IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Review on Pathophysiology of Anemia Disease

1Dr. Swati S. Rawat, 2Dr. Sunil S. Jaybhaye, 3Yogiraj P. Muley, 4Saurabh M. Bondre, 5Disha Bhimrao Jadhav

1Principal, 2Vice principal, 3Asso. Prof, 4Asst. prof, 5Student

1Institute of pharmacy, Badnapur,

2Institute of pharmacy, Badnapur,

3Institute of pharmacy, Badnapur,

4Institute of pharmacy, Badnapur,

5Institute of pharmacy, Badnapur

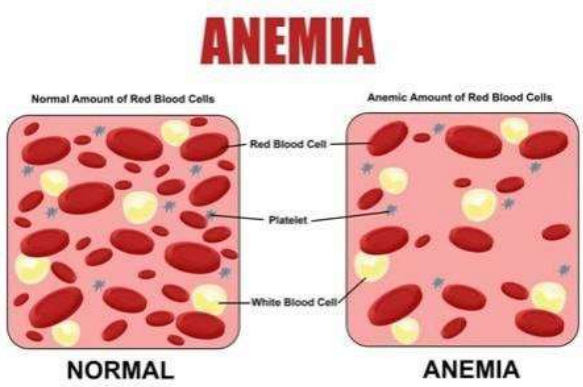
• ABSTRACT :

Anemia affects a third of the world's population and contributes to increased morbidity and mortality, decreased work productivity, and impaired neurological development. Understanding anemia's varied and complex etiology is crucial for developing effective interventions that address the context-specific causes of anemia and for monitoring anemia control programs. We outline definitions and classifications of anemia, describe the biological mechanisms through which anemia develops, and review the variety of conditions that contribute to anemia development. We emphasize the risk factors most prevalent in low- and middle-income countries, including nutritional deficiencies, infection/inflammation, and genetic hemoglobin disorders. Recent work has furthered our understanding of anemia's complex etiology, including the proportion of anemia caused by iron deficiency (ID) and the role of inflammation and infection. Accumulating evidence indicates that the proportion of anemia due to ID differs by population group, geographical setting, infectious disease burden, and the prevalence of other anemia causes. Further research is needed to explore the role of additional nutritional deficiencies, the contribution of infectious and chronic disease, as well as the importance of genetic hemoglobin disorders in certain populations.

• KEY WORDS :

Anemia, Iron deficiency anemia, Nutritional anemia, anemia of inflammation

• INTRODUCTION :



Anemia is medical condition where your body doesn't have enough red blood cells and carries oxygen to different parts of your body.

Anemia is preventable and treatable.

Scope of the problem :

The population group most volnerable to anamia include children under 5 years of age, particularly infants and children under 2 years of age, menstruation adoiescent girls and women, and pregnant and postpartum women.

Sign and symptoms :

Common and specific symptoms of anemia include :

1. Tiredness
2. Dizziness or feeling light – headed
3. Cold hand and feet
4. Headache

Severe anemia can cause more serious symptoms including

1. Pale mucous membrane (in mouth, nose, etc)
2. Pale skin and under the finger nails

Causes :

1. Inadequate nutrition (iron,vitamins)
2. Blood loss (menstruation, internal bleeding)
3. Chronic disease (kidney disease, cancer)

• TYPE OF ANEMIA :

1. Iron deficiency anemia
2. Pernicious anemia
3. Haemolytic anemia
4. Sickle cell anemia
5. Aplastic anemia
6. Thalassemia

1.Iron deficiency anemia :IDA is one of the most common anemia in world as well as in It is a condition in which there is deficiency of iron in the blood stream.

Haemoglobin, a protein present in RBC which carry oxygen throughout the body.

Causes :-

Inability to absorb iron

Abnormalities of GIT

Internal bleeding

Symptoms :

Tiredness

Breathlessness

Headache

2. Pernicious Anemia

(mean destructive or injurious)

Once through to be a deadly disease this type of anemia was given the name "dangerous"

Vitamins B -12 injection Or B-12 oral supplement can now be used for treatment.

Causes :

Inadequate diet

Vitamin B-12 deficiency

Gastrointestinal tract infections

Symptoms :

-Fatigue

-Breathlessness

-Pale skin

3.Haemolytic Anemia :

It is a disease in which red blood cells r separated from the blood until they reach the end of their natural life.

the most serious from of hemolytic anemia is caused by receiving a transfusion afraid blood cells of the wrong blood type.

4.Sickle cell Anemia :

The RBCs in the body sickle cell anemia are scissors ("C"-shaped).

It contain abnormal haemoglobin, which give it the shape of scissor & make it harder to pass through blood vessels.

