

Gastroenterology Cases

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Outline

- Case 1 – Abnormal Liver Function Tests and Raised Ferritin
- Case 2 – Dyspepsia
- Case 3 – Dyspepsia
- Case 4 – Dyspepsia
- Case 5 – Abdominal pain and PR bleeding

Case 1 – Abnormal Liver Function Tests and raised ferritin

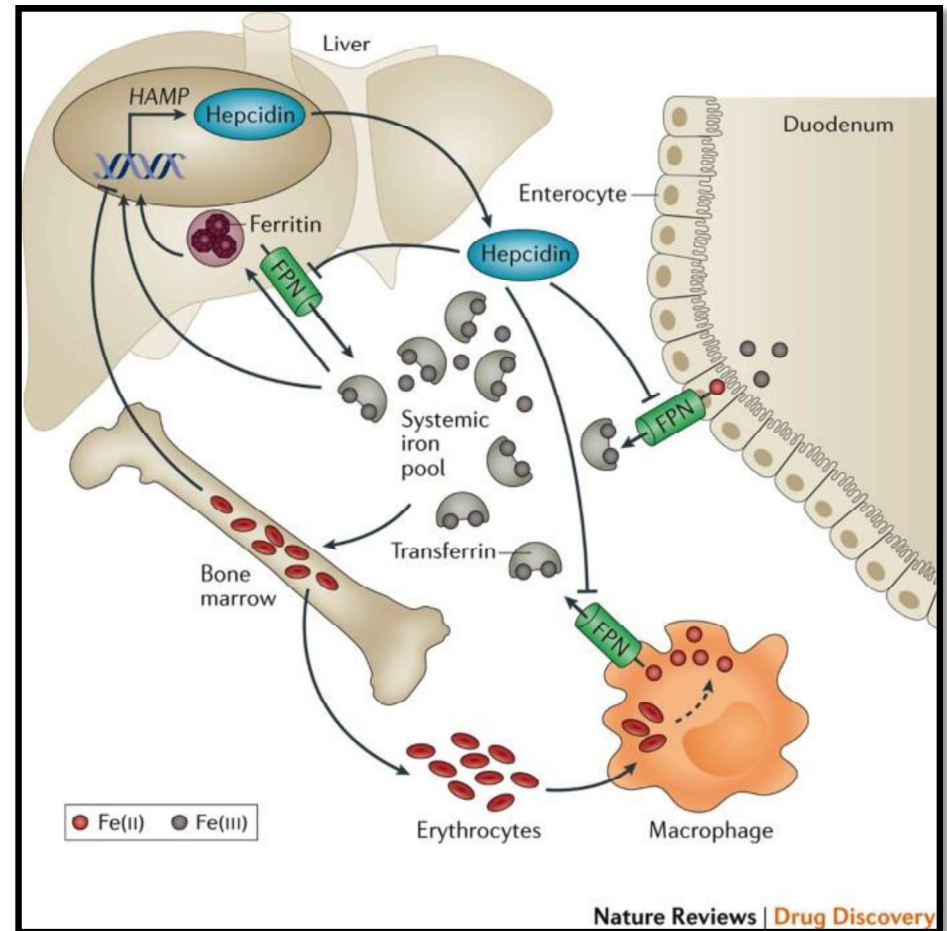
- 30M
 - Chinese
 - BMI 25
 - Ferritin 4000 Transferrin Saturation 0.8
 - HFE negative
 - ALP 200, GGT 200, ALT 300 for 24 months
 - Platelets 150
 - BP 140/90
 - HbA1C 44
 - Total Cholesterol 7
- What will be your work up?

Case 1 – Abnormal Liver Function Tests and raised ferritin

- 30M
- Chinese
- BMI 35
- Ferritin 4000 Transferrin Saturation 0.8
- HFE negative
- ALP 200, GGT 200, ALT 300 for 24 months
- Platelets 150
- BP 140/90
- HbA1C 44
- Total Cholesterol 7
- Liver screen
 - Viral Hepatitis (HBV, HCV (consider delta), HEV (acute presentation), EBV and CMV)
 - Auto-immune screen (ANA, AMA, LKM, SLA, Tissue Autoantibodies, Coeliac Ab, Globulins)
 - Rare causes (Ceruloplasmin, Alpha-1 antitrypsin)
 - Ferritin
 - INR
 - Albumin
- Ultrasound a good first step
- Role of Fibroscan?

