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**Paper: WBCs and platelets disorder**

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**QUESTION NO 1 ANS:**

**Leucopoiesis:** It is a form of hematopoiesis in which white blood cells (WBC or leucocytes) are formed in bone marrow located in bones in adults and hematopoietic organs in the fetus. White blood cells, indeed all blood cells, are formed from the differentiation of pluripotent hematopoietic stem cells which give rise to several cell lines with unlimited differentiation potential.

**Types of leucopoiesis:**

**Granulopoiesis:** It is a type of hematopoiesis

Decrease cell size

Structural changes

Changes in nuclear shape

An accumulation of cytoplasm granules

**Stages of granulopoiesis :**

- 1) Neutrophil
- 2) Eosinophil
- 3) Basophil

**Agranulopoiesis:** Derived from CFU-S (myeloid stem cell) CFU-GM (Granulocyte, Monocyte) CFU-LY lymphocyte

Myeloid stem cell then Myeloblast then become Promyelocyte and then Monocyte (blood) and in last Macrophage (tissue)

**Stages of agranulopoiesis:**

- 1) Monocyte
- 2) Lymphocyte

**QUESTION NO 2 ANS: choric myeloid leukemia:** It is a type of cancer which effects the blood and bone marrow. In CML bone marrow Produce too many white cells called granulocytes these cells (sometimes called blasts or leukemia blasts ) gradually crowd the bone marrow interfering with normal blood cell production.

These are three phases or stages

- (1) **Chronic phase:** The blood and bone marrow less than 10% blasts. Blasts are immature white blood cells. This phase can last for several years. However without effective treatment, the disease can progress to the accelerated or blast phases ( see below). About 90% of people have chronic phase MCL when they are diagnosed .some have symptoms of chronic when diagnosed and some do not .
- (2) **Accelerated phase:** There is no single definition of the acceleration. However most patients with this stage of CML have 10%-90% in both the blood and bone marrow are more than 20% basophil in the peripheral blood. Basophil is a special type of white blood cell.
- (3) **Blast cell:** In the blast phase there are 20% or more blasts in the blood or bone marrow, and it is difficult to control the number of white blood cells. The CML cells often have additional genetic change as well. The blast cells can look like the immature cells seen in patients with other types of leukemia.

**QUESTION NO 3 Ans:** Leukemia is the cancer of the body's blood forming tissue or bone marrow characterized by evoilated

Leukemia are neoplastic proliferation of hematopoietic cells

**Causes:** scientists don't understand the exact causes of leukemia. It seems to develop from a combination of genetic and environmental factors.

Environmental factor ( ionization, chemical carcinogen, certain drugs.

Infection ( human T leukemia )

**QUESTION NO 4 ANS:**

**ACUTE:(1)** Acute leukemia progress rapidly because they affect stem cell

(2) They are fast growing spread to person organ in central nervous system

(3) 20% blast cell

(4) Mostly occur less than 15 years old

(5) Acute myleoid leukemia mainly occur in adult

(6) symptoms appear rapidly

**Chronic:** (1) This type of occur progress very slowly

(2) They are more slowly occur people have no symptoms and can leave month to year

(3) present about 40 to 60 years

(4) symptoms appear slowly

(5) splenomegaly ( liver and spleen enlargement )

### **QUESTION NO 5 ANS:** Rai classification of chronic lymphocytic leukemia

Stage clinically risk / level survive rate.

Stage: 0 lymphocytosis ( risk level low  survive 12 years

Stage: 1) lymphocytosis adenopathy ( Mild survive till 8 year

Stage: 2) lymphocytosis hepatosplenomagely ( Mild survive 8 year

Stage: 3) Anemia ( High 2-3 year

Stage:4) Thrombocytopenia lymphocytosis ( High survive 2-3 year

### **QUESTION NO: 6 ANS: chronic myleoid leukemia**

chronic mylogeneous

chronic mylocetic

chronic granulocytic

Chronic myeloid leukemia is myloproliferative disorder characterized by specific genetic ( BCR, ABL) fusion gene .

Ablesion ) ABL gene

in chronic myeloid leukemia

These two chromosomes are abnormal gene position change.

**Causes:** smoking:

2) Radiation:

3) Benzene:

**Symptoms:** Fever

Excessive sweating specially at night

Weight loss

Abdominal swelling or discomfort due to an enlarge spleen

Itching

Bone pain

Feeling full when you have not eaten much.