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GENERAL PRACTICE SUPERVISION AUSTRALIA

Abnormal liver function tests

Liver function tests (LFTs) are the third most common pathology test ordered by Australian GPs. Abnormal LFTs are a common finding in asymptomatic patients and can set off a cascade of potentially unnecessary further investigations. GP registrars need to have a systematic approach to interpretation of LFTs, and develop a rational approach to subsequent investigation.

TEACHING AND LEARNING AREAS		• Liver pathophysiology (24 min video tutorial) • Risk factors for liver disease and indications for testing • Epidemiology and natural history of common liver diseases in general practice, including fatty liver • Interpretation of abnormal LFTs (hepatocellular versus cholestatic, magnitude, rate of change) • Non-hepatic causes of abnormal LFTs • Investigation of abnormal LFTs • Indications for referral and local pathways
PRE- SESSION ACTIVITIES		• Read the 2011 AFP article Liver Function Tests
TEACHING TIPS AND TRAPS		• LFTs are a misnomer – except for bilirubin and albumin, they are measures of hepatocyte integrity and/or cholestasis rather than true hepatic function • LFTs are not indicated for asymptomatic patients without risk factors – there is no evidence to support opportunistic testing • As with other tests, the 'normal' range of +/- 2SDs means that up to 2.5% of normal patients with have "abnormal" LFTs • Levels of abnormal LFTs are not a good indicator of disease severity – normal LFTs do not necessarily mean absence of liver disease • AST is less specific than ALT for liver disease as elevation is also caused due to damage to skeletal muscle, kidney, brain and RBCs – if only AST is elevated, consider non-liver causes • Consider non-liver causes if only SAP is elevated e.g. bone, placenta • Raised globulins suggests an inflammatory cause e.g. PBC • It is vital to take a careful medication history, including OTC and herbal medications • An increase in the AST/ALT ratio suggests alcoholic liver disease or cirrhosis • Very high levels of transaminases suggest ischaemic or toxic liver injury, or viral hepatitis • Family history may identify risk of genetic causes of liver disease • Routine monitoring of LFTs is not required for patients on statins • The sensitivity of USS in detecting fatty liver is about 50%
RESOURCES	**Read**	• 2005 CMAJ article Liver enzyme alteration: a guide for clinicians
	Watch	• Interpreting LFTs - YouTube (26 minutes)
FOLLOW UP/ EXTENSION ACTIVITIES		• Registrar to undertake clinical reasoning challenge and discuss with supervisor

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Clinical Reasoning Challenge

Sharon, a 51-year-old mother of four, is recalled to the surgery with abnormal LFTs (see below). She presented a week previously with tiredness and occasional itch. Sharon is otherwise totally asymptomatic. She has coeliac disease but no other significant PMHx. Other blood tests (FBC, EUC, BSL, TSH, ESR, iron studies and lipids) were normal, and LFT from 18 months ago was also normal.

Biochemistry

Total Bilirubin	33*	umol/L	(4 - 20)
Alk Phos	188*	U/L	(35 - 110)
Gamma GT	151*	U/L	(5 - 50)
LDH	209	U/L	(120 - 250)
AST	39	U/L	(10 - 40)
ALT	37	U/L	(5 - 40)
Total Protein	70	g/L	(64 - 83)
Albumin	47	g/L	(36 - 47)
Globulin	23	g/L	(23 - 39)

QUESTION 1. What additional key features of history are most useful in determining the cause of her abnormal LFTs?

List up to THREE.

1 _____

2 _____

3 _____

QUESTION 2. The remainder of her history is unremarkable. What are the MOST LIKELY diagnoses? List as many as appropriate.

_____

_____

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_____

QUESTION 3. What investigations would you order at this point? List as many as appropriate

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ANSWERS

QUESTION 1

What additional key features of history are most useful in determining the cause of her abnormal LFTs? List up to THREE.

- Alcohol use
- Medications (including OTC and herbal)
- Family history of liver disease

QUESTION 2

The remainder of her history is unremarkable. What are the MOST LIKELY diagnoses? List as many as appropriate.

- Gall stones
- Malignancy e.g. pancreatic cancer, cholangiocarcinoma
- Primary biliary chalangitis (formerly primary biliary cirrhosis)
- Primary sclerosing cholangitis

QUESTION 3

What investigations would you order at this point? List as many as appropriate.

- Upper abdominal ultrasound
- Autoantibodies (ANA, anti-mitochondrial antibody, anti-smooth muscle antibody)
- Consider other tests like hepatitis serology etc, though these are more likely associated with a hepatocellular pattern of abnormal LFTs

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