



Abnormal Liver Function Tests in Primary Care

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What are LFTs

LFTS

- ▶ ALT-Alanine Transaminase
- ▶ AST-Aspartate Aminotransferase
- ▶ GGT- Gamm glutamyl transferase
- ▶ ALP-Alkaline Phosphatase
- ▶ Bilirubin
- ▶ Albumin

- ▶ INR

Source

- ▶ Hepatocytes
- ▶ Hepatocytes and Muscle
- ▶ Biliary Epithelium and Hepatocytes
- ▶ Liver, kidney and Bone
- ▶ Haem pigment
- ▶ Synthesized by Liver, excreted by kidney and gut
- ▶ Extrinsic pathway coagulation

Clues in History and Examination

History

- ▶ NB Age at presentation
 - ▶ Eg Neonatal Jaundice different work up to age 10
- ▶ Fever
- ▶ Jaundice or Bruising
- ▶ Fatigue
- ▶ Change Bowel
- ▶ Itch
- ▶ Travel
- ▶ Family History
- ▶ Alcohol and Lifestyle

Examination

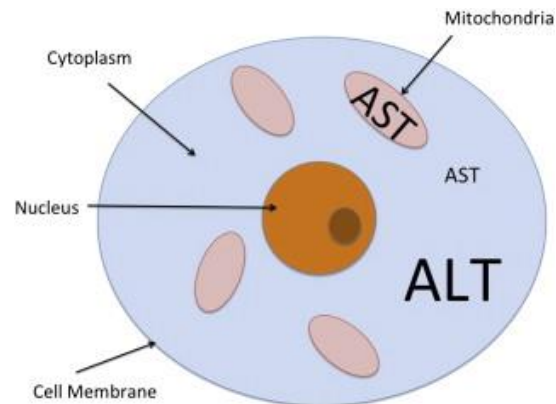
- ▶ Septic
- ▶ Dysmorphism
- ▶ Visualise stools in babies
- ▶ Cardiac Murmur
- ▶ Jaundice +/-Scratch marks
- ▶ Haemangioma
- ▶ Abdo exam- Hepatosplenomegaly

- ▶ **May be normal**

Hepatic v Biliary v Decompensated

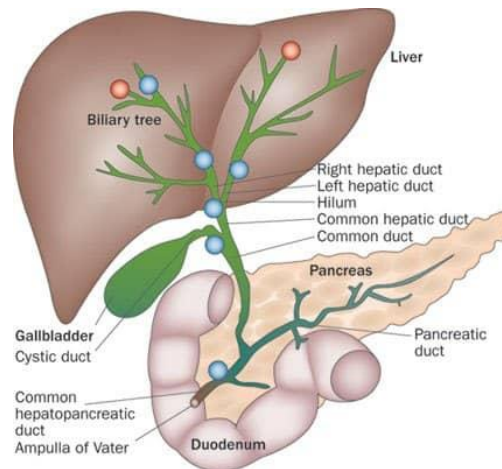
Hepatic

ALT AST



Biliary

ALP GGT BILI



Synthetic Function

INR Albumin



Case discussion

Case 1

▶ Age 4 Recurrent Abdo Pain looks well No Fam History of note

No Past Medical or Surgical History of note

You do 'BASELINE' Bloods incl LFTS

Raised ALT /AST /Normal Bili

Choose One blood test to do next?

A GGT B Blood Cultures C INR D Creatine Kinase

Case 2

- ▶ Age 8 Cerebral Palsy Wheelchair dependent /Seizures /Gastrostomy feed dependent. You have been asked to undertake annual nutritional bloods by dietitian
- ▶ Raised ALT/AST
- ▶ Normal Bili Albumin INR and Vit D, Normal Nutritional Screen
- ▶ Most likely diagnosis?

A Autoimmune B DILI –drug induced liver injury C Viral Hepatitis D NAFLD

Case 3

- ▶ Age 14 Male. Seen you for severe acne. Had LFTS before starting treatment
- ▶ Normal ALT ALB ALP
- ▶ Bili raised 35
- ▶ You plan to refer in to paediatrics as flagged as high bilirubin

Diagnosis?

A Hep A B Gilberts C Drug Induced D Hep B

Not Liver Pathology?

Common when LFTs ticked as 'baseline'

- ▶ Drug Induced
- ▶ Isolated ALP
 - ▶ Growth
 - ▶ Vitamin D deficiency
- ▶ Isolated Bilirubin
 - ▶ *Gilberts
 - ▶ Crigler Najjar
 - ▶ *nb* Haemolysis
- ▶ High AST
 - ▶ Muscular Dystrophy/Neurodegenerative disorders

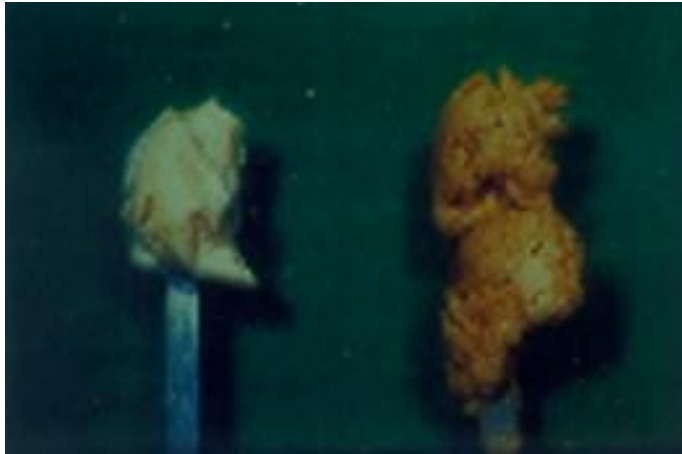
Case 4

- ▶ Age 11 Past history Constipation.Mum demands tests- Raised ALT

- ▶ Most is the most common liver disease in children in UK?
 - A DILI (includes paracetamol overdose)
 - B Viral Hepatitis
 - C Biliary Atresia
 - D Autoimmune
 - E NAFLD

Case 5

▶ 4 week old breast feeding well



▶ What is diagnosis?

A Cystic Fibrosis

B EHBA

C IFALD

D Alagille's

E All of above

Case 6

- ▶ Age 10
- ▶ Abdo pain and fatigue
- ▶ Raised ALT AST
- ▶ Normal Bili
- ▶ Normal Albumin
- ▶ Normal ALP

▶ What is diagnosis?

- A Autoimmune
- B Viral Hepatitis
- C NAFLD
- D Wilsons
- E All of above

Liver Pathology

WIDE SPECTRUM

- ▶ Fatty Liver Disease
- ▶ Infection
 - ▶ Viral /Bacterial/Parasites
- ▶ Drug Induced
- ▶ Cholestatic Disorders- Extra or intra hepatic
 - ▶ EHBA IFALD Alagille
- ▶ Autoimmune
- ▶ Metabolic
 - ▶ eg Wilson A1AT Tyrosinaemia Galatosaemia
 - ▶ Organic acidaemias
 - ▶ Urea cycle defects
- ▶ Genetic

Summary

- ▶ Does child need LFTS testing?
- ▶ ABNORMAL LFTS not always Equal Liver
- ▶ Think about Age, Risk factors, Fam Hx
- ▶ Fatty Liver disease now most common cause high ALT

- ▶ **Structured work up according to clinical presentation**
- ▶ **If unsure –local guidance for hotline to paed**