

Oral *Aloe vera* induced drug induced liver injury (DILI)

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Introduction: Herbal preparations and dietary supplements (HDS) use continues to increase over time, due to perceived safety and medicinal benefits. However, there are potential adverse effects associated with HDS such as drug induced liver injury (DILI). We present a case of drug induced liver injury (DILI) from the herbal supplement oral *Aloe vera* ultimately leading to orthotopic liver transplantation (OLT).

Case Summary: A 64-year-old Caucasian female patient with a history of obesity, diabetes mellitus type 2, and hyperlipidemia reported having increasing jaundice and pruritus. Patient had denied acetaminophen use, alcohol abuse, and had no previous history of chronic liver disease. Patient did report taking daily oral *Aloe vera* supplement. Patients notable laboratory values on presentation were aspartate aminotransferase (AST): 1088 U/L, alanine transaminase (ALT): 785 U/L, alkaline phosphatase (ALP): 141 U/L, total bilirubin: 16.6 mg/dL, and international normalized ratio (INR): 3.2. Other laboratory workup for acute hepatitis was negative. Patient underwent liver biopsy which revealed acute hepatitis without significant fibrosis. Despite discontinuing *Aloe vera* the patient continued to deteriorate and ultimately required a liver transplant. The pathological evaluation concluded that the patient had cirrhosis. Post-transplant course was uneventful.

Discussion: DILI is defined as hepatic dysfunction caused by prescription medications, over the counter medications, and HDS after alternative causes have been excluded. Evaluating for DILI can be challenging as it can present in a variety of ways and can be considered after excluding other etiologies of hepatic dysfunction. Certain risk factors will predispose patients to DILI such as chronic liver disease, obesity, age, and female sex. Scoring algorithms such as Roussel Uclaf Causality Assessment Model (RUCAM) scoring can help make the diagnosis of DILI. In our case, the etiology of hepatotoxicity was thought to be due to oral *Aloe vera* induced DILI. The patient had a RUCAM score of 6 which correlates to probable DILI and Drug-Induced Liver Injury Network (DILIN) severity grade of 4+. After excluding other etiologies of acute hepatitis and considering the patients risk factors of age, female sex, and a new diagnosis of chronic liver disease the likely source of hepatic dysfunction was due to oral *Aloe vera*.

Conclusion: The widespread use of HDS in the United States continues to be prevalent due in large part to claimed health benefits of HDS. One of the potential adverse effects of HDS is DILI, with an estimated 20% of DILI cases associated with HDS. The lack of HDS safety regulations and a uniform HDS DILI reporting system, allow for continued HDS DILI outbreaks. Prior to starting HDS, patients should have a risks and benefits discussion about HDS with their healthcare provider.