• Symptoms :

It Is an incurable disease inherited which means it is passed down from generation to generation.

• Symptom include :

-Get tired quickly

-Pale skin

-Breathlessness

-Dizziness

5. Thalassemia :

It is blood disorder in which the body produces unhealthy RBCs and low hemoglobin.

Alpha and beta thalassemia are the two most common type of thalassemia.

• Symptoms :

-Pale skin tone.

-Urine that is dark in color.

6. Aplastic anemia :

It is a blood disorder in which the bone marrow fails to produce enough new blood cells, leading to a variety of health condition such as arrhythmias, enlarge heart, heart failure, infection and bleeding.

Symptoms :

- Pale skin
- Fatigue
- Shortness of breath

• EXPERIMENT :

Aim : Comprehensive review on anemia.

Methods and material :

Blood sample of 70 pregnant women we collected.

The samples were further divided to carry out their using different available technique.

The test were include :

1) Haemoglobin with target cell : The haemoglobin was recorded in both group A & B at different time periods.
2) Serum ferritin : Pack cell volume, Complete blood count (CBC)

From the Hb test of the patient their mean Hb level was recorded as 7 to 9 g/dl the confirmational test also helped in excluding the patient having other cause of anemia like thalassemia, B12 deficiency folic acid deficiency.

History was taken carefully from the patient so that to monitor their hypersensitivity to iron dosage & to avoid any major side effect.

The selected patient were divided into two group A & B, consisting 40 & 30 patient respectively group A was provide with I.V iron while group B was administered I.M iron.

• History of anemia :

Ancient Egypt (1550 BCE) : Anemia was first described in the Ebers popyrus, an ancient medical test.

Ancient Greece (400 BCE) : Hippocrates described a disease a characteristics by fatigue, weakness, and pale skin, likely anemia.

17th Century : Richard lower, an English physician described the concept of "bad blood" leading to anemia.

- 18th Century : Pierre lovis, a French physician coined the term "anemia".

- 19th Century : The discovery of Red blood cells and hemoglobin led to a better understanding of anemia.

- 1830s : The role of iron deficiency in anemia was identified.

-1950s : Folic acid and vitamin B12 deficiency were linked to anemia.

-1960s : Genetic disorder like sickle cell anemia and thalassemia were understood.

-1970s : Erythropoietin (EPO) was discovered leading to new treatment.

-1980s : Blood transfusion and iron supplement became common treatment.

- 1990s : Advanced in molecular biology & genetic improve understanding of anemia.

- 2000s : New treatment like erythropoiesis – stimulating agent (ESAS) emerged.

• Present Day :

Ongoing research focuses on personalized medicine, gene therapy and noves treatment for anemia.

• DOSAGE :

- **Children :**

0-6 months	0.27 mg
7-12months	11 mg
1-3 years	7 mg
4-8 years	10 mg
9-13 years	8 mg

- **Female :**

14-18 years	15 mg
19-50 years	18 mg
50+ years	8 mg

- **Males :**

14-18 years	11 mg
19-50 years	8 mg
50+ years	8 mg

- **During Pregnancy :**

14-27 years	27 mg
19-50 years	27 mg

- **During Lactation :**

14-27 years	10 mg
19-50 years	9 mg

• DIAGNOSIS :

Anyone who notice symptom of anemia should consult doctor, who will consider the symptom and ask about

- The persons diet
- Existing conditions

• TREATMENT :

The following amounts of iron, folate, and B-12 each day. Iron is given in milligrams (mg) while the vitamins are in micrograms (mcg).

	Iron (mg)	B-12 (mcg)	Folate (mg)
Males 19-50 years	8	2.4	400
Females 19-50 years	18	2.4	400

• CONCLUSION :

Anaemia is the important global health risk factor faced by the teenagers and pregnant women nowadays. Anaemia should be diagnosed earlier and treated to get a healthy generation.

• REFERENCE :

1. Global health metrics anaemia – level 1 impairment lancet 2019 ; 393 https:www.healthdata.org/result.s/gbd-level-1-impairment.
2. Walters D, kakietek I, Eberwein ID, shekar m an investment framework for meeting the global nutrition target for anemia. Washington DC: world Bank:2017
3. Jobin johny, ninad Nagrale and shriram kane 'First year MBBS, Datta Meghe Medical college, shalinitai Meghe hospital and Research centre Nagpur, India.
4. B – Thalassemia distribution in the old world an ancient disease seen from A historical standpoint. Researchgate . net
   Medically Review by Philip Ngo, pharmD-written by caitlin Geng on may 25,2023 medicalnewstoday. Com