Differentials

1. True iron overload
 - Increase intake
 - Excessive supplementation
 - Increase absorption
 - HFE gene mutation
 - Vitamin C
 - Other***
2. Liver related
3. Acute phase reactant
 - Infection
 - Inflammation (autoimmune disease/malignancy)
4. Endocrine
 - Hyperthyroidism



So what is next?

Iron Overload

- Molecular Study
 - H63D
 - S65C

Other

- Liver
 - USS liver
- Inflammatory/Infection
 - CRP

Results

Iron Overload

- Molecular Study (5/2/21)
 - H63D heterozygous
 - S65C normal
- Start venesection

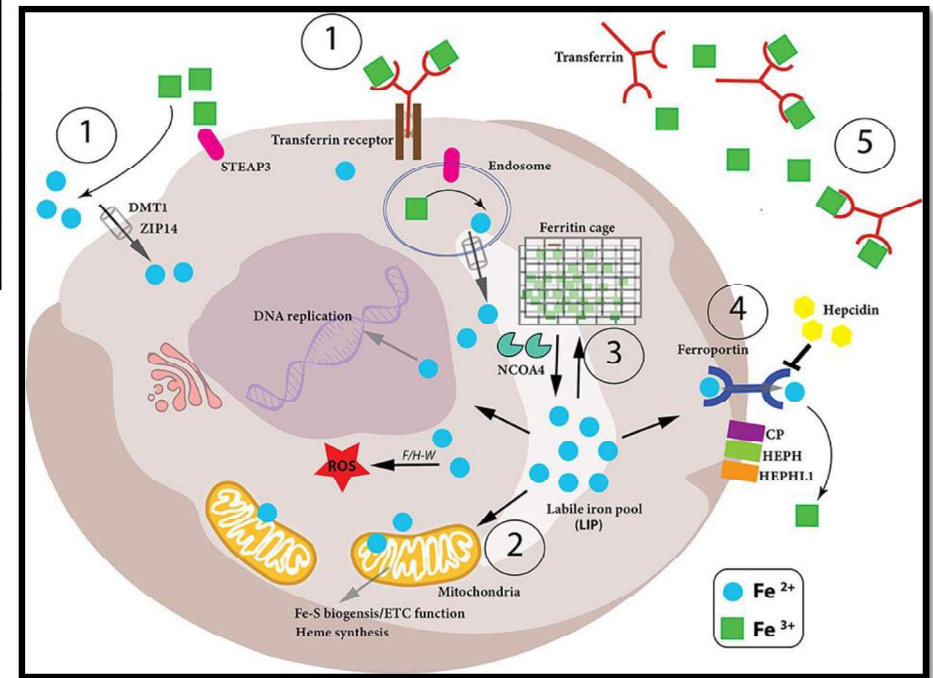
Other

- Liver
 - USS liver (25/2/21)
 - Hepatic steatosis
 - Dilated portal vein may suggest early portal hypertension
 - Refer to gastro
 - ShearWave (18/11/21)
 - Mean = 4.8kPa
 - F0/F1 – minimal fibrosis
- Inflammatory/Infection
 - CRP normal

HFE gene mutation

HFE gene	Prevalence		Note
	Caucasian	Asian	
C282Y	10-15%	~0%	
H63D	15-40%	4-8%	Mild*
S65C	1-2%	1%	Mild

- Heterozygous HFE mutation normally peak ~600-800ug/L
 - Below 1000ug/L (threshold when end organ damage occurs)
- Compound heterozygous with C282Y can potentially lead to significant iron overload but less likely compared to homozygous C282Y



Metabolic dysfunction associated fatty liver disease (MAFLD)

