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Disorder

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Question .1: What is leucopoiesis, and also explain its types?

Answer:

Leucopoiesis:

Definition: Leukopoiesis is a form of hematopoiesis in which white blood cells (WBC, or leukocytes) are formed in bone marrow located in bones in adults and hematopoietic organs in the fetus.

Leukopoiesis also described that it is the formation and maturation of white blood cell.

It has major two types:

- **Granulocytopoiesis**
- **Agranulocytopoiesis**

Granulocytopoiesis: it is the formation of granulocytes (neutrophil, eosinophil, and basophil).

Stages of Granulocytes:

Myeloid stem cell



1. Myoblast.
2. Promyelocytes
3. Myelocytes
4. Metamyelocytes
5. Band form
6. Granulocytes

Agranulocytopoiesis:

Agranulocytopoiesis is derive from CFC-S and CFC-LY

Stages of Agranulocytopoiesi:

Myeloid stem cell



1. Myelomonoblast
 2. Promonocytes
 3. Monocytes(blood)
 4. Macrophages(tissue)
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Question .2: Compare All phases (chronic, accelerated, blast) of CML.?

Answer:

CML stand for chronic myeloid leukemia

It has three phase that are mention below;

1. Chronic phase
2. Accelerated
3. Blast crises

Chronic phase	Accelerated	Blast crises
85% patients were present at the diagnosis	10-19% blast in bone marrow	Final phase in evaluation
No anemia	>20% basophils inn bone marrow	Behave as acute leukemia
Variable duration	Platelet count>100000 unrelated to therapy	Progression rapid and survival is short
thrombocytosis	Platelet count<100000 response to therapy	>20% myeloblast and lymphoblast in blood
It has mild symptom	Splenomegaly and increase WBCs count	Present large cluster
Blast<10%	Other abnormalities may be present	Chloroma development may be present

Question .3: Explain and its causes?

Answer:

Leukemia: Leukemia is a type of cancer of the blood or bone marrow that is characterized by an abnormal increase of immature white blood cell called "blasts". It cover broad spectrum of diseases affecting the blood, bone marrow, and lymphoid system which known as hematological neoplasms.

Causes Leukemia:

1. **Benzen:** Benzenes can cause leukemia because it is widely used in chemical industry.it is documented in 1928
2. **High level of radiation:** People that are more exposed to radiation are more likely develop leukemia than other people. High level of radiation by atom bomb explosion (japan) and nuclear power plant accident (In 1986). Radiation are used for diagnosis. Lower level of radiation not linked to leukemia.
3. **Smoking:** It is major avoidable cause of cancer. It also associated with cancer of pancreas, kidney, bladder, stomach and cervix.3600 cases were reported in the United States due to leukemia.
4. **Down syndromes and genetic diseases:** Abnormal chromosomes may increase the risk of leukemia. It exist cause cannot be determined.

Question .4: Differentiate between acute and chronic leukemia?

Answer:

Acute leukemia	Chronic leukemia
It is develop from early cell called blast	It cell come from mature abnormal cell
Progress rapidly	Progress slowly
Symptom take long time to appear	Symptom appear quickly
It common in younger age group	It common in older age group
Need immediate treatment	Treatment may be delayed

Question .5 Discuss Rai classification of chronic lymphocytic leukemia?

Answer:

Chronic lymphocytic leukemia: chronic lymphocytic leukemia is a monoclonal

disorder of B-lymphocytes:

It is characterized by progressive accumulation functionally incompetent lymphocytes.

B-cell	T-cell
Chronic lymphocytic leukemia	Large granular lymphocytic leukemia
Prolymphocytic leukemia	T-cell prolymphocytic leukemia
Hairy cell leukemia	Adult T-cell leukemia / lymphoma
Plasma cell leukemia	Sezary syndrome

Question .6: Explain chronic myeloid leukemia causes and symptoms?

Answer:

Chronic myeloid leukemia: It is a clonal myeloproliferative disorder characterized by specific genetic abnormality i.e BCR-abl fusion gene. It is with complete left shift, basophillia.

Causes: The most important cause of CML is a translocation;

1. Chromosomes 9 (the ABL gene).
2. Chromosomes 22 (BCR gene)

During cell division the cell of these two chromosomes cross, break and fuse each other to create Philadelphia chromosomes.

Philadelphia chromosomes has two parts also called BCR-ABL these genes produce specific 21KD tyrosine kinase. Tyrosine kinase stimulates the production of abnormal blood cells by B/M.

Symptoms:

- Weakness.
- Feeling tired.
- Weight loss.
- Chills.
- Fever

THE END