Hepatology referral pathways for GP

1 Scope

For use within hepatology

Contents

2. Liver blood tests and what they mean
   Acute and chronic liver screen

Common reasons for hepatology referral

3. Raised ALT

4. Isolated asymptomatic raised bilirubin

5. Raised ALP and normal ALT

6. Raised ALT +/- raised ALP +/- raised bilirubin (combination of abnormalities)

7. Raised ferritin

8. Abnormal liver imaging

9. Hepatitis B

10. Hepatitis C

11. Referral pathways
## 2 Liver blood tests and what they mean

<table>
<thead>
<tr>
<th>Test</th>
<th>Normal range</th>
<th>What does it mean?</th>
<th>Actions if raised</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT</td>
<td>7-40</td>
<td>Hepatocellular injury</td>
<td>Raised ALT</td>
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<tr>
<td>Bilirubin isolated raised</td>
<td>&lt;21</td>
<td>Gilberts Haemolysis</td>
<td>Isolated asymptomatic raised bilirubin</td>
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<tr>
<td>Bilirubin with abnormal LFT</td>
<td></td>
<td>Liver or biliary pathology</td>
<td>&gt;42 urgent referral</td>
</tr>
<tr>
<td>Alkaline Phosphatase (ALP)</td>
<td>30-130</td>
<td>Biliary disease (if raised GGT) Bone disease</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Pregnancy (placenta)</td>
<td></td>
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<td></td>
<td></td>
<td>Acute phase response</td>
<td></td>
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<tr>
<td>Gamma glutamyl transferase (GGT)</td>
<td>Male 0-73</td>
<td>Non-specific – can reflect alcohol intake, non-alcoholic fatty</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female 0-38</td>
<td>liver or biliary disease if associated with raised ALP</td>
<td></td>
</tr>
<tr>
<td>Prothrombin time (PT)</td>
<td></td>
<td>Elevated with reduced synthetic capacity or biliary obstruction</td>
<td></td>
</tr>
<tr>
<td>Albumin</td>
<td>35-50</td>
<td>Non-specific, but may represent reduced synthetic capacity</td>
<td></td>
</tr>
<tr>
<td>Ferritin</td>
<td></td>
<td></td>
<td>Raised ferritin</td>
</tr>
<tr>
<td>Reduced platelets</td>
<td></td>
<td></td>
<td>Can be a feature of cirrhosis with portal hypertension</td>
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### Chronic liver screen
- LFT, AST, FBC, PT, APTT, INR
- Hepatitis B & C serology
- Liver autoantibodies
- Serum immunoglobulins
- Ferritin
- Alpha-1 antitrypsin
- Random glucose, HBA1c
- If under 50 caeruloplasmin

### Acute liver screen
- LFT, AST, FBC, PT, APTT, INR
- Hepatitis A, Hepatitis B and Hepatitis E serology (IgM & IgG)
- Liver autoantibodies
- Serum immunoglobulins
- If under 50 caeruloplasmin

### Hepatitis B screen
- Chronic liver screen plus:
  - HBV DNA
  - Hepatitis A Immunity
  - HIV screen

### Hepatitis C screen
- Chronic liver screen plus:
  - HCV RNA and genotype
  - Hepatitis A Immunity
  - HIV screen
3 Raised ALT

THINK about and address Risk Factors
- Metabolic syndrome
- Diabetes
- Alcohol
- Risks for viral hepatitis (ethnicity, IV drug use)
- Medication

ALT > 300
Urgent USS, Acute Liver Screen
Urgent referral

Raised ALT + abnormal bilirubin or ALP or albumin or prothrombin time or platelets
See pathway

Isolated raised ALT < 300
150 - 300
USS Chronic liver screen
Routine referral

50 - 150
Repeat ALT 6/52
< 50
Reinforce lifestyle advice

Do all features below apply?
- >35 years
- Echo-bright liver
- NO signs cirrhosis or portal hypertension
- Clinical features of Metabolic Syndrome
- Normal chronic liver screen

NO
Routine referral

YES

Likely NAFLD

RISK Stratification with FIB-4 to assess risk of NASH (non-alcoholic steatosis)
Higher risk if metabolic syndrome or type 2 diabetes. Advanced fibrosis is usually asymptomatic.

FIB4 request via T-Quest or calculate at from age, AST, ALT, platelets:
http://gihep.com/calculators/hepatology/fibrosis-4-score/

Low Risk
< 1.3 (age 35-64)
< 2.0 (age ≥65)
Lifestyle advice
Reassess FIB-4 annually
If becomes diabetic for routine referral

Intermediate Risk
1.30 to 2.67
Routine referral

High Risk
> 2.67
Routine referral for further stratification with Fibroscan and to consider long term follow up
4 Isolated asymptomatic raised bilirubin

Split bilirubin, FBC and prothrombin time

Unconjugated hyperbilirubinemia
NO clinical stigmata of cirrhosis, normal albumin, prothrombin time and platelets

NO

Ultrasound, Chronic liver screen

ROUTINE REFERRAL

YES

Haemolysis screen
reticulocytes
lactate dehydrogenase (LDH)
haptoglobin
Direct Antiglobulin Test (DAT)
Blood film

+/- refer haematology

Anaemia?

