**Guidelines for the management of neutropenia in children**

Neutropenia is defined as a neutrophil count of less than 2 x 109/l. Risk of infective complications is closely related to the depth of the neutropenia: a major increase in infections is seen with counts of <0.5 x 109/l while some increased risk of infection is seen with counts of 0.5-1 x 109/l.

Causes of neutropenia in children include:

1. Ethnic neutropenia – 20% of black & arabic children will have neutrophil <2x109/L, 5% have neutrophils < 1x109/L
2. 2.5% of all white children will be < 2SD from mean (ie < 1.5 x109/L)
3. Viral infection – HHV 6, CMV etc directly suppress marrow temporarily
4. Autoimmune disorders – eg AutoImmune Neutropenia (AIN)
5. Sepsis
6. Drugs – especially anti-epileptics but can be any drug
7. Bone marrow failure due to aplasia,
8. malignant infiltration
9. B12 / folate deficiency

**Patients with active sepsis should always be referred to secondary care.**

**The following should be referred urgently for secondary care assessment:**

* Infants less than 6 months with a Neutrophil count < 1 x 109/l
* Neutropenia in association with: other cytopenia, lymphadenopathy splenomegaly.
* Neutropenia associated with recurrent bacterial infections (eg cellulitis, sinus infection, pyelonephritis, pneumonia etc). Child may not be septic

As viral neutropenias are frequently transient, repeat FBC in 4-6 weeks. Viral infections can trigger AIN (white cell equivalent of ITP)

**Appropriate investigations in primary care for patients not meeting criteria for urgent referral:**

* Blood film examination
* Blood group, DAT.
* B12, folate
* Autoimmune screen –antineutrophil antibodies done by NHS BT in Bristol (<https://nhsbtdbe.blob.core.windows.net/umbraco-assets-corp/20474/2021-0010-3e_a4_specimenbagformzxu1142-1.pdf>) , ENA, ANA, anti-ds DNA.
* Serology-EBV, CMV, Toxoplasmosis, HIV, HBV and HCV.
* Consider discontinuation of potentially precipitating medications if neuts < 1x109/L, and definitely if <0.5x109/L… and give GCSF.

**Referral for specialist opinion should be considered for:**

• Neutropenia associated with increased susceptibility to infection

• Infants less than 6 months with a Neutrophil count < 0.5 x 109/l

• Other unexplained, *progressive* neutropenia

Reference

