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Please note there is also a Manchester Anaemia Guide- Please click the link below to see the Manchester Anaemia Guide in full

Lymphadenopathy

B Symptoms
- Weight loss >10% over 6 months
- Drenching sweats,
- Unexplained fever >38°C

Lymphadenopathy associated with:
- B symptoms
- Liver and spleen enlargement
- Rapidly increasing in size
- Generalised lymphadenopathy
- Cytopenias

Refer to Haematology on urgent (suspected cancer) pathway

Localised unexplained adenopathy
OR
Concerns of metastatic node

Appropriate referral to surgical team or ENT for biopsy/ radiological biopsy (US or CT guidance)

Causes:
- Acute and chronic bacterial infections
- Syphilis
- Auto immune conditions
- Malignancy (haematological/ metastatic)
- Viral infections (including HIV, EBV, CMV)
Can't read the full content.
Lymphocytosis

8 Symptoms
- Weight loss >10% over 6 months
- Drenching sweats,
- Unexplained fever >38°C

Causes:
- Smoking
- Viral infections especially Glandular fever
- Lymphoproliferative disorders (such as CLL)
- Bacterial infections
- Post-splenectomy
- Rheumatoid arthritis

Lymphocytosis

Lymphocytosis >5x10⁹/L

• Lymphocytosis >20x10⁹/L
• Other cytopenias
• B symptoms
• Lymphadenopathy
• Splenomegaly

Refer urgently (suspected cancer) to haematology

Lymphocytosis 5-20x10⁹/L

Repeat FBC in 6 weeks and look for causes

If <10x 10⁹/L monitor 6 monthly
If persistent >10x 10⁹/L refer routinely to Haematology
Lymphopenia

Red Flag signs
- Weight loss
- Fevers
- Drenching night sweats
- Recurrent infections

Lymphopenia

Lymphocytes<1.0x10^9/L

If >0.5x10^9/L and >70 years of age no need for further investigations

If no red flag symptoms repeat FBC in 6 weeks and look for causes

If no obvious cause and persistent over 6 months refer routinely to Haematology

Causes:
- Elderly patients
- Infections including HIV, hepatitis B and C
- Excess alcohol
- Malnutrition
- Medications-steroids, chemotherapy
- Systemic immune conditions
- Systemic illness(renal, cardiac, liver failure, malignancy)
- Lymphoma
Neutropenia

**Causes To Consider**
- Drugs
- Myeloma
- B12/folate deficiency
- Autoimmune
- Any viral infection including HIV/Hepatitis B/C

**Neutropenia**

- **Neutrophil Count <1.8 x 10^9/L**
  - Neutrophil Count <0.5 x 10^9/L
    - Patient well with no fever
    - Evidence of sepsis
      - If no obvious cause (see box above) refer urgently (suspected cancer) to Haematology
      - Admit to hospital for management of Neutropenic sepsis
  - Neutrophil Count 0.5 - 1 x 10^9/L
    - Repeat FBC in 1 week and look for causes
  - Neutrophil Count >1 x 10^9/L
    - Repeat FBC in 6 weeks and look for causes

If persistently <1.0 x 10^9/L and no obvious cause found, refer to Haematology

If between 1.0-1.8 x 10^9/L then monitor annually.

**Note:**
- A neutrophil count of between 1.5 - 2.0 x 10^9/l whilst below the normal range is unlikely to be of any clinical significance.
- People of Afro-Caribbean or Middle Eastern ethnicity have a lower normal range for the neutrophil count (constitutional or ethnic neutropenia) 1 - 1.8 x 10^9/l. This is of no clinical consequence. Only refer if their neutrophils are <1.0 x 10^9/l on repeat testing.
Neutrophilia

Neutrophil count elevated
If chronic myeloid leukaemia is suspected you will be contacted by a haematologist to organise urgent admission or outpatient review and further investigations as indicated.