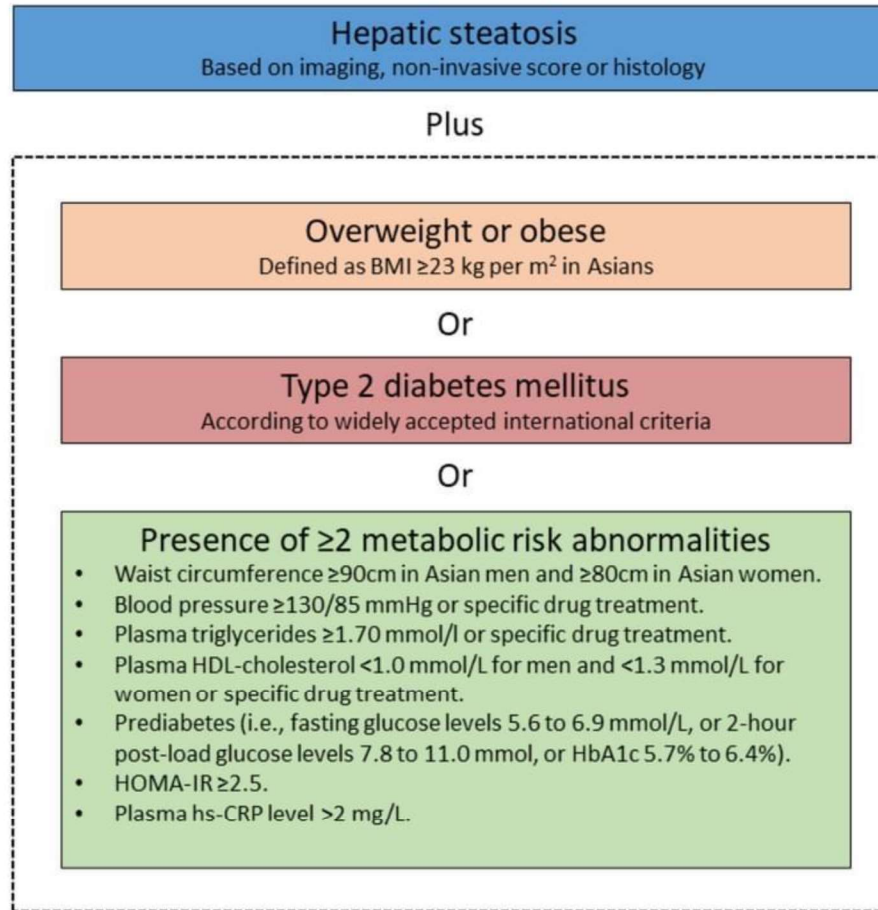


Figure 1 Definition of metabolic dysfunction-associated fatty liver disease (MAFLD).

