

Anemia

What is anemia?

Anemia : is a medical condition in which the red blood cell count or hemoglobin is less than normal. The normal level of hemoglobin is generally different in males and females. For men, anemia is typically defined as hemoglobin level of less than 13.5 gram/100 ml and in women as hemoglobin of less than 12.0 gram/100 ml. These definitions may vary slightly depending on the source and the laboratory reference used

Symptoms Of Anemia:

Some patients with anemia have no symptoms.

Others with anemia may feel:

1. Tired
2. Fatigue easily
3. Appear pale
4. Develop palpitations (feeling of heart racing)
5. Become short of breath

Additional symptoms may include:

1. Hair loss.
2. Heart failure.

If anemia is longstanding (chronic anemia), the body may adjust to low oxygen levels and the individual may not feel different unless the anemia becomes severe. and If the anemia occurs rapidly (acute anemia), the patient may undergo significant symptoms relatively quickly.

There may be signs of specific causes of anemia :

- 1- Koilonychia (Spoon nails) associated with Iron deficiency anaemia.
- 2- Jaundice »»» associated with Haemolytic Or Megaloblastic anaemia.
- 3- Bone deformities » associated with Thalassaemia major , and Sever congenital haemolytic anaemias .
- 4- Leg ulcers »» seen in sickle-cell disease.

Classification Of Anemia :

A – Based on the causes of anemia :

- 1- Failure of blood production.
- 2- Increase blood loss .
- 3- Increase of red cell destruction .
- 4- The age of the patient .

B – Based on red cell indices :

- 1- Microcytic, hypochromic : - MCV, MCH reduced (< 80 fl,< 27 pg.)
eg. : Iron deficiency anemia, Thalassaemia , lead poisoning ,
Sideroblastic anemia .
- 2- Normocytic, Normochromic. :- MCV, MCH. Normal .

(MCV. 80- 95 fl. , MCH. 27-34 pg.)

e.g. : after acute blood loss, many hemolytic anemia, bone marrow failure , Renal disease,

3- Macrocytic : MCV. Is raised. MCV . > 95 fl .

eg, Megaloblastic anemia (Vit. B12 or folate deficiency, alcohol, liver disease , Aplastic anemia .

Types Of Anaemia :

1 – Iron deficiency anaemia .

2 - Megaloblastic anaemia .

3 – Sickle cell anaemia .

4 – Aplastic anaemia .

5 – Haemolytic anaemia .

6 – Pernicious anaemia .

7 – Acquired and Autoimmune haemolytic anaemia.

8 - Thalassemia .

Diagnosis :

Diagnosing anemia usually starts with a medical history review and exam by doctor. Next, your doctor may apply for one or more of the tests below to determine the type of anemia .

Specialized analyses that are not presented at all medical centers.

Blood tests :

The first test you will receive is a complete blood count, which measures the number of white blood cells, red blood cells and platelets in a blood sample. If test results show you have anemia, other blood tests may be done to identify the type and cause, including:

1. **Hemoglobin electrophoresis :** This test helps diagnose anemia by checking different proteins called hemoglobin in blood.
2. **Reticulocyte count :** A reticulocyte count shows the number of young red blood cells in blood to determine if your bone marrow is making them at the right rate.
3. **Serum iron and serum ferritin :** These tests check the amount of iron in blood and body.
4. **Peripheral blood smear :** A peripheral smear assesses whether the shape of red blood cells have changed due to anemia.
5. **Osmotic fragility :** This test determines if red blood cells have become more fragile than usual.

Tests related to underlying conditions :

If doctor thought that an underlying chronic disease or iron deficiency is causing anemia, one or more of the following tests may be optional to diagnose your condition.

1. **Stool sampling :** If doctor thinks bleeding internally, may need to provide a stool sample for testing.
2. **Urine analysis :** Urine analysis can reveal the presence or absence of specific substances that help identify which anemia-related condition .
3. **Endoscopy :** Endoscopy is a procedure used to visually examine upper digestive system for signs of bleeding, using a tiny camera on the end of a long, flexible tube. If necessary, cell samples can be taken for examination under a microscope (biopsy) by a pathologist.
4. **Colonoscopy :** This test involves passing a lighted tube through the rectum to search for tumors or other problems in the large intestine and surrounding areas.
5. **Bone marrow biopsy :** A bone marrow sample may be taken for examination by a pathologist to determine if your bone marrow, the body's blood factory, is working correctly or has abnormalities.
6. **Genetic tests and counseling :** If doctor suspects that your anemia is related to a genetic condition, a consultation with a genetic counselor may be recommended .