Abnormal Liver Function Tests

Changes to enzymes responsible for liver function may be a sign of liver injury or disease. The enzymes alanine transaminase (ALT), aspartate transaminase (AST), alkaline phosphatase (ALP), and bilirubin are measured in blood tests.

When ALT and AST are a little above normal limits, ultrasound (US) abdomen (https://www.radiologyinfo.org/en/info/abdominus) and US duplex Doppler abdomen are usually appropriate. US shear wave elastography (https://www.radiologyinfo.org/en/info/elastography) abdomen (measures tissue stiffness), MR elastography abdomen, MRI abdomen (https://www.radiologyinfo.org/en/info/mri-abdomen-pelvis) without and with intravenous (IV) contrast with MR cholangiopancreatography (https://www.radiologyinfo.org/en/info/mrcp) (MRCP; special MRI for pancreas and liver), and CT abdomen/pelvis (https://www.radiologyinfo.org/en/info/abdominct) without IV contrast may be appropriate.

When ALT and AST are above limits by a large amount, US abdomen, US duplex Doppler abdomen, and CT abdomen/pelvis with contrast are usually appropriate. MRI abdomen without and with contrast with MRCP, MRI abdomen without contrast with MRCP, and CT abdomen/pelvis without contrast may be appropriate.

High ALP can result from liver disease (https://www.radiologyinfo.org/en/info/fatty-liver-disease) or other causes. When both ALP and gamma-glutamyl transpeptidase are high, the cause is usually liver disease. US abdomen, MRI abdomen without and with contrast with MRCP, and CT abdomen/pelvis with IV contrast are usually appropriate. US duplex Doppler abdomen, MRI abdomen without contrast with MRCP, and CT abdomen/pelvis with contrast may be appropriate.

High bilirubin levels (called hyperbilirubinemia) can result from a bile flow blockage, liver disease, or other causes. With hyperbilirubinemia, US abdomen, MRI abdomen without and with contrast with MRCP, MRI abdomen without contrast with MRCP, and CT abdomen/pelvis with contrast are usually appropriate. CT abdomen/pelvis without contrast may be appropriate.

For more information, visit the Fatty Liver Disease and Liver Fibrosis (https://www.radiologyinfo.org/en/info/fatty-liver-disease) page.

— By Emily Guernsey and Nina S. Vincoff, MD. This information originally appeared in the *Journal of the American College of Radiology.*

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