**BOX 2:**

**Non-hepatic pathology e.g. ALT from muscle (check CK if suspected):**

* Hypothyroidism
* Muscle damage e.g.:
  + Polymyositis
  + Rhabdomyolysis (CK >1000)
  + Heavy exercise, weight lifting
  + IM injections

**Other pathology causing raised liver ALT:**

* Hyperthyroidism & CCF

**Refer to hepatology**

**Request ultrasound**

Consider an **extended** liver aetiology panel:

- Autoantibodies (AMA, ASmA, ANA, LKM)

- Immunoglobulins

- Alpha-1-antitrypsin level

- Caeruloplasmin (age <40 years)

* Normal extended liver aetiology panel
* ALT remains abnormal

**Consider referral to hepatology & ultrasound**

**Refer to hepatology**

**Request ultrasound**

**History: Alcohol; Obesity; Metabolic Syndrome; T2DM; ?Hepatotoxic drugs (Box 1); Risk factors for viral hepatitis; Consider other pathology (Box 2).**

**NAFLD**

Suggested by:

* Presence of risk factors (T2DM, BMI>25, dyslipidaemia, hypertension)
* USS &/or
* Negative liver aetiology screen
* CoMorbidity: OSA, PCOS
* **Repeat ALT with extended LFTs (ALT, AST, GGT) and** **chronic viral hepatitis screen in 4 weeks**
* Also check FBC, HbA1c, lipids, INR, TSH if no recent results.

**If no obvious cause consider;**

* Further liver aetiology screening tests e.g. Iron profile, coeliac screen

* Negative virology and liver aetiology screen
* No NAFLD risk factors
* ALT remains abnormal

**D/w Hepatology StR re referral to hepatology and need for USS**

**Call labs to add acute viral screen labs**

ALT >400 &/or Alb <34 &/or INR>1.2 &/or platelets below normal

Repeat ALT in 2 weeks

**Normal adult ALT IU/L:** Male <41;Female <33

A new ALT>1000 will be phoned to the GP/collaborative

LMGPR007 Version 4, June 2020

Authors: Dr H Delaney, Clinical Chemistry; Dr R Sargur, Immunology; Dr M Raza, Virology; Drs A Al-Joudeh & B Hoeroldt, Hepatology: Sheffield Teaching Hospitals NHS FT. Approved by Dr C Heatley Sheffield CCG

.

Isolated raised ALT in an **asymptomatic** adult

ALT >200

Alb <34 &/or INR>1.2 &/or low platelets normal

Alb >34, INR<1.2, platelets normal

ALT <200

**BOX 1: Examples of Hepatotoxic Drugs** (review medication - esp. courses of treatment in last 6 months; and any drug started in last 3 months)

* NSAIDs
* Flucloxacillin, Amoxicillin, Nitrofurantoin, Tetracyclines, Macrolides, Triazole antifungals
* Anti-epileptic drugs
* Azathioprine and DMARDs
* Methyldopa
* PPIs
* Statins, fibrates
* Anti-tuberculous medications
* Paracetamol overdose/therapeutic misadventure (requires emergency admission)
* Herbal preparations

For more info re specific drugs see <https://www.medicines.org.uk/emc/>

Alb >34, INR<1.2, platelets normal

ALT >200

ALT <200

NAFLD fibrosis score (NFS)

< -1.455

**Manage in primary care**

* Manage CVD risk factors.
* Weight loss.
* Repeat NAFLD score in 2 years.

-1.455 – 0.675

>0.675

* Positive virology or liver aetiology screen

**Box 3: Consideration during COVID pandemic:**

* High demand on USS avoid reflex requests

If metabolic risk factors;

calculate NAFLD fibrosis score using

<http://nafldscore.com/>

Diagnosis confirmed

|  |
| --- |
| **Suggested First Line Investigations:** |
| ICE profile for lab tests: **Chronic isolated raised ALT first line screen** |
| LFT, AST, GGT, glucose, lipids, FBC, INR.  Viral Hepatitis Screen (including HBV, HCV). |
| % Iron-binding capacity (IBC) (aka transferrin saturation). |
| Coeliac screen.  Alpha-1-antitrypsin level.  Liver ultrasound. |
| **Second Line Investigations:** |
| Due to the low prevalence of other conditions causing chronic hepatitis, second line investigations should ideally be done in secondary care. |
|  |

Where appropriate stop medication and recheck in 1 month. If rise is significant (>3xULN) or medication cannot be stopped, seek specialist advice

<http://app.mapofmedicine.com/mom/204/page.html?department-id=4&specialty-id=1020&pathway-id=3179&page-id=7762&pathway-prov-cert=/attachments/16035_provcert.pdf(Accessed22.02.13>).<http://www.aafp.org/afp/2005/0315/p1105.pdf(Accessed22.02.13>).[http://ccjm.org/content/77/3/195.full (Accessed 22.02.13](http://ccjm.org/content/77/3/195.full%20(Accessed%2022.02.13)). Primary Care and Laboratory Medicine. ACB Venture Publications 2010.

Laboratory Medicine Procedure LMGPR007. Version 2; 07/10/15

The duty biochemist, immunologist, virologist and hepatologist can be contacted via switchboard (243 4343)

Score ≥ -1.455 i.e. high or indeterminate

Refer to Hepatology

(or Gastroenterology if coeliac)

If ALT >500 consider viral serology.

Sample will be stored for approx. 5 days – contact lab to add serology

References: **Newsome PN, et al.** Guidelines on the management of abnormal liver blood tests. Gut 2018;67:6–19. **Lilford RJ, et al.** Birmingham and Lambeth Liver Evaluation Testing Strategies (BALLETS): a prospective cohort study. Health Technol Assess 2013;17:1–307. **Byrne C, et al**. Tests for diagnosing and monitoring non-alcoholic fatty liver disease in adults. *BMJ* 2018;362:k2734