

ELEVATED ALT AND AST IN AN ASYMPTOMATIC PERSON

What the primary care doctor should do?

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ABSTRACT

- Abnormal liver function test with raised alanine aminotransferase (ALT) and raised aspartate aminotransferase (AST) are commonly seen in primary care setting.
- Chronic alcohol consumption, drugs, non-alcoholic steatohepatitis (NASH) and chronic viral hepatitis are common causes associated with raised ALT and AST.
- In chronic viral hepatitis, the elevation of liver enzyme may not correlate well with the degree of liver damage.
- Non-hepatic causes of raised ALT and AST include polymyositis, acute muscles injury, acute myocardial infarction and hypothyroidism.
- In the primary care setting, the doctor should obtain a complete history regarding the risk factors for viral hepatitis, substance abuse and request investigations accordingly.
- Suspected chronic viral hepatitis and liver cirrhosis are best referred to hepatologist for further management.

Loh KY, Kew ST. *Test Your Knowledge: Elevated ALT and AST in an asymptomatic person, what the primary care doctor should do? Malaysian Family Physician. 2009;4(2&3):98-9*

CASE SCENARIO

Mr TA, a healthy 45 year old business executive, is noted to have elevated ALT 85 IU/L and AST 90 IU/L (Normal: 0-45 IU/L). He has no symptom and is not jaundiced. He does not have any known past medical illness. He consumes alcohol occasionally.

1. What are the common causes of elevated ALT and AST in an asymptomatic person?
2. In the primary care setting, what will be your plan of management?

INTRODUCTION

Liver function test is one of the most common blood tests requested by primary care doctors in clinical practice. Abnormal results in the liver function test often cause considerable anxiety in asymptomatic subjects. It may lead to visits to family doctors to seek advice, or demand for more investigations to ascertain if there is underlying serious liver disease. The most common abnormalities of liver function test in an asymptomatic person is raised alanine aminotransferase (ALT) and raised aspartate aminotransferase (AST). The upper normal limit of ALT and AST varies from lab to lab, and is usually from 25 to 50

IU/L.¹ ALT and AST are produced by hepatocytes, therefore raised ALT and AST are laboratory indicators for hepatocellular injury. When there is acute necrosis of the liver, caused by ischaemia, viral hepatitis, chemical or toxin, the ALT and AST levels can go up to hundreds or thousands IU/L. This is the result of leakage of these enzymes into the systemic circulation. Clinically patient will present with symptoms such as jaundice and abdominal pain. However, the elevation of ALT and AST in asymptomatic subjects in primary care setting is usually in the range of 1.5 to 2 times the normal value.^{1,2}

1. Common causes of mild elevation of ALT and AST in an asymptomatic person

One of the most common causes of mild elevation of ALT and AST in asymptomatic persons is chronic alcohol consumption.² This is a common finding even if the patient does not have alcoholic hepatitis or alcohol related liver cirrhosis or failure. If the AST:ALT ratio is greater than two, it is more suggestive of alcoholic liver disease.^{1,2}

Many prescription drugs also induce elevated ALT. Cholesterol lowering agents (such as HMGCo-A reductase), anti tuberculosis drugs, non steroidal anti-inflammatory drugs including aspirin are all known to cause mild elevated

liver enzyme. In the community, use of traditional or complementary therapy must also be excluded. Obesity and insulin resistance are associated with a condition known as non-alcoholic steatohepatitis (NASH) which also presents with mild elevation of ALT and AST.³

Chronic liver disease such as cirrhosis and chronic hepatitis C may cause mildly elevated AST and ALT. In chronic viral hepatitis, the elevation of liver enzyme may not correlate well with the degree of liver damage. Other non-hepatic medical diseases associated with raised ALT and AST include musculoskeletal disorder such as polymyositis, acute muscles injury, acute myocardial infarction and hypothyroidism.

2. Plan of management for asymptomatic raised ALT and AST

Persistent mild elevation of ALT and AST in asymptomatic persons should be followed up and if the levels go above 2 times the normal range, further evaluation is necessary. After excluding drug-induced hepatitis or hepatic injury, recent hepatobiliary surgery and obesity, further investigations should be performed to look for underlying cause such as alcohol abuse, chronic phase of hepatitis B and hepatitis C infection, and undiagnosed liver cirrhosis.

Gamma-glutamyltranspeptidase (GTT) is another enzyme which is frequently elevated in alcohol abuse. It is non-specific, but if the level is above 2 times the upper limit of

normal, it supports the diagnosis of alcohol-induced elevation of ALT and AST.^{1,2} Serology test for hepatitis B and C is necessary to establish the diagnosis of chronic infective hepatitis as a cause of raised ALT and AST. It is also reported that the finding of persistently raised liver enzyme in an asymptomatic hepatitis B patient is associated with high infectivity. Ultrasound of the liver is a non-invasive procedure which can assist in the diagnosis of liver cirrhosis, NASH and any associated hepatobiliary diseases. If the final diagnosis is chronic hepatitis B, or liver cirrhosis, the patient is best referred to a hepatologist for further evaluation and management.

Progress of Mr TA

His viral hepatitis screenings were all normal. Ultrasound of the liver showed early fatty change. He is advised on healthy lifestyle practices and abstinence from alcohol. Repeat Liver function test 6 months later did not show any deterioration. He remains asymptomatic till this day.

REFERENCES

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2. Giboney PT. Mildly elevated liver transaminase levels in the asymptomatic patient. *Am Fam Physician*. 2005;71(6):1105-10.
3. Green RM, Flamm S. AGA technical review on the evaluation of liver chemistry tests. *Gastroenterology*. 2002;123(4):1367-84.

Research Digest

Discoloured sputum has a poor prediction for bacterial URTI

Altiner A, Wilm S, Daubener W, et al. Sputum colour for diagnosis of a bacterial infection in patients with acute cough. *Scand J Prim Health Care*. 2009;27(2):70-3.

Sputum samples obtained from 241 patients suffering from URTI were sent for microbiological culture. Yellowish or greenish colour of the sputum has marginally raised probability of bacterial infection than colourless sputum (16.2% vs 5.7%). Starting antibiotic based on sputum colour is not justifiable.