed from the market, while others are well known and monitored with dosing and screening for underlying liver disease. DILI diagnosis can be difficult to confirm, especially when confounded by ingestion of multiple medications, medical comorbidities, illicit drug or alcohol abuse, or concomitant liver disease.[1,2,4] However, there is usually a temporal relationship of the offending agent with onset of symptoms, and resolution after withdrawal of presumed agent.[1,2,4]

DILI can be classified based on clinical presentation, laboratory and histological findings, and mechanisms of hepatotoxicity.[7] Histology may prove beneficial and may resemble autoimmune hepatitis or various cholestatic patterns. However, none of these are pathognomonic.[8,9]

Ischemic hepatitis was also considered in this case; however, there were no episodes of hypotension during hospitalization. While multiple medications were started on admission, her symptoms began after addition of high-dose aspirin and improved with discontinuation of aspirin.

Aspirin-induced liver injury in adults is not as well documented as the similar Reye syndrome in children. A 1987 case series documented 7 cases of adult Reye syndrome, a diagnosis difficult to make secondary to underlying medical history and multiple confounding factors, but one that may be more common than reported.[10] Zimmerman noted aspirin-induced liver injury was likely overlooked because it less commonly causes jaundice and requires cumulative effect to cause appreciable damage.[9] Our patient's presentation was not consistent with Reye Syndrome or ischemic hepatitis. Rather, the temporal relationship of high-dose aspirin use to the onset of symptoms and the improvement of symptoms after discontinuation is suggestive of aspirin as the causative agent of DILI. Although aspirin is not routinely described as a causative agent in adults, it should be considered, especially when used in high doses.

Disclosures

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