Assess if there is a clear cause for this:
• Infection
• Inflammation
• Steroids
• Pregnancy
• Smoking
• Underlying neoplasia

If cause unclear check:
• Blood Film
• ESR
• CRP
• U&E
• LFT
• ANA & Rheumatoid Factor
• PSA etc. led by history

Neutrophil count >15 X 10^9/L, persistent at 3 months & unexplained: Refer to Haematology
Eosinophilia

**Red Flag Signs**
- If Eosinophil count > 2.5 look for signs of organ damage and consider urgent admission:
  - Venous Thromboembolism
  - Congestive Heart Failure
  - Gastrointestinal
  - Neurological
  - Pulmonary

**Eosinophilia**

**Eosinophils >0.5x10^9/L**

Repeat FBC in 2 weeks and look for causes if > 1.5 (such as IgE level, Autoimmune Screen, Stool Cultures)

If secondary cause found, treat as appropriate

No cause found

If < 5.0 x 10^9/L and persistent for 3 months

Refer routinely to Haematology

If > 5.0 x 10^9/L

Refer urgently to Haematology

**Causes**
- Asthma / atopic dermatitis / acute urticarial
- Infections: especially those due to parasites (most commonly helminthes - hookworm, schistosomiasis - but also giardiasis or other protozoal infections and strongyloides)
- Drugs (penicillins, carbamazepine, sulphonamides are common but any drug is a possible cause)
- Connective tissue disease (rheumatoid arthritis, polyarteritis nodosa, Wegener's granulomatosis)
- Solid malignancy (breast, renal and lung cancer)
- Respiratory disease (Churg-Strauss syndrome, bronchiectasis, cystic fibrosis)
- Myeloproliferative disorders

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Pathway Guide Eosinophilia | Clinical Lead: Dr Rachel Brown | V.3 | Created: 16/04/2020
Polycythaemia

High haematocrit (Hct) >0.51 in men, >0.48 in women

- Hct Male > 0.600, Female > 0.560 in the absence of congenital cyanotic heart disease
- Recent arterial or venous thromboembolism
- Neurological symptoms
- Visual Loss
- Abnormal bleeding

Refer to Haematology on urgent (suspected cancer) pathway

Does not meet criteria for urgent referral - repeat in 2 months and consider causes (see below)

If no obvious secondary cause and persistent, refer to Haematology routinely.

Causes
- Drugs – diuretics, testosterone, anabolic steroids
- Lifestyle choices - smoking, alcohol
- Hypoxia
Thrombocytosis

Platelets >450 x 10^9/L

- Platelets >1000 x 10^9/L
- Recent arterial or venous thromboembolism
- Neurological symptoms
- Abnormal bleeding

Refer urgently (suspected cancer) to aematology

Platelets >450 x 10^9/L

Repeat FBC in 6 weeks and look for causes

If persistent >450 x 10^9/L and no obvious cause refer routinely to Haematology

Causes
- Iron Deficiency Anaemia
- Malignancies especially the LEGO cancers (lung, endometrium, gastric and oesophageal)
- Inflammation
- Infection
- Post-Splenectomy and Hyposplenism (e.g. Coeliac Disease)
- Myeloproliferative Disorders
- Post-Operatively

Patient Information TBC
Referral Proforma TBC
Local Guidance TBC
National Guidance TBC
Thrombocytopenia

If platelets are less than 50x10^9/L please stop all antiplatelet agents and anticoagulation as unsafe to continue.

