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“Decoding Liver Enzymes: What You Need to Know”

Symptoms of liver disease may not be present until the later stages of severe disease, elevated liver enzyme tests are sometimes the first indication of potential liver damage.

Hello viewers, today we will discuss liver enzymes and their significance. Liver enzymes are essential for our overall health, and understanding their importance can

help clarify confusing lab results. Let's delve into this.

Welcome back to our channel. Today, as I said, we're delving into a topic that might have left you scratching your head during your last doctor's visit: liver enzymes. Don't worry; we've got you covered! I'm Dr. [Harold], and this is our mini crash course on liver enzymes and their significance."

1. What Are Liver Enzymes?

"Okay, let's start with the basics. Liver enzymes are like the backstage crew of your body—they work tirelessly behind the scenes to keep things running smoothly.

Liver enzymes are proteins found in the liver that speed up specific chemical reactions within the organ.

The two most common liver enzymes are:

Aspartate aminotransferase (AST)

Alanine aminotransferase (ALT)

These enzymes perform vital functions in the liver, but if the liver is damaged, AST and ALT can pass into the bloodstream.

This causes their levels in the blood to rise, which can indicate an issue with liver health. Hope you got that right.

Now, let's discuss elevated Liver Enzymes and Liver Health

Elevated liver enzyme levels can be a sign of severe liver disease. Still, they can also occur with mild, temporary illnesses. Symptoms of liver disease may not be present until the later stages of severe disease, so elevated liver enzyme tests are sometimes the first indication of potential liver damage.

Further testing is often required to determine the cause of elevated liver enzymes. AST and ALT hold great clinical significance as their increase (or rapid decrease) in blood serum can indicate problems within the liver, as mentioned. That is what we check on a blood test to determine the liver's functional situation.

Here's what the enzymes do:

Metabolising Nutrients and Medications

within the liver cells: Liver enzymes help break down your food and medications.

Think of them as the ultimate multitaskers.

1. The liver is an essential metabolic organ rich in enzyme systems that play an important role in the metabolism and protein synthesis in the body.

Specifically, it is applied to degrade toxins, secrete bile, store glycogen, and metabolise drugs

What food does the liver break down?

It breaks down fats eaten, converting excess carbohydrates and protein into forms stored for later use while synthesising other fats, like cholesterol.

2. Bile is a fluid made and released by the liver and stored in the gallbladder. It helps with digestion by breaking down fats into fatty acids, which the digestive tract then takes into the body.

Bile is a superhero substance that helps digest fats and absorb fat-soluble vitamins in the gut. Without bile, your intestines would throw a little tantrum."

As mentioned, You need your liver to digest anything you eat with fat. Every day, your liver cells make almost a litre of bile, a dark green liquid that flows into tubes called bile ducts. From there, the bile passes into the duodenum, a section of your small intestine, where it breaks the fat into smaller particles.

The Three Main Liver Enzymes

"Okay, let's meet the stars of our show—the three main liver enzymes:

1. **Aspartate Aminotransferase (AST):** This one's like the drama queen. AST is a marker for liver cell injury. But guess what? It's not exclusive to the liver. It also pops up when your muscles are unhappy (like after a vigorous workout) or during a heart attack, or it may be a sign of heart problems and pancreatitis, or it may be a sign of hepatitis.

Alanine Transaminase (ALT): ALT is the true liver specialist. When it's elevated, it's like the liver waving a tiny red flag, saying, 'Hey, something's up!' ALT is specific to the liver, so it's our most valuable player

2. **Alkaline Phosphatase (ALP):** ALP is the detective. It's linked to bile duct injury. Those bile ducts are like the liver's secret tunnels—they carry bile to your intestines. ALP also moonlights in bone and even during pregnancy.

High alkaline phosphatase levels in your liver may be a sign of bile duct blockages, cirrhosis, or hepatitis.

So, the key liver disease that leads to increased ALP is cholestatic liver disorder, which involves blockage or obstruction of the bile ducts.

3. What If They're Elevated?

AST (SGOT) is standard in the 20-40 UI/L range. ALT is also present. These are two liver enzymes that are specific to the liver. When many liver cells are damaged or necrotic, both enzymes are "released" and massively released into the blood.

AST (SGOT) is usually found in many organs, such as the liver, heart, muscles, kidneys, and brain. It is released into the bloodstream when one of these organs is damaged. For example, its concentration will increase in the blood after a heart attack or muscle damage. Therefore, this enzyme is not specific for liver injury.

- **If only mild to moderate elevation of AST, ALT, and ALP, it** usually signals liver inflammation. Imagine your liver saying, 'Hey, I'm not feeling my best today.' If this inflammation persists, it can lead to scarring (fibrosis). We've got stages 0 (no scarring) to 4 (cirrhosis). But here's the good news: Fibrosis can be reversible if you catch it early. Like hitting the rewind button!"

Let's discuss the Common Causes of Elevated Liver Enzymes.

"Ah, the million-dollar question: 'Doc, I don't drink like a pirate—why are my liver enzymes acting up?' Well, here are some usual suspects:

1. **Fatty liver disease is when too much fat is in your liver cells.** Can a fatty liver cause high ALP?
2. The most common presentation of NAFLD will be incidental findings of abnormal LFTs. Typical findings in NAFLD are raised ALT and AST, with a preserved ALT: AST ratio of 1.5, raised gamma-glutamyl transferase (GGT) and, occasionally, raised alkaline phosphatase (ALP).
3. **Viral Hepatitis:** Those sneaky viruses (Hepatitis A, B, C) love to party in your liver cells.
4. **Medications:** Some meds can be the liver's frenemies.
5. What are the ten worst medications for your liver?

Prescription drugs: Statins, antibiotics like amoxicillin-clavulanate or erythromycin, arthritis drugs like methotrexate or azathioprine, antifungal drugs, and niacin.

Steroids. Allopurinol for gout. Antiviral drugs for HIV infection.

What are dangerously high liver enzyme levels?

The specific assessment of liver enzyme index is as follows: A liver enzyme index of 40-80 warns of the risk of fatty liver, viral hepatitis, or alcoholic hepatitis. A liver enzyme index of 80-150 warns of impaired liver function, which may cause complications such as cirrhosis, cirrhosis of the liver, and ascites.

Diabetes raises your risk of nonalcoholic fatty liver disease, a condition in which excess fat builds up in your liver even if you drink little or no alcohol. This condition occurs in at least half of those with type 2 diabetes. However, it is not a given that if you have type 2 diabetes, you will automatically develop fatty liver disease. Since obesity, insulin resistance, and high levels of triglycerides in the blood increase the risk of fatty liver disease, treating these other conditions can prevent its development.

"So, my dear viewers, next time you see those liver enzyme numbers, don't panic. Remember, it's like your liver sending a postcard: 'Hey, I'm working here!' And if you're curious about your numbers, chat with your friendly neighbourhood hepatologist. Until next time, stay curious, stay healthy, and hit that subscribe button!"



