

best tests

LIVER FUNCTION TESTING

August 2007

NONALCOHOLIC
FATTY LIVER
DISEASE

QUESTIONNAIRES
FOR **ALCOHOL**
USE



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1. REQUESTING LIVER FUNCTION TESTS


Do not test LFTs in asymptomatic people who have no risk factors

Indications for testing

- **Risk factors:** e.g. diabetes, metabolic syndrome, ↑ alcohol, chronic hepatitis B or C
- **Co-morbidities that may alter liver function:** e.g. haemochromatosis, autoimmune diseases, chronic inflammatory bowel disease, metastatic cancer, thyroid disease, right heart failure
- **Some medications:** e.g. valproate, amiodarone, methotrexate, chemotherapy drugs, initiation of warfarin
- **Some laboratory tests results:** e.g. abnormal iron studies/ferritin, macrocytosis, neutropenia, thrombocytopenia
- **Clinical features of liver disease:** e.g. classic features may include: jaundice, fatigue, pruritis, RUQ pain

2. INTERPRETATION OF RESULTS

Interpretation should take into account clinical features including:



<i>Signs and symptoms</i>	<i>Medication</i>	<i>Family history</i>	<i>Social history</i>	<i>Industrial exposure</i>
Fatigue Pruritis RUQ pain Sleep wake reversal Difficulty concentrating Easy bruising Peripheral edema	Prescription drugs OTC Herbal remedies	Genetic conditions e.g. haemochromatosis, Wilson's disease, alpha-1- antitrypsin deficiency Familial tendency e.g. obesity, type 2 diabetes, ↑triglycerides	High risk sexual habits IV drug use Overseas travel Alcohol use	Especially industrial solvents

3. LIVER FUNCTION TEST PATTERNS

<p>Hepatocellular pattern (Markers: AST, ALT)</p> <p>Likely causes:</p> <ul style="list-style-type: none">NAFLD*HepatitisAlcohol, drugsHaemochromatosisAutoimmune disease	<p>Cholestatic pattern (Markers: Alk phos, GGT, Bilirubin)</p> <p>Likely causes:</p> <ul style="list-style-type: none">GallstonesAbdominal massesMedications1° biliary cirrhosisParaneoplasiaSystemic sepsis	<p>Liver failure pattern (Markers: Albumin, INR)</p> <p>Likely causes:</p> <ul style="list-style-type: none">Severe liver disease
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4. LFTS AND MANAGING SPECIFIC CONDITIONS

Acute hepatitis: Measure 2 x per week: ALT, AST, bilirubin, INR, creatinine, glucose

Fatty liver: Test LFTs occasionally especially if high risk of fibrosis

Gilbert's disease: No monitoring of bilirubin or LFTs required

Infectious mononucleosis: LFTs not indicated

Liver metastases: LFTs not usually indicated

5. PEOPLE WHO REQUIRE SPECIALIST REFERRAL

- HBsAg positive with ALT above the ULN** for at least 6 months
 - If alpha-foeto protein (AFP) > 100, refer urgently
 - If alpha-foeto protein (AFP) > 20 for more than 1 month, refer urgently
- People who are hepatitis C RNA positive
- People with failure of liver synthetic function
- People with haemochromatosis with abnormal LFTs, hepatomegaly or ferritin > 1000 µg/L
- Anyone with persistent explained LFT abnormalities

*NAFLD - Nonalcoholic Fatty Liver Disease

**ULN - Upper Limit of Normal

Questionnaires Are Better Than Blood Tests When Screening for Unhealthy Alcohol Use

Citation(s): Coulton S et al. Opportunistic screening for alcohol use disorders in primary care: Comparative study. *BMJ* 2006 Mar 4; 332:511-7.

Validated questionnaires are more sensitive, more specific, and less expensive than blood tests.

Some researchers have questioned whether self-administered surveys are adequate for assessing unhealthy alcohol use (risky drinking, including abuse and dependence) or whether blood tests might be better. In this study, 1794 men in the U.K. completed a 10-item alcohol screening questionnaire (the Alcohol Use Disorders Identification Test) in the primary care setting. Blood tests and detailed interviews were conducted in 112 of those who screened positive for unhealthy alcohol use on the questionnaire and 82 of those who screened negative.

Sensitivity for unhealthy alcohol use was much higher with the questionnaire (69%) than with any of the biochemical markers: 20% with aspartate aminotransferase (AST), 32% with red-cell mean corpuscular volume (MCV), 37% with γ -glutamyltransferase (GGT), and 47% with carbohydrate-deficient transferrin (CDT). Similarly, specificity was 98% with the questionnaire but was only 80% with AST, 71% with MCV, 72% with GGT, and 71% with CDT. For alcohol dependence, the questionnaire was 84% sensitive and 83% specific — superior to the other tests. The cost of identifying a patient with unhealthy alcohol use was 6 to 20 times lower with the questionnaire than with biochemical markers.

Comment: These results confirm that validated questionnaires are the best way to screen for unhealthy alcohol use. They are more sensitive, more specific, and less expensive than blood tests.

— Richard Saitz, MD, MPH, FACP, FASAM

Published in *Journal Watch Psychiatry* May 3, 2006
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Natural History of Nonalcoholic Fatty Liver Disease

Citation(s): Ekstedt M et al. Long-term follow-up of patients with NAFLD and elevated liver enzymes. *Hepatology* 2006 Oct; 44:865-73.

Among patients diagnosed in middle age, survival was lower than normal, and 5% developed symptomatic chronic liver disease.

Until recently, nonalcoholic fatty liver disease (NAFLD) — a common cause of elevated serum transaminase levels in asymptomatic people — was considered harmless. But now, many authorities believe that NAFLD sometimes progresses to clinically significant liver disease. Swedish researchers identified 129 consecutive patients (mean age, 51) with biopsy-proven NAFLD among patients referred to a hepatology department for evaluation of persistently elevated AST or ALT. Seventy-one of the patients (55%) had nonalcoholic steatohepatitis (NASH), which represents a subset of NAFLD patients with more advanced pathologic findings.

During an average follow-up of 13.7 years, 26 patients died, 19 of whom had NASH at baseline. This death rate was significantly higher than expected in the Swedish population. Most deaths were due to cardiovascular disease. Seven patients developed end-stage liver disease, and two of them died.

Sixty-eight patients underwent repeat liver biopsy at 10 to 16 years of follow-up. Of 36 without fibrosis at baseline, 17 had fibrosis at follow-up. Of 32 with fibrosis at baseline, 10 had progression of fibrosis.

Comment: This study adds to our understanding of the natural history of NAFLD. Among patients diagnosed with NAFLD in middle age and followed for more than a decade, survival was reduced, and 5% of patients developed symptomatic chronic liver disease. Although metabolic syndrome was not systematically diagnosed at baseline, many patients were overweight, hypertensive, or hyperlipidemic, which probably explains why cardiovascular disease was the leading cause of death.

— Allan S. Brett, MD

Published in *Journal Watch General Medicine* November 7, 2006.