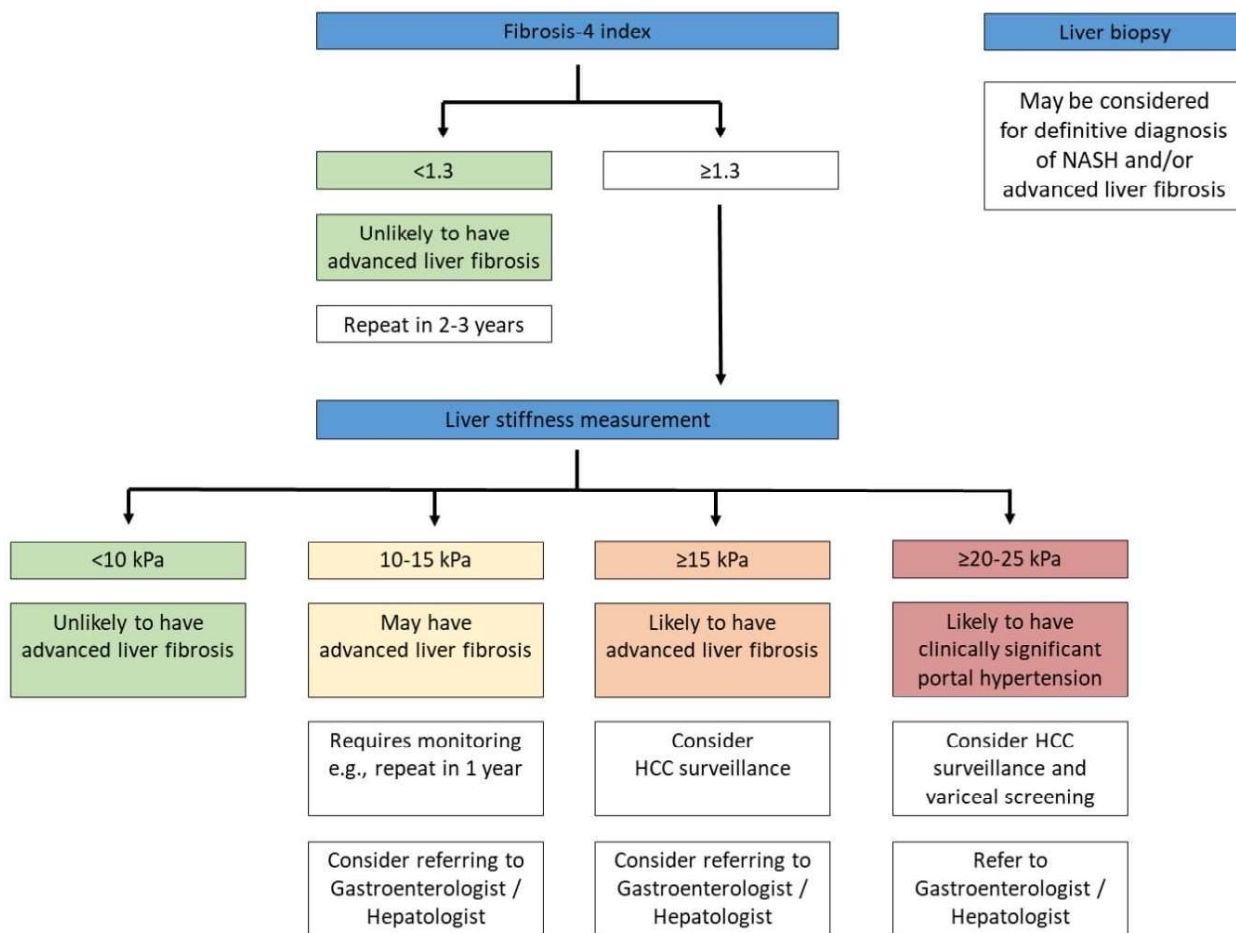


Figure 2 Algorithm for screening for more severe metabolic dysfunction-associated fatty liver disease (MAFLD) among patients with type 2 diabetes mellitus (T2DM).

