LEUKEMIA

- A malignant disorder of the hematopoietic system involving the bone marrow & lymph nodes
- It is characterized by uncontrolled proliferation of leukocytes (wbc), myelocytes & their precursors. This leaves no room for normal cell production.
- The defect originates from the hematopoietic stem cell, the myeloid or the lymphoid stem cell.

- **It is grouped into 4 primary categories** according to the dominant cell type affected & the time taken for the s/s to appear:

- **Acute leukemia:** onset of s/s is abrupt within wks, leukocyte development is halted in the blast stage, progress is rapid & death occurs within wks
- **Chronic leukemia-** s/s onset is slow over a period of months to yrs, leukocytes produced are mature, progress is slow & may extend over many yrs

The types of leukemia are:

- Acute myeloid & Chronic myeloid
- Acute lymphocytic & Chronic lymphocytic
- The cause is unknown but predisposing factors

i. Specific chromosomal aberrations such as down syndrome, fanconi's anemia have an increased incidence of acute anemia
ii. Chronic exposure to chemicals eg benzene, drugs that cause aplastic anemia & radiation
iii. Viral pathogenesis eg human T- lymphotropic virus

ACUTE MYELOID LEUKEMIA

- Is a disease of the pluripotent myeloid stem cell. It is characterized by the development/ **proliferation of immature myeloblasts in the bone marrow**
- Can occur at any age but occurs most often at adolescence.
- Symptoms result from insufficient production of normal cells.

CF

- Fever due to infection- neutropenia
- Weakness & fatigue- anemia
- Bleeding tendencies- thrombocytopenia
- Proliferation of leukemic cells within organs leads to a variety of additional symptoms- pain from enlarged spleen, hyperplasia of the gums, bone pain from expansion of the marrow

CHRONIC MYELOID LEUKEMIA

- Is a cancer of the myeloid line of blood cells, **characterized by the rapid growth of abnormal white blood cells that accumulate in the bone marrow and interfere with the normal production of blood cells.**
- Most common acute leukemia affecting adults and its incidence increases with increasing age.

CF of A/CML

- Symptoms are due to the replacement of normal marrow with leukemic cells, which cause a drop in the RBCs & platelets.
- They include fatigue, shortness of breath, easy bruising and bleeding, increased risk of infection.

Diagnosis

- Complete blood count(CBC)- shows decrease in both erythrocytes & platelets. No. of normal leukocytes is reduced.
- Bone marrow analysis shows an excess of immature blast cells (> 20%)

MX of A/CML

- Chemotherapy- doxorubicin, cytarabine, daunorubicin. Complete remission occurs in 50-70% of treated pts.
- Supportive therapy- blood components replacement/ transfusion & antibiotic therapy
- Bone Marrow Transplant

ACUTE LYMPHOCYTIC LEUKEMIA

- A malignant disorder arising from **uncontrolled (excess) proliferation of immature cells derived from the lymphoid stem cell specifically;**
- **B- lymphocytes** in 75% of the cases; 25% made up of **T-lymphocytes** of the cases of ALL precursor stem cell.
- Affects children aged 2-4 yrs
- **Diagnosis** is confirmed by biopsy or aspiration.
- Manifestation include: fever, infection, anemia, bleeding, lymphadenopathy
- **MX** involves chemotherapy-e.g. vincrisine, methotrexate

CHRONIC LYMPHOCYTIC LEUKEMIA

- Is characterized by **a proliferation of small, abnormal, mature B-lymphocytes, often leading to decreased synthesis of immunoglobulins & depressed antibody response**
- The accumulation of abnormal lymphocytes begins in the lymph nodes, then spreads to other lymphatic tissues & the spleen. The numbers of mature lymphocytes in the peripheral blood smear & bone marrow is greatly increased.

Symptoms include:

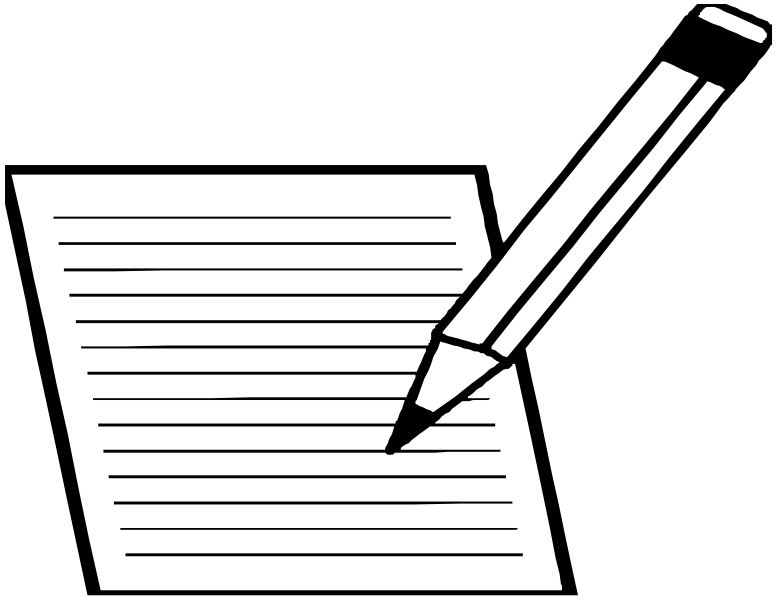
- Pruritic vesicular skin lesions, anemia, thrombocytopenia & an enlarged spleen, liver & lymph nodes. The EBC count is elevated to btn 20,000- 100,000/mm3; this increases blood viscosity &clotting episode may be the 1st manifestation of the disease .
- Bone marrow biopsy shows infiltration of lymphocytes
- Affects adults aged 50-70 yrs
- MX involves chemotherapy & antibotics

CHRONIC MYELOGENOUS LEUKEMIA

- The primary defect is an **abnormal stem cell leading to uncontrolled proliferation of the granulocytic cells increasing the circulating number sharply.**
- Classical s/s are fatigue, weakness, anorexia, weight loss & spleenomegally. WBC range from 15,000- 500,000/mm3

ASSIGNMENT

- READ AND MAKE SHORT NOTES ON LEUKOPENIA
  total leukocytes count less



End of disorders of WBC