

**PHB**



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**Course Name : D. Pharm**

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**Subject Name : Pharmacotherapeutics**

**Topic Name : Iron deficiency anemia (IDA)**

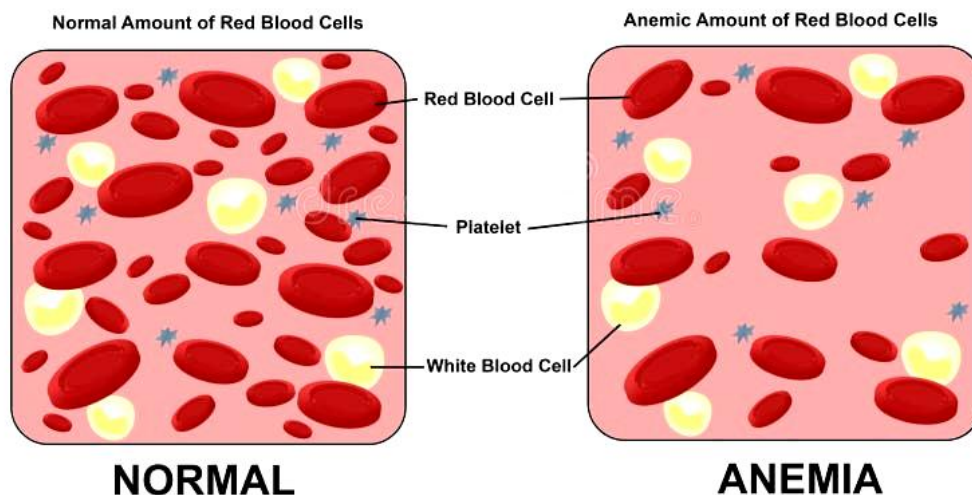
## Chapter– 7 Haematological Disorders

### Topic: IRON DEFICIENCY ANAEMIA

7.1

#### Introduction

Iron deficiency anemia (IDA) is a common condition where the body does not have enough iron to produce hemoglobin, a protein in red blood cells that carries oxygen to different parts of the body.



7.2

#### Etiopathogenesis

Some of the common causes include:

- 1. Inadequate dietary iron intake:** Consuming too little iron-rich foods, such as meat, poultry, fish, beans, lentils, and fortified cereals.
- 2. Increased iron requirements:** Pregnancy, menstruation, and rapid growth during childhood and adolescence can increase iron requirements.
- 3. Chronic blood loss:** Menstruation, ulcers, cancer, and gastrointestinal disorders can lead to chronic blood loss and iron deficiency.
- 4. Malabsorption:** Certain conditions, such as celiac disease, Crohn's disease, and gastric bypass surgery, can impair iron absorption.
- 5. Genetic disorders:** Certain genetic disorders, such as hereditary hemochromatosis, can affect iron metabolism.

## 7.3

## Types

- 1. Mild IDA:** Hemoglobin levels are slightly below normal, and symptoms are mild.
- 2. Moderate IDA:** Hemoglobin levels are significantly below normal, and symptoms are more pronounced.
- 3. Severe IDA:** Hemoglobin levels are critically low, and symptoms are severe.
- 4. Chronic IDA:** IDA that persists over a long period, often due to underlying conditions such as chronic kidney disease or cancer.
- 5. Acute IDA:** IDA that develops suddenly, often due to acute blood loss or infection.

## 7.4

## Symptoms

The symptoms commonly includes:

- 1. Fatigue:** Feeling tired and weak.
- 2. Weakness:** Feeling weak and lacking energy.
- 3. Shortness of breath:** Feeling winded or short of breath.
- 4. Dizziness:** Feeling dizzy or lightheaded.
- 5. Headaches:** Experiencing frequent headaches.
- 6. Cold hands and feet:** Feeling cold in the hands and feet.
- 7. Pale skin:** Skin appears pale or washed out.

## 7.5

## Diagnosis

Diagnostic procedures may include:

- 1. Complete Blood Count (CBC):** Measures hemoglobin, hematocrit, and red blood cell indices.
- 2. Serum iron and transferrin saturation:** Measures iron levels in the blood.
- 3. Ferritin:** Measures iron stores in the body.
- 4. Peripheral smear:** Examines the shape and size of red blood cells.

## 7.6

## Pharmacological managements

Medications:

- 1. Iron supplements:** Oral iron supplements, such as ferrous sulfate, ferrous gluconate, or ferrous fumarate.
- 2. Parenteral iron:** Intravenous iron therapy for severe IDA or when oral iron supplements

are not effective.

