Blood Test #2

WAMSS SGR 2022

Trigger

You are a GP working in the community. Charles, a 65M complains of feeling increasingly tired and fatigued over the last 3 months.

Though he does not have any significant past medical history, he has not been to a doctor in 10 years, and has never done any sort of preventative health screening.

On examination:

- Vitals - WNL
- HSDNA
- Chest NAD
- Abdo NAD

The GP ordered some blood tests to further investigate.

Task: Interpret the results, provide a working diagnosis and list other investigations/things you would like to do.

FBC

- Haemoglobin 110 (135-180)
- White cell count 7 (4-11)
- Platelets 450 (150-400)
- MCV 73 (80-100)

U&Es

- Cr 134 (60-110)
- eGFR 48 (>60)

LFTs

- ALT 32 (<40)
- AST 28 (<45)
- ALP 56 (30-110)
- GGT 40 (<60)
- Bilirubin 8 (<20)
- Albumin 38 (35-50)

Results	FBC – microcytic anaemia with thrombocytosis U&Es – elevated creatinine with a reduced eGFR, consistent with stage 3A chronic kidney disease LFTs – normal
Working diagnosis	My working diagnosis is iron deficiency anaemia. New onset fatigue or anaemia in this age group is **cancer until proven otherwise**, particularly given his lack of preventative health screening. Iron deficiency is the most common cause of a microcytic anaemia. A useful acronym for the causes of microcytic anaemia is: **T**halassaemia **A**naemia of chronic disease **I**ron deficiency **L**ead poisoning **S**ideroblastic anaemia His incidental finding of chronic kidney disease may also be contributing to his fatigue.
Further investigations and workup	Iron studies – confirm iron deficiency as the cause of his microcytic anaemia TFTs – thyroid disease can cause fatigue, particularly hypothyroidism Glucose/HbA1c – diabetes often presents with fatigue Screen for anxiety/depression – common causes of fatigue iFOBT – may be useful to detect GI blood loss, but he will need a colonoscopy regardless of the result **Colonoscopy** – definitive test to confirm/exclude the presence of colorectal cancer

Follow-up Questions

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1. The best measure we have of total body iron stores is a serum ferritin level. When conducting iron studies, why might a CRP be ordered alongside the ferritin level?

2. Charles wants to know some side effects of oral iron supplementation. List 4.

3. Haemolytic anaemia is a cause of normocytic anaemia. What investigations are part of the workup of haemolysis?

Question 1

- Both ferritin and CRP are acute phase reactants, meaning they may be elevated in inflammatory conditions

- A normal ferritin result could therefore mean that a patient
  - Does not have iron deficiency

    or

  - Has an underlying iron deficiency, but the ferritin is raised because of inflammation

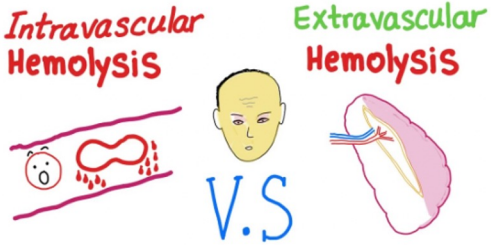
- A normal CRP indicates that no inflammation is present, meaning we can safely interpret the ferritin result

Question 2

- Nausea
- Bloating
- Diarrhoea or constipation
- Black stools (must differentiate from melaena!)

Question 3

- FBC with reticulocyte count – anaemia, reticulocytosis (indicates destruction of RBCs with an appropriate bone marrow response)
- Blood film – abnormal cells which might suggest an underlying cause e.g. schistocytes, spherocytes, bite cells
- Serum haptoglobin – binds to free Hb, so low haptoglobin suggests increased free Hb
- Serum LDH – LDH is present in RBCs and is released into the plasma after haemolysis
- Serum bilirubin (with conjugated vs. unconjugated fraction) – unconjugated (indirect) bilirubin is elevated due to increased catabolism of haem
- Direct antibody (Coombs) test – positive result suggests an immune aetiology



Thank you!

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