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## HYPERLEUKOCYTOSIS

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**Definition:** is a blood white cell count greater than 100 000/microliter.

Seen mainly in AML and ALL.

Hyper-leukocytosis is associated with early morbidity and mortality from:

1. Metabolic complications from rapid cell lysis
2. Leukostasis in the pulmonary or cerebral vasculature.

Metabolic complications are those discussed in Tumour Lysis Syndrome.

Increased leucocytes may obstruct lung, brain or other organs by forming aggregates and white thrombi in small veins. The increased viscosity seen is due to the deformability of cells, the packed erythrocyte and leucocyte volumes.

The increased blast volumes may also cause endothelial damage leading to micro vascular bleeding.

Intra-cerebral and pulmonary circulations are the most affected.

High Risk of Early Death

1. Increasing leukocyte count > 300 000/microliter
2. AML
3. Older age
4. Respiratory distress.
5. Renal failure
6. Neurological symptoms
7. Coagulopathy.

### **Clinically.**

Cerebral Symptoms

1. Asymptomatic
2. Mental status changes, seizures, papilledema, retinal vein distension, frontal headaches.

Pulmonary Symptoms

1. Dyspnoea, hypoxemia, Right ventricular failure.

## Management

1. FBE, UEC, LDH
  2. Hydration with Normal Saline at 125mls/m<sup>2</sup>/hr.
  3. Prednisolone 40mg/m<sup>2</sup>
  4. Allopurinol 50mg TID
  5. Hydroxyurea 50mg/kg/day in 3 divided doses.
  6. Platelet transfusion at 10mls/kg.
- \* Red cell transfusions are NOT to be given at this time as it will increase blood viscosity. Haemoglobin should not be raised above 8g/dl.*
- \* Diuretics are to be avoided till WCC is lowered.*
7. Appropriate anti-leukemic therapy as soon as patient is stabilised.

## References

1. Carroll W 2010, *Cancer in Children and Adolescents*, Jones and Bartlett Publishers, India, 2010.
2. Medscape 2014, *leucocytosis treatment and management*.
3. Nanveets M, *Acute Leukaemia with very high leucocyte count- confronting a medical emergency*.