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**Class BS MLT**

**Id no 14666**

**Paper WBC AND PLATELETS DISORDER**

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**Module 4th semester**

**Exam Mid term**

**Q1. What is leucopoiesis, and also explain its types?**

**ANS:- LEUKOPOIESIS:-** Leucopoiesis is a form of hematopoiesis in which white blood cells are formed in bone marrow located in bones in adults and in hematopoietic organ in the fetus. Leucopoiesis is step wise process in which different types of growth factor are required for the production of different cells.

**TYPES: -** the two major form of leucopoiesis are myelopoiesis and lymphopoiesis.

**MYELOPOIESIS: -** it is a process in which myeloid cells are produce. Myeloid cells include monocytes, neutrophils, eosinophil and basophils. Myeloid cells are innate cells they are non-specific.

**LYMPHOPOIESIS: -** lymphopoiesis is a process in which lymphocyte cells are produced. Lymphoid cell include B-lymphocyte and T-lymphocyte. These cells are specific cells its mean that they produce after antigenic exposure.

**Q2. Compare all phases (chronic, accelerated, blast) of CML?**

**ANS: - 1. CRONIC PHASE: -** approximately 85% of patients are in the chronic phase at the time of diagnosis

* Asymptomatic are have only mild symptoms.
* Blast less than 10%.
* No splenomegaly.
* No anemia.
* Thrombocytosis.
* Duration is variable.
* May progress to an accelerated phase.

**2. ACCELARATED PHASE: -**

* 10-19% blasts in the blood are bone marrow.
* >20% basophils in the blood are bone marrow.
* Platelet count >100,000, unrelated to theraphy.
* Platelet count > 1,000,000, unresponsive to theraphy.
* In addition to the Philadelphia chromosome other chromosomal abnormalities may be present.
* Marked splenomegaly and increasing white blood cell count unresponsive to theraphy.

**3. BLAST CRISES: -**

* Final phase in the evolution of CML.
* Behaves like in acute leukemia.
* Rapid progression and short servable.
* Diagnoses based on the presence of;
* >20% myeloblasts or lymphoblast in the blood are bone marrow
* Large clusters of blast in the bone barrow on biopsy.
* Development of solid focus of leukemia outside the bone marrow.

**Q3. Explain leukemia and its causes?**

**ANS: - LEUKEMIA: -** leukemia is a type of cancer of blood or bone barrow. Characterized by an abnormal increase of immature white blood cells called blasts. Leukemia is a broad term covering a spectrum of diseases. In turn, it is part of the even broader group of diseases effecting the blood, bone marrow and lymphoid system, which are known as hematological neoplasms.

**CAUSES: -**

1. Working with certain chemicals.
2. Very high level of radiations.
3. Smoking.
4. Genetic disorders.
5. **WORKING WITH CERTAIN CHEMICALS: -** exposure to high levels of benzene in the work place can cause leukemia. Formaldehyde is also used in the chemical industry. That both may cause leukemia.
6. **VERY HIGH LEVEL OF RADIATION: -** people exposed to very high level of radiations are much more likely than other to develop leukemia. Medical treatments that uses radiation can be another source of high level exposure.
7. **SMOKING: -** Tobacco products are the single, major avoidable cause of cancer. Smoking is also causally associated with cancer of the pancreases, kidney, stomach and cervix with myeloid leukemia.
8. **GENETIC DISORDER: -** some disease caused by abnormal chromosomes may increase the risk of leukemia.

**Q4. Differentiate between acute and chronic leukemia?**

**ANS: - ACUTE LEUKEMIA: -** acute leukemia develop from early cells, called **Blasts.** Blasts are young cells that divide frequently. They target immature cells, causing symptoms to appear quickly. In acute leukemia cells, they do not stop dividing like their normal complements do.

**CHRONIC LEUKEMIA: -** in chronic leukemia, the leukemia cells come from mature, abnormal cells. The cells thrive for too long and accumulate. The cells grow slowly. It is not unusual in chronic causes for symptoms to take a long time to even appear.

**Q5. Discus** R**ai classification of chronic lymphocytic leukemia?**

**ANS: -** In this staging system, CLL is divided into 5 different stages, from 0 to 4.

**STAGE 0: -** Patient has lymphocytosis with more than 5000 lymphocytes per microliter of blood but no other physical signs.

**STAGE 1: -** The patient has lymphocytosis and enlarge lymph nodes. Patient doesn’t have an enlarge liver or spleen anemia or low level of platelets.

**STAGE 2: -** The patient has lymphocytosis and anemia. The patient may or may have swollen lymphnodes. Enlarge spleen. Red blood cells and platelets count are near normal.

**STAGE 3: -** Lymph nodes, spleen, or liver may or may not be enlarged. Red blood cells counts are low and platelets counts are near normal.

**STAGE 4: -** Enlarge lymph nodes, spleen or liver. Red blood cells counts may below or near normal and platelets counts are low.

**Q6. Explain chronic myeloid leukemia causes and symptoms?**

**ANS: - CHRONIC MYELOID LEUKEMIA: -** chronic myeloid leukemia is a clonal myeloprolifrative disorder characterized by specific genetic abnormality.

**CAUSES: -**

* It occur in all age.
* Most common in men
* The most common cause of chronic myeloid leukemia include the chromosomal dislocation called pheledelphia in which the part of chromosome 9ABL fuse with BCR part of chromosome 22 that increase the activities of protein tyrosine kinase which lead to uncontrolled proliferation of WBC in bone lead to chronic myeloid leukemia.

**SYMPTOMS**

* Splenomegaly
* Weakness
* Chills
* Fever
* Fatigue
* Weight loss
* Blood loss
* Hemorrhages from other site.