



# ASK DR. BOB

## LIVER FUNCTION TESTS

**Several times each day underwriters ask questions regarding the significance of elevated liver function tests and how best to underwrite such abnormalities. In past issues I have written specifically about specific liver tests and specific liver diseases. I thought it would be worthwhile to look at this problem from a more generalized viewpoint.**

Initially, let me emphasize that, because of statistical methodology, 2.5% of all persons considered to be healthy and normal will have mild elevations of liver enzymes above the usual normal value. This must always be taken into consideration, but would be less likely to be present if more than one liver enzyme was elevated. There are a number of causes of elevations more than ten times normal. These are usually acute medical conditions, and do not present a common problem in underwriting. From the underwriter's standpoint, we are more concerned about diseases that cause chronic elevations of liver enzymes. In almost every case, the number one step to take is to consider whether or not alcohol abuse could be present. This can be difficult, but there may be helpful information in the APS, in the motor vehicle report, or from doing more specific alcohol markers on the blood chemistry profile. If there is convincing evidence of alcohol abuse, the case can be underwritten as such. If the underwriter feels that alcohol abuse is not present, then the process can proceed to the next step.

Once alcohol abuse has been ruled out, the vast majority of elevated liver enzymes (at least 50%) is secondary to fatty liver. Fatty liver can be caused by diabetes, obesity, dyslipidemias, and the metabolic syndrome. Since many of the above conditions are present in a large percentage of the general population, you can see why fatty liver is so prevalent. If an underwriter has evidence suggesting fatty liver, then the proper rating can be applied.

Another reason for elevated liver enzymes is side effects from medications, both prescription and over-the-counter. This is probably the third most common reason for elevated

liver enzymes, but is small in comparison to fatty liver. The next step would be to exclude chronic viral hepatitis, either B or C. This can easily be done by testing for antibodies on the blood chemistry profile.

Once the above steps have been taken, the remaining list of diseases causing chronic liver disease and chronic enzyme elevation is small and overall rare in occurrence. This includes autoimmune hepatitis, hemochromatosis, Wilson's disease, and alpha-1 antitrypsin deficiency. Various blood tests are available to help diagnose these uncommon entities.

There are combinations of elevated liver enzymes that can suggest a particular disease. The best example of this is if both the AST and ALT are elevated, but the AST is more than two times greater than the ALT, this strongly suggests alcohol as the culprit. Unfortunately, there is no particular pattern to the elevated liver enzyme tests that has 100% specificity for any disease. It should be noted that isolated elevations of the GGT (our "poor man's" alcohol marker) has very poor specificity and usually has little underwriting significance. Numerous studies have been performed on people that appear to be healthy and without symptoms, but still have elevation of liver enzymes. In many cases no disease is ever discovered. When disease is present, fatty liver and alcohol are the two most common. The message from these studies is that the underwriter should first rule out alcohol abuse, and once this is done, non-alcoholic fatty liver disease is most likely the cause.

So in determining a final rating, most cases will end up having fatty liver as the reason for the elevation. Some of these cases may require a rating because the fatty liver may be associated with the metabolic syndrome or significant dyslipidemia, and the rating would be applied because of these specific diseases and not the enzyme elevation itself. If the person's lipids or weight are not ratable, then the case of fatty liver could be taken standard.

Lastly, it should be remembered that some types of chronic liver disease will have fluctuations in the liver enzyme test, at times there will be mild elevation at other times they will be normal. Unfortunately, this pattern can be seen in more serious types of disease such as chronic hepatitis B or C. So you can see, that some times an underwriter must take a leap of faith in coming up with the final decision about whether to rate or not rate a person because of elevated liver enzymes. I would be happy to discuss this topic with anyone if they so desire. Please feel free to call me at any time regarding any matter.