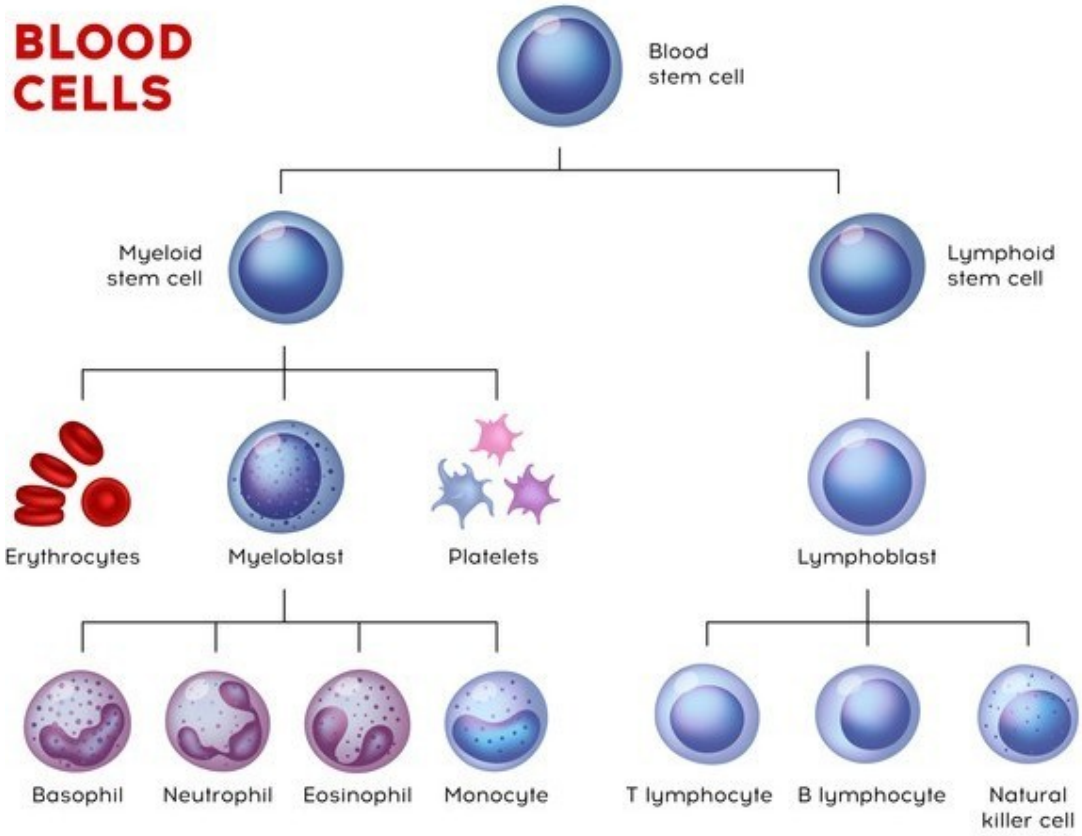
Nursing Care of Hematologic Alterations:



A client with low hemoglobin and hematocrit will have:

- pale skin
- experience fatigue
- Because of the low oxygen-carrying capacity, dyspnea can be present.

They can have low blood pressure and/or tachycardia (not bradycardia), depending on whether these are chronic or acute symptoms.

Erythrocytosis (high RBC count) can be caused by

- high altitude
- chronic smoking

erythrocytopenia (low RBC count) can be caused by:

- Folate deficiency
- iron deficiency
- excess menses

Normal Laboratory Values

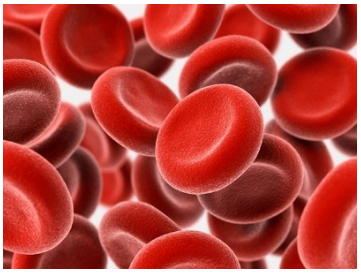
- Red Blood Cells (RBC)
  - Female: 4.2-5.4 x 106
  - Male: 4.7-6.1
- Hemoglobin
  - Female: 12-16 g/dL
  - Male: 14-18 g/dL
- Hematocrit
  - Female: 37%-47%
  - Male: 42%-52%
- WBC: 5000-10,000
- Platelet Count: 150,000-400,000

Red blood cells are responsible for picking up and delivering oxygen, carbon dioxide, iron, and other nutrients throughout the body. Red blood cells do this job for about 4 months before they are recycled and replaced.

White blood cells only last about 20 days in the blood before they are destroyed in the lymphatic system.

Immature white blood cells, called "bands" and "stabs," are used to signal the presence of a new threat. Other white blood cells are triggered as an allergy response.

Platelets are the blood cells responsible for repairing injury. They clump together when damage is present and call for clotting factors to surround them as a temporary barrier. Platelets only live for about nine days before they break down and are replaced and recycled.



Red Blood Cells
(Erythrocytes)
120 Days



Platelets
(Thrombocytes)
9 Days

White Blood Cells
(Leukocytes)
20 Days

RBC:

Too many: Erythrocytosis

Not enough: Erythrocytopenia

White Blood Cells:

Too many: Leukocytosis

Not enough: Leukocytopenia

Platelets:

Too many: Thrombocytosis

Not enough: Thrombocytopenia

If a patient/client is being d/c from the hospital. The appropriate time frame to order a CBC to ensure the platelet count returns to normal is 2 weeks. The life span of a platelet is 9 days, so 2 weeks should be enough time to ensure the platelet count returns to normal.

Anemia is measured by looking at three different values: the red blood cell count, hemoglobin, and hematocrit. If one of these three values is below normal, the client has a condition called *anemia*. This is not a diagnosis; it is a condition caused by an underlying problem. A client can have a normal red blood cell count but a decreased hemoglobin, whereas erythrocytopenia only refers to a low red blood cell count.

There are three classifications of anemia, all based on the size of the red blood cell (mean corpuscular volume [MCV]) on the complete blood count (CBC).

- **Macrocytic anemia**—MCV is greater than 100.
- **Normocytic anemia**—MCV is between 80 and 100.
- **Microcytic anemia**—MCV is less than 80.