Please refer urgently to Haematology

**Platelets <20**
- Active Bleeding
- Blasts In Film
- Fragments In Film
- Altered Conscious Level Or Confusion

D/W on call Haematology to arrange urgent direct assessment

**Platelets <50x10^9/ L**
- Associated with Cytopenias,
- Splenomegaly
- Lymphadenopathy
- Pregnancy
- Upcoming surgery

Repeat FBC in 1 week

If persistent refer urgently to Haematology

**Platelets >50x10^9/L**

Repeat FBC in 6 weeks and look for causes

If persistent and unexplained refer to Haematology routinely

**Causes**
- Spurious result from clumping – please look at blood film report and repeat using citrated sample
- Immune thrombocytopenic purpura (ITP)
- Alcohol
- Liver dysfunction
- Medications
- B12/folate deficiency
- HIV/Hepatitis B/C
- Bone marrow failure/infiltration

**Patient Information**
- TBC

**Referral Proforma**
- TBC

**Local Guidance**
- TBC

**National Guidance**
- TBC
Paraprotein on Serum Protein Electrophoresis

End Organ Damage:
- Hypercalcaemia
- Unexplained renal impairment
- Anaemia or other cytopenias
- Bone pain or pathological fracture

Paraprotein <30
- SFLC ratio <8 or >0.1
- No Immunoparesis
- No End Organ Damage

Low Risk MGUS
- IgG <15
- IgM and IgA <10
- SFLC ratio <8 or >0.1
- No Organ Damage

Non-urgent referral to Haematology

High Risk MGUS
- IgG >15
- IgM and IgA >10

Urgent referral to Haematology

Any of following:
- Paraprotein >30
- SFLC ratio >8 or < 0.1
- Immunoparesis (low IgM/G/A)
- End Organ Damage
- Lymphadenopathy
- Splenomegaly

Urgent (suspected cancer) referral to Haematology

Note:
If there are concerns regarding the interpretation of paraprotein or Serum Free Light Chain results please discuss with the Haematology team.
Microcytic Anaemia

Hb <120g/L Woman
Hb <130g/L Man
AND
MCV <80

Is a thalassaemia / Hb variant likely?

Yes

Haemoglobinopathy testing advised

Hb abnormality found

A referral to the sickle cell and thalassaemia centre will be automatically generated

No Hb abnormality found

Possible alpha thalassaemia. If additional concern, discuss through advice and guidance

Rpt FBC, ferritin

Ferritin <30mcg/L
Or <50mcg/L with Iron sats <20%?
h/o menorrhagia, bowel symptoms, bleeding

Comence oral iron replacement

If cause unknown

Refer to Haematology or through advice and guidance if no evidence of chronic disease / inflammation

If cause known

Check patient diet, TTG antibody, consider referral to gastroenterology for GI investigation / gynaecology. Patients with IDA DO NOT need to be referred to haematology

Possible Anaemia of chronic disease / inflammation

Ferritin >50mcg/L

Possible Anaemia

Refer to Haematology or through advice and guidance if no evidence of chronic disease / inflammation

Treat underlying cause

Local Guidance
TBC

Patient Information
TBC

Referral Proforma
TBC

National Guidance
TBC
Normocytic or Macrocytic Anaemia

Hb <120g/L Woman
Hb<130g/L Man
AND
MCV >80

Check:
- FBC
- Blood Film
- UE/LFT
- TFT
- Vit B12
- Folate
- Ferritin
- Iron Satuations
- Reticulocyte count
- Serum Immunoglobulins
- Serum Free Light Chains

All tests normal or reticulocytes low or picture unclear

Paraprotein detected

Check calcium and suggest referral to Haematology for paraprotein investigation. Exclude other causes of anaemia

Deranged renal function

Suggest referral to renal team

Elevated reticulocyte count

Look for evidence of bleeding or haemolysis and refer to appropriate department

Thyroid function abnormal

Treat thyroid dysfunction and repeat testing 4-6 weeks

Ferritin <50mcg/L, low Vit B12 or Folate

Suggest replace deficiency and assess for underlying cause

Note: Markers of haemolysis include a raised reticulocyte count and high bilirubin and LDH.