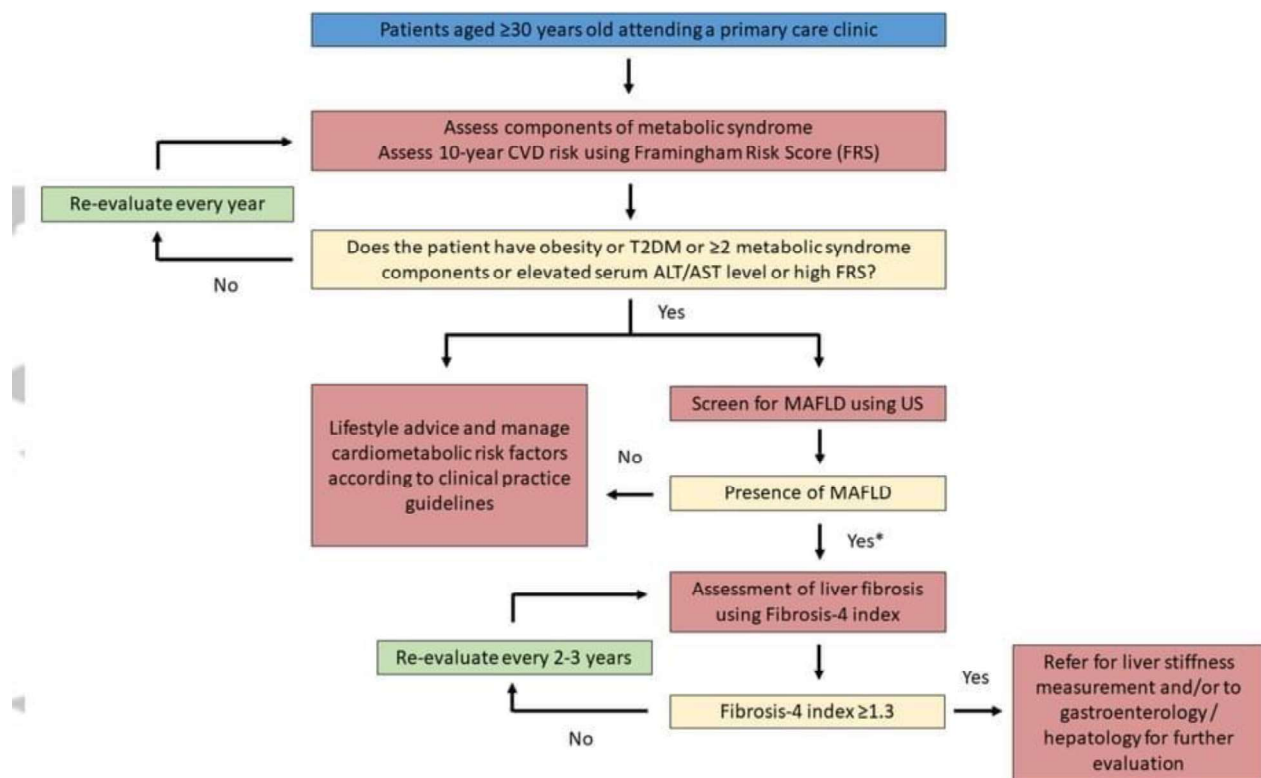


Figure 3 Algorithm for screening for metabolic dysfunction-associated fatty liver disease (MAFLD) among adults ≥30 years old in primary care.

Fibrosis-4 (FIB-4) Index for Liver Fibrosis ☆

Noninvasive estimate of liver scarring in HCV and HBV patients, to assess need for biopsy.

When to Use ▼

Pearls/Pitfalls ▼

Why Use ▼

Age

Use with caution in patients <35 or >65 years old, as the score has been shown to be less reliable in these patients

31

years

AST

Aspartate aminotransferase

300

U/L

Platelet count

150

× 10⁹/L ↔

ALT

Alanine aminotransferase

300

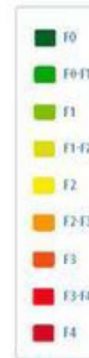
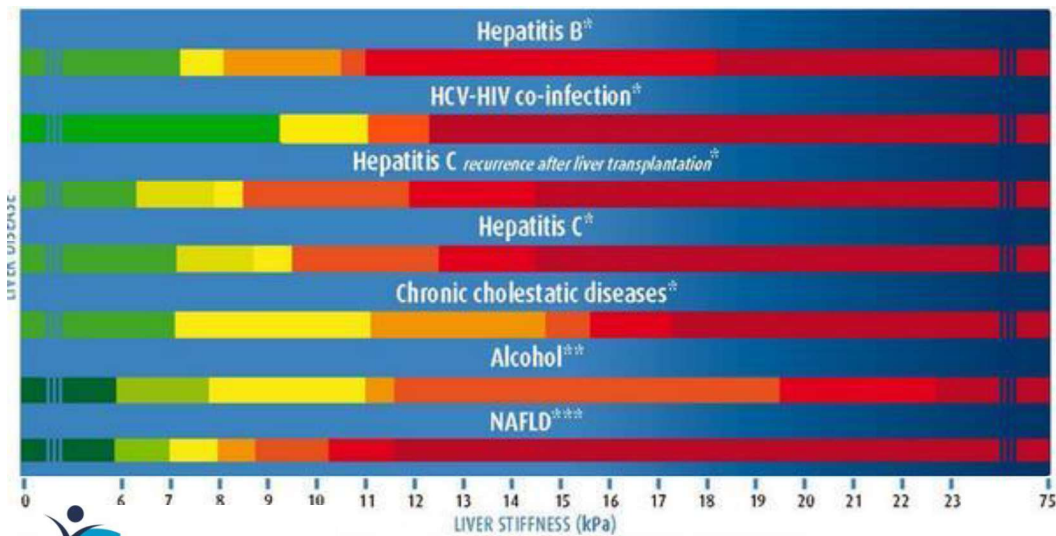
U/L

3.58 points

Use alternative fibrosis assessment

Approximate fibrosis stage: Ishak 4-6 (Sterling et al 2006)

