

Leukemia

+++ lymphoblast : L

Subtype

1. ALL : MC child

2. AML

3. CML

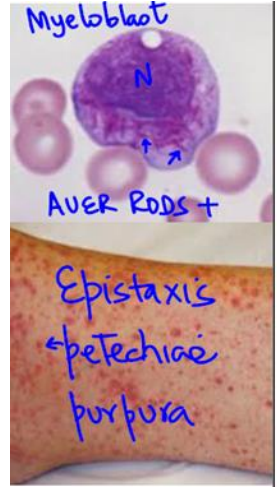
4. CLL : MC adult

+++ Myeloblasts : N B E



MATURATION ARREST

→ Philadelphia chromosomes: t(9:22)



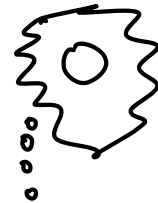
Diagnostic criteria for acute leukemia =

BLASTS > 20%

BMA

↓ NORMOBLASTS
↓ RBC : Hb ↓

↓ Megaloblasts
platelets ↓



WBC count: ↑
Blasts in ++
circulation

(N) $TLC = 4k - 11k / \text{cu. mm}$

Basics of hematology



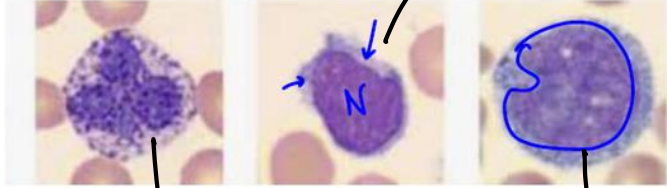
Neutrophil
50-70%

N ↑: sepsis
neutrophilia



Eosinophil
1-6%

E ↑ ⇒ asthma
atopic dermatitis
loeffler syndrome



basophil
0-1%

lymphocyte: 20-40%

L ↑: viral
infection

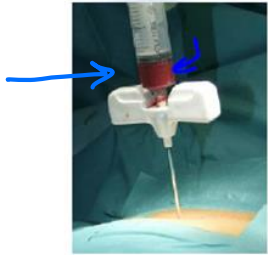
Monocyte: 2-10%
M ↑: MALARIA

* B ↑ = CML
Basophilia

infectious
mono.
nucleosis
EBV

kissing
disease

Investigations done



IOC ALL =
AML =

BMA

Lymphoblast $\geq 20\%$

Myeloblasts $\geq 20\%$

Site: PSIS lignocaine, Propofol IV
needle: KLIMA, SALAH ketamine IV
↓ side screw

* CML: F.I.S.H fluorescent in situ : t(9:22)
BMA ↑ Hybridization

* CLL: PERIPHERAL blood sample:
flow cytometry: CD19 CD20 CD23

CD5

Must know facts

Leading cause of death in blood cancer **INFECTION**

MC blood cancer in adults **C.L.L**

MC blood cancer in children **ALL**

MC blood cancer in children with down syndrome **ALL**

MC type of **AML** in children with down syndrome **Acute megakaryotic leukemia: M7**


* EBV = Burkitt, HL, NHL, Nasopharyngeal carcinoma
lymphoma

Causes of Acute lymphoblastic Leukemia

1. HTLV-1 ^x HUMAN-T-^{cell} linked virus
2. Benzene
3. Radiation exposure
4. Down syndrome

* ALL > AML (M7)

* : ASD O. Primum / endocardial cushion defect

* : duodenal atresia

* HPV-16, 18

Ce Cervix

Ce Anus

Ce nasopharynx

* H. pylori

MACTOMA

Nursing assessment findings in Blood cancer

Hb ↓

1. Weakness, fatigue, weight loss
2. Anemia
3. Overt bleeding Petechiae, purpura

TLC ++
Immature cells

4. Fever and bone pain with sternal tenderness

5. Hepatosplenomegaly and Lymphadenopathy

6. CNS leukemia Neckal Rigidity: meningismus +

7. Infection : cross contamination and auto-contamination



VZ

* NECROTISING FASCITIS

PERIOSTEUM: pain sensitive structure Bone

Prevention of infection in client with leukemia

- ✓ 1. Reverse Barrier nursing
2. Hand washing 1^o: S. AUREUS
3. Asepsis during techniques
- ✓ 4. HEPA: high efficiency particulate air filtration (minimum 12 exchanges per hour) Post Bone marrow Tx
5. Oral hygiene
6. Deep breathing exercise
7. Diet: clean fruits, vegetables
- ✓ 8. Don't use Rectal thermometer or urinary catheterization and pets
- ✓ 9. No live vaccines in patient

ToC: acute leukemia
allogenic Bone marrow Tx

X

ATELECTASIS → 1^o: Chest physiotherapy

FEBRILE NEUTROPENIA: ANC: < 1500
Cells
/mm³

HEPA filters

1. **Type A (erstwhile super speciality OT)** : Type A OT means operation theatres for neurosciences, Orthopaedics (joint replacement) . Cardiothoracic and transplant surgery (renal, liver heart etc.)
2. **Type B (erstwhile General OT)**: This includes operation theatres for ophthalmology, day-care surgeries and all other basic surgical disciplines

REQUIREMENTS – Type A (Erstwhile Super Speciality OT)

1. Air Changes Per Hour:

Minimum total air changes should be 20 based on biological load and the location.

The fresh air component of the air change is required to be minimum 4 air changes out of total minimum 20 air changes.

If healthcare organization (HCO) choose to have 100% fresh air system then appropriate energy saving devices like heat recovery wheel, run around pipes etc. should be installed

2. **Air velocity**: The airflow needs to be unidirectional and downwards on the OT table. The air face velocity of 25-35 FPM (Feet per minute) from non-aspirating unidirectional laminar flow diffuser / ceiling array is recommended.

Leukemia	Treatment
Chronic lymphocytic Leukemia	FLUDARABINE
Chronic Myeloid leukemia	IMATINIB Mesylate (T.K.I)
Acute Myeloid Leukemia	M ₂ AML: acute promyelocytic Leukemia Rx: <u>ATRA</u> al-Trans-Retinoic acid
Acute Lymphocytic Leukemia	Vincristine, Adriamycin, Prednisone intra Thecal Methotrexate
M ₃ Acute Myeloid Leukemia	A.T.R.A or Arsenic Trioxide

Assessment of Bleeding

↓ platelet

GIT. bleeding

Watch for signs of bleeding; pulse, BP, spO₂, abdominal guarding and mental status

CNS bleed

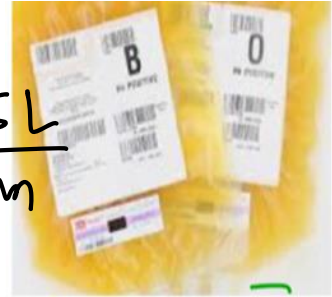
Threshold for platelet transfusion

①

plat: $\frac{1.5 - 4.5 L}{cu.mm}$
Count

1. <5000/cu mm

2. In presence of fever, start at <10,000/ cu.mm



platelet Tx
< 5K
< 10K+ FEVER/INFECTION

* DF \Rightarrow NS-I antigen, Mac ELISA IgM/IgG DV 1,2,3,4

* DHF \Rightarrow Turniquet Test: MAP + 20 mm Hg: 5 min
 > 20 petechiae / sq inch
Cubital fossa

Causes: EBV, HIV