## 7.7

### Non - Pharmacological managements

Non-pharmacological management of IDA disorder includes:

1. **Dietary Changes:** Increasing iron-rich foods in the diet, such as:
2. **Iron-Rich Food Fortification:** Consuming iron-fortified foods, such as:
3. **Vitamin C-Rich Foods:** Consuming vitamin C-rich foods, such as:
4. **Cooking in Cast Iron Cookware:** Cooking in cast iron cookware can increase iron intake.
5. **Avoiding Inhibitors of Iron Absorption:** Avoiding or reducing consumption of:

## 7.8

### Complications

Complications of untreated IDA:

1. **Heart problems:** IDA can lead to heart failure, arrhythmias, and cardiac arrest.
2. **Poor pregnancy outcomes:** IDA can increase the risk of preterm labor, low birth weight, and infant mortality.
3. **Impaired cognitive function:** IDA can affect cognitive function, memory, and concentration.
4. **Increased risk of infections:** IDA can impair immune function, increasing the risk of infections.

## Practice Questions

### MULTIPLE CHOICE QUESTIONS

1. Which of the following is the most common cause of anemia worldwide?
  - a) Vitamin B12 deficiency
  - b) Folate deficiency
  - c) Iron deficiency
  - d) Hemolytic anemia
2. Which of the following is NOT a risk factor for iron deficiency anemia?
  - a) Poor dietary intake of iron
  - b) Chronic blood loss
  - c) Excessive iron absorption
  - d) Pregnancy and menstruation
3. Iron deficiency anemia is characterized by:
  - a) Microcytic, hypochromic red blood cells
  - b) Macrocytic, normochromic red blood cells
  - c) Microcytic, normochromic red blood cells
  - d) Normocytic, normochromic red blood cells
4. The most common manifestation of iron deficiency anemia is:
  - a) Fatigue and weakness
  - b) Jaundice
  - c) Bone pain
  - d) Hypertension
5. Which of the following is NOT a recommended dietary source of iron?
  - a) Red meat
  - b) Spinach
  - c) Citrus fruits
  - d) Lentils and beans
6. What is the mainstay treatment for iron deficiency anemia?
  - a) Vitamin B12 supplementation
  - b) Folate supplementation

- c) Iron supplementation
  - d) Erythropoietin injections
7. Iron absorption is enhanced by the presence of:
- a) Calcium
  - b) Vitamin C
  - c) Fiber
  - d) Caffeine
8. Which laboratory test is used to confirm the diagnosis of iron deficiency anemia?
- a) Serum ferritin level
  - b) Serum folate level
  - c) Serum vitamin B12 level
  - d) Hemoglobin electrophoresis
9. In iron deficiency anemia, the total iron-binding capacity (TIBC) is:
- a) Decreased
  - b) Normal
  - c) Elevated
  - d) Not affected
10. Untreated iron deficiency anemia can lead to complications such as:
- a) Heart failure
  - b) Osteoporosis
  - c) Neurological disorders
  - d) All of the above

**FILL IN THE BLANKS**

1. Iron deficiency anemia is characterized by \_\_\_\_\_, hypochromic red blood cells. (**microcytic**)
2. The most common cause of iron deficiency anemia is \_\_\_\_\_. (**chronic blood loss**)
3. Iron absorption is enhanced by the presence of \_\_\_\_\_. (**vitamin C**)
4. Serum ferritin levels are \_\_\_\_\_ in iron deficiency anemia. (**decreased**)
5. Iron supplementation is the mainstay treatment for iron deficiency anemia and is often administered \_\_\_\_\_. (**orally**)

**SHORT ANSWER TYPE QUESTIONS**

1. What is iron deficiency anemia?
2. What are the common symptoms of iron deficiency anemia?
3. What are the dietary sources of iron?
4. How is iron absorbed in the body?
5. What are the laboratory tests used to diagnose iron deficiency anemia?

**LONG ANSWER TYPE QUESTIONS**

1. Describe the etiology and pathophysiology of iron deficiency anemia.
2. Explain the clinical manifestations associated with iron deficiency anemia.
3. Discuss the diagnostic approach to iron deficiency anemia.
4. Outline the principles of management for iron deficiency anemia.
5. Discuss the complications of untreated iron deficiency anemia.

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**MCQ Answer**

<b>1.</b>	<b>C</b>	<b>3.</b>	<b>A</b>	<b>5.</b>	<b>C</b>	<b>7.</b>	<b>B</b>	<b>9.</b>	<b>C</b>
<b>2.</b>	<b>C</b>	<b>4.</b>	<b>A</b>	<b>6.</b>	<b>C</b>	<b>8.</b>	<b>A</b>	<b>10.</b>	<b>D</b>

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