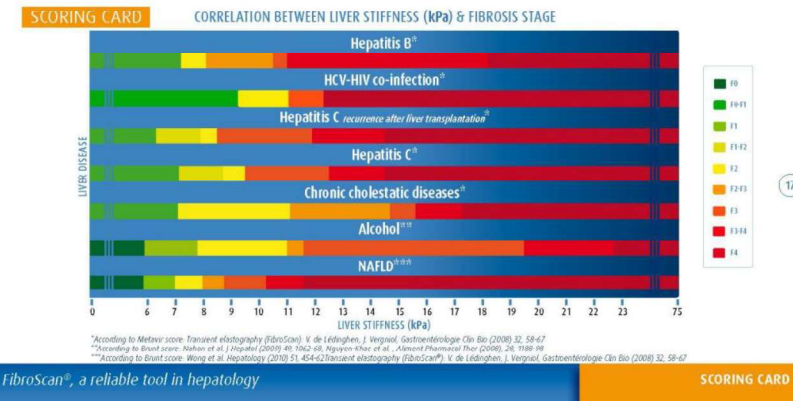
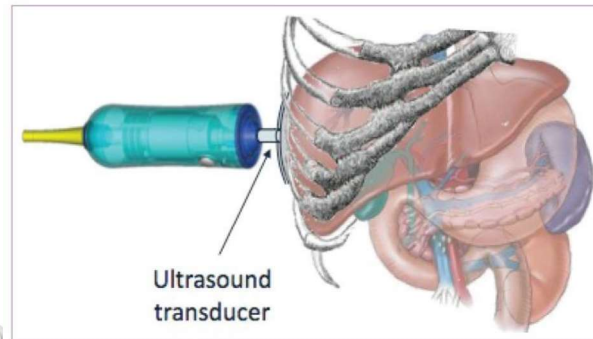
Fibroscan



CAP Score	Steatosis Grade	Amount of Liver showing Fatty Change
150 – 248 dB/m	S0	0 – 10%
248 – 260 dB/m	S1	11% - 33%
260 – 280 dB/m	S2	34% - 66%
Higher than 280 dB/m	S3	Higher than 67%

Current Meta-analysis 2020 interpretation guide however these are NOT absolute and should be discussed with your physician

Fibroscan



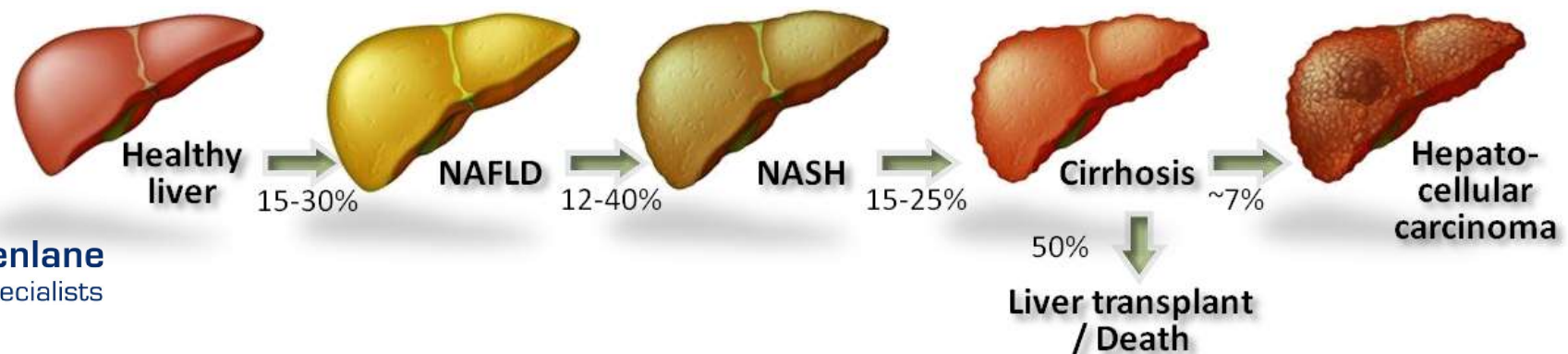
- \$355
- Covered by all insurance companies except Southern Cross

Case 1 – Abnormal LFTs

- Work up - If persistent or worsening
 - Liver screen
 - Ultrasound
 - Consider Fibroscan
- Other features to watch out for
 - Is there pain? – Biliary (Stones, Dyskinesia), Other GI causes (Gastroscopy), Ultrasound, MRCP
 - Other features eg Low platelets, Low WBC, Low Albumin
 - Clinical feature of advanced liver disease

Case 1 – Non Alcoholic Fatty Liver Disease

- Most common liver problem
- Raised GGT, ALP, ferritin
- Diabetes
- Hypertension
- Genetic component in Asians
- No good pharmacotherapy at the moment
- Diet and exercise
- Bariatric endoscopy or Surgery