YES

Likely Gilbert’s syndrome
(inherited defect in ability to conjugate bilirubin that is benign and requires reassurance and no follow up)

NO

5 Raised ALP and normal ALT

Bilirubin > 2x upper limit normal

YES

URGENT REFERRAL

NO

Check GGT
Is it raised?

YES

Ultrasound, Chronic liver screen

ROUTINE REFERRAL

NO

Tests for bone pathologies

Consider bone profile, vitamin D, ESR/CRP, PSA
6 Raised ALT +/- Raised ALP +/- raised bilirubin (combination of abnormalities)

- Bilirubin > 2x upper limit normal → URGENT REFERRAL
- ALT >300 → Urgent USS Acute Liver Screen → URGENT REFERRAL
- ALP or ALT >100-300 → USS Acute Liver Screen Chronic Liver screen → ROUTINE REFERRAL

7 Raised ferritin

- If CRP elevated – exclude inflammatory cause / repeat after interval
- Check fasting transferrin saturation (tf sat) and LFTs / family history

- Normal tf sat and/or raised ALT/GGT → Raised ALT pathway
- Raised tf sat or family history → HFE genotyping (EDTA to Molecular Genetics for simple HFE1 genotype)
  - Refer to Bill Griffiths, Consultant Hepatologist
8 Abnormal liver imaging

Hepatomegaly
- Chronic liver screen
  - Refer to hepatology

Cyst/s
- Simple cyst/s
  - No referral required
- Complicated cysts
  - Thick-walled/septated/multiple
  - Referral for review of scan

Haemangioma
- Small (< 2cm) incidental haemangioma
  - No referral required
- Large (> 2 cm)/complex/complicated
  - Referral for review of scan

Focal fat sparing on background of “fatty liver”
- NAFLD pathway

Suspected primary liver CA
- Urgent referral

Ultrasonic scan shows gall bladder polyp
- > 1 cm
- Referral to HPB surgery for cholecystectomy
- < 1 cm

Adverse features:
- Biliary pain
- Background Primary Sclerosing Cholangitis
- Yes
- No

Cholesterol polyp
- Yes
- USS surveillance at 6 months then annually
- No
- Polyp growth
- No follow up

Background Primary Sclerosing Cholangitis
- Yes
- USS surveillance at 6 months then annually
- No
9 Hepatitis B

Hepatitis B surface antigen (HBsAg) positive

Refer to hepatitis clinic for assessment of the need for treatment, contact tracing and cancer surveillance *

Hepatitis B core antibody (anti-HBcAb) positive

Exposed to and cleared hepatitis B. Contact tracing with GP. Referral only required if patient takes immunosuppression or chemotherapy (or does so in the future)

Hepatitis B surface antigen (HBsAg) negative

Refer to hepatitis clinic for assessment of the need for treatment, contact tracing and cancer surveillance *

10 Hepatitis C

Hepatitis C antibody positive

Perform HCV RNA test (large EDTA)

+ve

Refer to hepatitis clinic for assessment of the need for treatment, contact tracing and cancer surveillance *

-ve

Exposure and clearance
Contact tracing
Confirm with repeat HCV RNA and if negative no further action required.

* Pre-clinic workup: (see T-Quest Groups)
For HBV and HCV: Chronic liver screen plus HIV and hepatitis A immunity serology
For HCV: HCV RNA and genotype (large EDTA tube)
For HBV: HBV DNA (large EDTA tube)
Hepatology referral pathways for GPs
Version 1; Approved October 2016

11 Referral pathways

URGENT REFERRAL

<table>
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<tr>
<th>Jaundice</th>
<th>Letter or referral proforma to: <a href="mailto:add-tr.NHSOutpatientreferrals@nhs.net">add-tr.NHSOutpatientreferrals@nhs.net</a></th>
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<tbody>
<tr>
<td>Acute hepatitis (ALT &gt; 300)</td>
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<tr>
<td>Suspected cirrhotic decompensation</td>
<td></td>
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<tr>
<td>Tense ascites</td>
<td></td>
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<tr>
<td>Suspected liver cancer</td>
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ROUTINE REFERRAL – please review guidance

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<th>Re-referral of patient lost to follow up</th>
<th>Letter or referral proforma to: <a href="mailto:add-tr.NHSOutpatientreferrals@nhs.net">add-tr.NHSOutpatientreferrals@nhs.net</a></th>
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<td>Abnormal LFTs</td>
<td>E-referral to general hepatology clinic (non-viral)</td>
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<tr>
<td>Suspected chronic liver disease</td>
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<td>Raised ferritin</td>
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<tr>
<td>Hep B or C new diagnosis</td>
<td>E-referral to hepatitis clinic</td>
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<tr>
<td>Benign abnormal liver imaging (if pathway suggests referral)</td>
<td>Advice and guidance referral for MDT review</td>
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- [Addenbrooke’s hepatology webpage](#)
- Further information: [www.easternliver.net](http://www.easternliver.net)

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