

Investigation of a Raised Ferritin

Defined as >300mcg/l male & >200mcg/l female

Raised serum ferritin levels can be due to a number of aetiologies including:

- Iron overload- Hereditary Haemochromatosis
- Multiple transfusions (Thalassaemia/Sickle cell disease/MDS)
- Inflammatory disorders- HLH/SLE/IBD/RA/Stills disease
- Viral infections- EBV/CMV/SARS-CoV-2
- Liver or renal disease
- Malignancy
- Metabolic syndrome

Suggested approach to investigate isolated elevated serum ferritin in patients without known secondary iron overload:

- Check FBC/LFT/Transferrin saturation (T-sat)
 - Normal T-sat: Consider causes other than iron accumulation
 - Alcohol
 - Inflammatory disorder
 - Inflammatory Disorders
 - Metabolic syndrome
 - Tissue damage/cell turnover/malignancy
 - Raised T-sat, FBC normal: Consider iron accumulation
 - Hereditary Haemochromatosis (HFE genotyping)
 - Iron loading anaemia eg Thalassaemia intermedia/HbH
 - No cause found:
 - Ferritin <1000mcg/l → repeat serum ferritin and Tsat in 3-6 months and if persistent refer to haematology
 - Ferritin >1000mcg/l → abnormal LFTs → refer to hepatology
 - Ferritin >1000mcg/l → normal LFTs → refer to haematology
 - Consider assessment of liver iron stores (Ferriscan/T2*MRI or liver biopsy) and rare causes

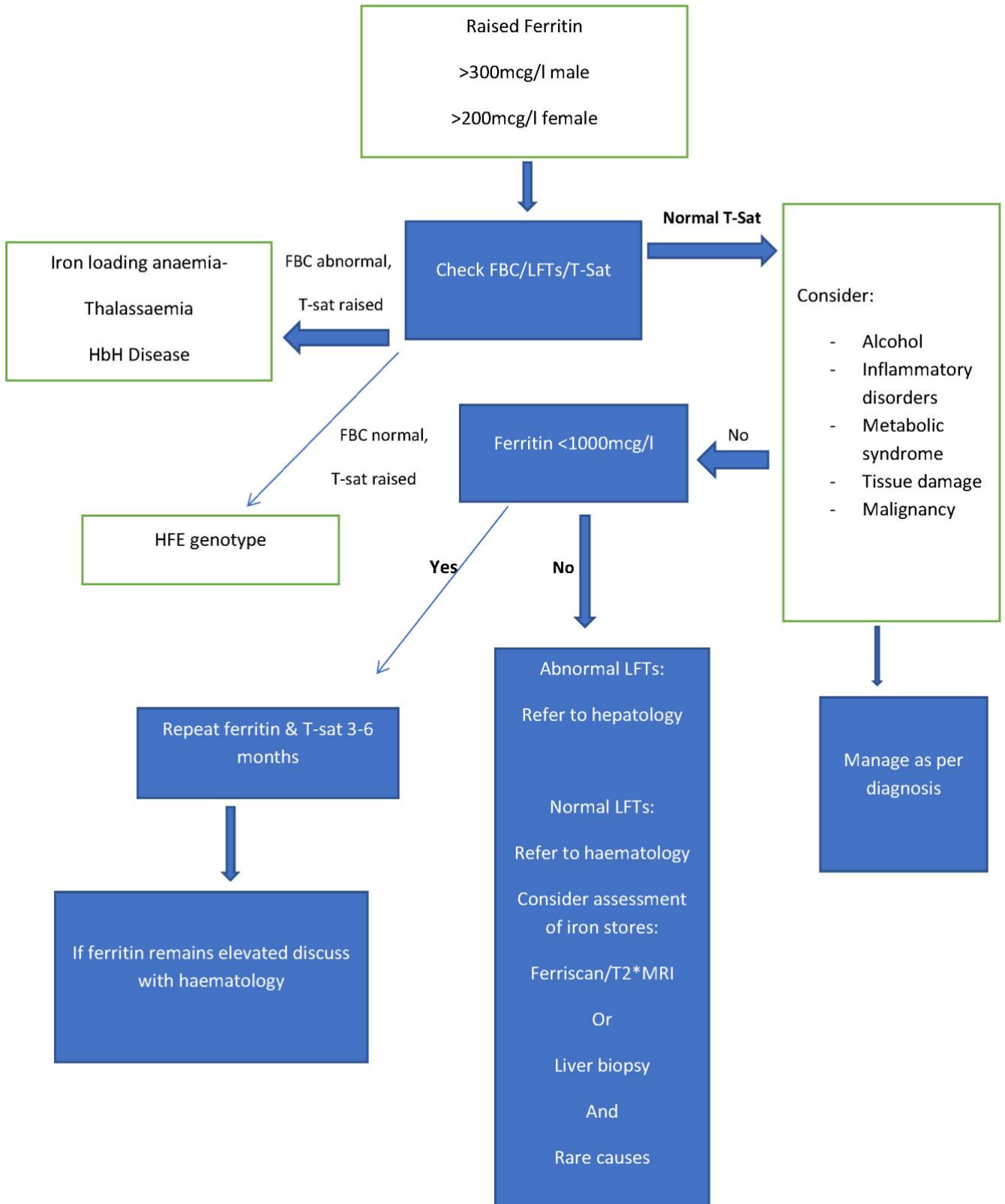
Investigations: FBC/Film

- Ferritin/T-Sat
- LFTs/GGT
- Auto antibody screen
- Viral Serology: CMV/EBV/SARS-CoV-2
- Random glucose/HbA1c
- HFE genotype
- Haemoglobinopathy screen
- Tumour markers/protein electrophoresis
- US abdomen/CT/PET
- Referral for genetic testing of rare diseases
- Bone marrow biopsy

Table 1: Causes of raised ferritin

Increased ferritin synthesis due to iron accumulation	Increase in ferritin synthesis not associated with significant iron accumulation	Increased ferritin as a result of cellular damage
<p>Hereditary Haemochromatosis</p> <p>Hereditary Acaeruloplasminaemia</p> <p>Secondary due to blood transfusion/excess iron intake/administration</p> <p>Ineffective erythropoiesis eg sideroblastic anaemia, MDS</p> <p>Thalassaemia</p> <p>Atransferrinaemia</p> <p>Ferroportin disease</p>	<p>Malignancies</p> <p>HLH</p> <p>Hereditary hyperferritinaemia with and without cataracts</p> <p>Gaucher disease</p> <p>Acute</p> <p>and chronic infections</p> <p>Chronic inflammatory disorders</p> <p>Autoimmune disorders</p>	<p>Liver disease: necrosis/viral hepatitis/Alcoholic & non-alcoholic steatohepatitis</p> <p>Chronic excess alcohol consumption</p>

Algorithm



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