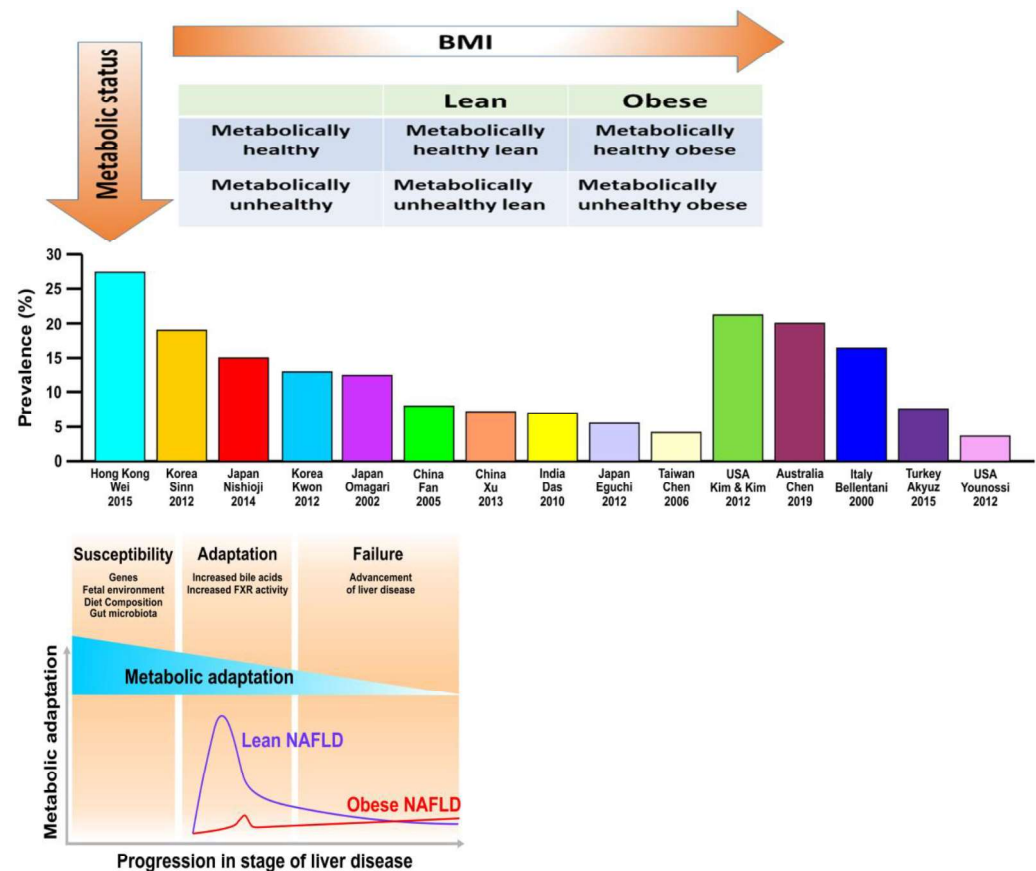


Treatment for MAFLD

- Abstain from alcohol (no definitive data)
- Immunise against Hepatitis A, Hepatitis B, Influenza, Pneumococcal, Diphtheria, Tetanus booster, COVID (?)
- Treat Hypertension and Dyslipidaemia
- Weight loss – medical vs bariatric (decreased inflammation, fibrosis)
- Medications
 - Vitamin E 800 IU/day for those with NASH and Stage 2 fibrosis – but in consistent results and increased mortality- avoid in males with a risk of prostate cancer
 - Thiazolidinediones (Pioglitazone) – improve liver biochemistry and histology –caution heart failure
 - GLP-1 agonists (Liraglutide/Semaglutide)
 - Obeticholic acid

Lean NAFLD in Asians

- Lean NAFLD – BMI < 25 kg/m² in Caucasian patients and 23 kg/m² in Asian patients.
- Visceral adiposity
- 5-45% in Asians, 5-10% in Europeans (USS, proton MR spectroscopy) 18-19%
- Genetics (PNPLA3, TM6SF2, IFNL3/IFNL4)
- Metabolic dysregulation
- Gut microbiota
- Bile acids (FXR) activity
- Concept of metabolic adaptation



When to refer to a specialist

- Pain with normal Ultrasound scan
- Assess fibrosis (risk stratify) – advanced fibrosis
- Rule out other causes (ALT >100)
- Evidence of cirrhosis or portal hypertension
- MELD > 10 – refer for consideration of liver transplantation