Consider advice and guidance if not anaemia of chronic inflammation

Exclude other causes of anaemia

Check calcium and suggest referral to Haematology for paraprotein investigation

Suggest referral to renal team

Look for evidence of bleeding or haemolysis and refer to appropriate department

Treat thyroid dysfunction and repeat testing 4-6 weeks

Suggest replace deficiency and assess for underlying cause

Patient Information TBC

Referral Proforma TBC

Local Guidance TBC

National Guidance TBC
Macrocytosis

Check
- Alcohol history
- Medication (e.g. methotrexate, metformin, some anticonvulsants, hydroxycarbamide, antiretroviral drugs etc.)
- Blood Film
- Vit B12 and folate
- Reticulocyte count/LDH
- LFT
- TFT
- Serum immunoglobulins
- Serum Free Light Chains
- Family history

High Mean Cell Volume (MCV)*

Repeat FBC to ensure not spurious (e.g. delayed transport/ overheating etc.)

MCV remains raised

If Vit B12/folate deficient and Hb <80g/L or other cytopenias

Repeat FBC with reticulocyte count 5-7 days after starting replacement therapy

Consider referral to Haematology if:
- No secondary cause and MCV>105fL if other cytopenias or>110fL in the absence of other cytopenias
- No history of liver disease
- Dysplasia on blood film
- Paraprotein detected

Notes
*A high MCV can be a normal physiological finding in pregnancy

More information on treating B12/folate can be found in the Manchester Anaemia Guide:
Pancytopenia

Clinical assessment and assessment of severity

Severe if any of:
• Hb <80 g/L
• Neutrophils <0.5 x 10^9/L
• Platelets < 30 x 10^9/L

Consider reversible causes:
• Drugs e.g. methotrexate
• Haematinic deficiency
• Enlarged spleen

Check:
• Vit B12/folate
• Reticulocyte count
• U&E/LFT
• Bone profile
• Request blood film if not already available
• Immunoglobulins and serum free light chains

Non-severe
No clear cause
Routine referral to general Haematology clinic

Severe features present but clinically stable
?possible reversible cause

Blood film shows concerning features E.g. evidence of:
• DIC
• Blasts
• Leucoerythroblastic features

Clear cause
Treat underlying cause and monitor to ensure resolves

Unwell/ febrile/ other clinical concerns
Discuss with on-call Haematologist
Consider admission

No
2WW referral with close interim monitoring

Yes
Treat and discuss with Haematology team

Follow advice from blood film report or discuss with on call Haematologists

Pathway Guide – Pancytopenia | Clinical Lead: Dr Rachel Brown | v0.1 | Created: 13/04/2020
**Hyperferritinaemia**

*Note: it is recommended to screen ADULT first degree relatives (siblings) of known C282Y HOMOZYGOTES ONLY for genetic haemochromatosis due to their increased risk for C282Y homozygosity. Screening should be performed by iron studies and ferritin, with genetic testing reserved for those with abnormal results. HFE testing can be performed in primary care and does not require referral to haematology or clinical genetics (see text). HFE testing in children is inappropriate as this is an adult onset condition.*

- **If FBC abnormal & Tsat raised (>50% male, 40% female)**
  - Consider iron loading anaemia

- **If FBC abnormal & Tsat raised (>50% male, 40% female)**
  - ONLY if FBC is NORMAL & Tsat is RAISED (>50% male, 40% female)
  - Proceed to HFE genotyping*

- **If Tsat is NORMAL consider:**
  - Alcohol excess
  - Inflammatory disorders
  - Metabolic syndrome
  - Malignancy

- **If Ferritin >1000mcg/L and normal iron sats**
  - Refer to hepatology

- **If Ferritin <100mcg/L repeat in 6 months**

*Check*
- Repeat serum ferritin
- Full Blood Count,
- Liver Function Test,
- Transferrin Saturation

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**Pathway Guide – Hyperferritinaemia**

**Clinical Lead:** Dr Rachel Brown  |  **v0.1** |  **Created:** 13/04/2020