A Superfood with a Dark Side: A Case of Severe Liver Injury Due to Turmeric

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Introduction:

- Herbal and dietary supplements are a common cause of drug induced liver injury.
- Turmeric is a supplement whose active ingredient curcumin is commonly used for anti-inflammatory and anti-neoplastic effects. Turmeric is believed to have a good safety profile.
- Turmeric induced severe liver injury is a rare entity that has not been well-described.

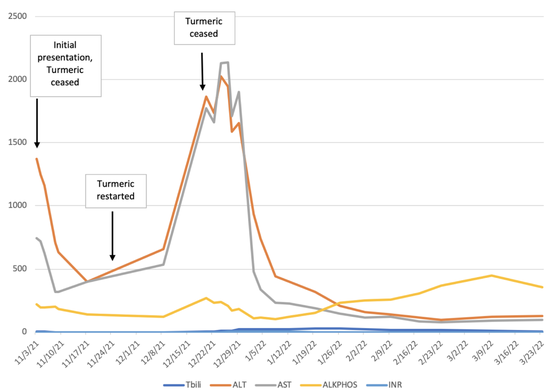

Figure 1. Graph representation Total Bilirubin, AST, ALT, alkaline phosphatase trend over time

Case Description:

- A 49 year old female with no significant medical history was admitted with nausea and vomiting. She was found to have abnormal liver tests with total bilirubin 2.0, alanine aminotransferase (ALT) 1300, aspartate aminotransferase (AST) 745, alkaline phosphatase (ALP) 220, international normalized ratio (INR) 1.1. Workup of her liver injury with complete serologic workup and imaging were negative.
- She admitted to taking a 1000 milligram daily dose of turmeric in formulation with black pepper for the past 3 months.
- While hospitalized, her liver tests improved and she was discharged with instructions to avoid further herbal supplements. Two weeks after discharge, outpatient labs showed improving liver tests with total bilirubin 0.9, ALT 397, AST 320, ALP 138, INR 1.0.
- One month later, she was readmitted for nausea and vomiting and was found to have total bilirubin 3.9, ALT 1865, AST 1770, ALP 269, INR 1.2. Repeated serologic workup and imaging were again unremarkable. Her liver tests continued to increase, peaking with total bilirubin 27.8, ALT/AST above 2000, and INR 2.3 without encephalopathy.
- Percutaneous liver biopsy revealed severe acute hepatitis with hepatocyte dropout and focal parenchymal collapse without significant fibrosis, concerning for drug-induced liver injury. She admitted that a few weeks after her first hospitalization, she resumed taking turmeric.
- Due to rising INR, she was treated with prednisone and monitored closely. After an extended hospitalization, she was discharged home with a prednisone taper.
- On discharge, total bilirubin was 23, ALT 445, AST 231, ALP 124, and INR 1.6. Over the next 6 months, her liver tests significantly improve, including normalization of bilirubin and INR. She continues to avoid turmeric.

Discussion:

- This case illustrates a rare example of severe turmeric induced liver injury in the setting of a positive re-challenge.
- The severity of this case is in contrast to the few published case reports and case studies of acute liver injury from turmeric use, which have largely demonstrated only mild liver function test abnormalities.
- The risk of severe liver injury may be increased when turmeric is taken in formulation with black pepper, as it aids intestinal absorption of turmeric's active ingredient curcumin.
- As turmeric is a highly unregulated supplement, physicians should be aware of patients who are taking this supplement and the potential adverse effects associated with it.

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