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**The ways to access the integrity of the liver following am exposure to acetaminophen**

The most common ways of accessing the integrity of the liver (liver function test) are;

1. Alanine aminotransferase (AST) also called Serum glutamic pyruvic transaminase (SPGT)
2. Aspartate aminotransferase (AST) also called Serum glutamic oxaloacetic transaminase or SGOT

These enzymes are not unique to the liver in either location or function

Respectively, they catalyze the transfer of alpha-amino groups of alanine (AST) and aspartate (ALT) to the alpha-keto group of 2-oxaglutarate to form respectively pyruvate and oxaloacetate, in addition to glutamate.

The enzymes require pyridoxal-5’-phosphate (P5P) as a co-enzyme which is a metabolite of vitamin B6. As a result, individuals with vitamin B6 deficiency can have lower than expected assays levels of aminotransferase with resulting clinical and laboratory implications.

Any perturbation to the liver, whether necrosis or not can induce enzyme leakage from the hepatocyte.

There are multiple assay methods for serum determination of AST and ALT levels. A popular method utilizes coupling of the respective reactions with dehydrogenase reactions. (AST) oxaloacetate-malate dehydrogenase-malate and (ALT) pyruvate-lactate dehydrogenase-lactate.

Both reactions oxidize NADH to NAD+ with the disappearance of NADH, subsequently measured at 340 manometers. AST is actively stable in serum for up to 48 hours at 4 degrees Celsius with freezing required if specimen integrity is to be maintained.

ALT specimens should also be measured as soon as practical as activity falls off at room temperature, 4 degrees Celsius and 25 degrees Celsius.

Respective approximate upper limits of normal are

AST- FEMALE; 31 U/L MALE; 35 U/L

ALT- FEMALE; 34 U/L MALE; 45 U/L

Illustrative of the liver’s importance, it is fact that functional liver failure does not occur until 80% of the liver’s capacity has been damaged beyond repair