



—BELMATT—
HEALTHCARE TRAINING

The Full blood count

Dr Parmy Deol

A&E Consultant, Chelsea and
Westminster

Anaemia

- Anaemia
 - Macrocytic
 - Microcytic
- Leucopaenia/ Leucocytosis
- Thrombocytopaenia
- Pancytopaenia

Red flags with anaemia

- Sore throat
- Severe rash
- Bruising
- Nosebleeds
- Ulceration of mucous membranes
- Any unexplained illness including nausea or diarrhoea

When to worry-blood results

- **WCC<3.5**
- **Neut <2.0**
- **Plat <150**
- **MCV >105**
- **Eosin>0.5**

Neutrophilia

- Modest rise (10-15)
 - Bacterial sepsis
 - Active inflammatory disease
 - Steroid therapy
 - Third trimester of pregnancy
 - Very high counts (30 and above)
- Marrow disease likely if very low

High white cell count

- Lymphocytosis
 - Often viral in young adults
 - Over 60 CLL
- Monocytosis
 - Less common
 - Infection
 - Dysplasia

Eosinophilia

- Relatively common
- Allergic responses (eczema, asthma)
- **Drug reactions**
- Skin disorders
- Autoimmune conditions
- Parasites
- Hodgkin and bone marrow disorders

Causes of macrocytosis (MCV >99 fl)

- - Megaloblastosis: oval macrocytes
- - B12, folate deficiency
- DNA-synthesis inhibiting drugs
- - Methotrexate
- - Azathioprine
- Hypothyroidism
- Pregnancy
- Reticulosis
- - iHb, May see hbilirubin
- Bone marrow dysplasia 2^o alcohol use

Causes of macrocytosis (MCV >99 fl)

- Elevation in MCV often mild, usually not anaemic
- Check γ GT alongside routine LFTs
 - Myeloproliferative Disorder eg myelodysplasia

Pancytopenia

- Reduction in all 3 major cell lines: red cells, white cells, platelets
- Caused by:
 - Decreased bone marrow production
 - or increased peripheral consumption

Notable Drug Interactions

- Think co-prescription of drugs that reduce excretion of DMARD e.g. Penicillins reduce tubular excretion of MTX. Often in the context of infection and ieGFR
- Trimethoprim and MTX/AZA
- Allopurinol and AZA
- Caution combination therapy with MTX and Leflunomide (hepatotoxic, haematotoxic and pneumonitis risk greater)

Causes of Neutropenia

- Extremely common
- Most cases are ethnic or racial neutropaenia
- Black caribbean or asian, Middle and Far East.
- Normal blood count apart from neutropaenia (0.8-2.0)
- Patient should be well with no history of infection

Neutropenia

- Medication-DMARDs
- Viral infection (HIV)
- Autoimmune disease
- Rarely bone marrow disease
- Refer-mouth ulcers/infections/no obvious explanation & do blood film

Neutropenia

- Management
- If new/ cause uncertain: STOP drug
- Spontaneous recovery occurs 1-2 weeks after stopping drug
- treat sepsis if underlying cause
- Repeat if necessary

Lymphopaenia

- Common finding post viral
- HIV
- Autoimmune disease (SLE)

High platelet count

- Plts of 500-800 often due to inflammation
- Chronic iron deficiency
- After a splenectomy
- Myeloproliferative disease

Low platelet count

- Very common
- If isolated and mild (around 100) usually immune (ITP)
- Bruising uncommon until plts drop below 50.
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Anaemia with a raised MCV

- Check B12, Folate, LFTs, thyroid function.
- If Coombs positive, check reticulocytes, haptoglobins and LDH for haemolysis
- If Coombs negative, possible MDS

Causes of low B12

- OCP
- Pregnancy
- Metformin
- Folate deficiency
 - Check intrinsic factor and parietal cell antibodies
 - Exclude coeliac disease

Causes of low Folate

- Poor dietary intake
- Malabsorption
 - Check transglutaminase antibody to exclude coeliac

Haematology cases

Case 1

- G3P3
- Postpartum. Has examination which shows Pulse 90
- Hb 9
- Platelets 540
- MCH 23
- MCV 70

- Iron deficiency anaemia
- Role of iron studies
- Role of ferritin
- What is iron studies
- How do u treat?

Paediatric

- In a child, iron deficiency anaemia caused by too much milk and not enough food.
- 1.5g/ week if they take iron
- Usually need folic acid also
- Side effects of ferrous sulphate
- Black like coal stools
- Constipated and diarrhoea

Case 2

- 6 year old Ghanian girl presents to the GP
- Hb 12
- WCC 18
- Plts 500
- ? cause

- Sickle cell screen
- Tells you if they have HbS
- For suspected Sickle cell do Haemoglobinopathy screen
- Not all are anaemic

Case 3

- 23 year old man easy bruising. Vegetarian and eats crisps ad chips
- Hb 7
- MCV 100
- MCH 38
- Plts 130
- WCC 3
- APTT 30
- PT 12
- Fibrinogen normal

B12 deficiency

- B12 and folate deficiency. Can get SACD if give folate first.
- Vitamin C is low due to folate

Case 4

- Child presents with runny nose and nosebleeds
- Hb 11
- Plts 3
- WCC 5
- APTT 35
- PT 12

- Not leukaemia because normally a pancytopenia
- ITP
- Needs referral to the haematologist

Case 5

- 28 year old lady from Cyprus feeling generally tired
- Hb 10.5
- MCV 55
- MCH 18
- Plts 200
- WCC 4

Beta thalassaemia

- HbA2 4% Beta thal
- Ferritin 4