25

AUTOIMMUNE HEMOLYTIC ANEMIA (AHA)

25.1 INTRODUCTION

AHA is a group of anemia in which an increased hemolysis is caused by antibodies directed against the patient's own RBCs. These auto antibodies are usually of Ig Type.

OBJECTIVES

After reading this lesson, you will be able to:

- define autoimmune hemolytic anaemia

- classify autoimmune hemolytic anaemia

- explain the diagnosis of autoimmune hemolytic anaemia

25.2 CLASSIFICATION

Autoimmune hemolytic anaemia is classified based on the etiology and also on the of temperature at which antibody reacts with RBC.

Etiological Classification

Etiologically autoimmune hemolytic anemia is classified as idiopathic and secondary. Secondary causes may be because of drugs like methyl dopa, mefenamic acid and L-dopa and diseases like malignancy of lymphoreticular system, systemic lupus erythematosus (SLE), rheumatoid arthritis, ulcerative colitis, paroxysmal cold hemoglobinuria (PCH), infections like Mycoplasma pneumonia and Cytomegalovirus (CMV).
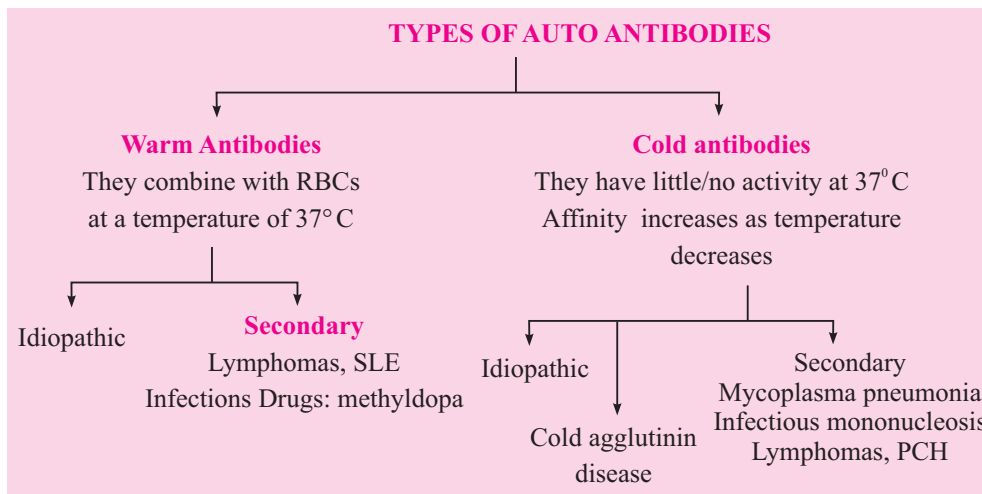
Basis of temperature of reaction with RBC

On the basis of the temperature at which the antibody reacts with RBC, autoimmune hemolytic anemia may be classified as that caused by warm antibodies (which combines with RBC at a temperature of 37^oC) and by cold antibodies (which combines at cooler peripheral circulation at temperature between $30 - 32^oC$ to 24^oC). Cold active antibodies are usually IgM, fix complement and lead to intravascular red cell destruction. Warm active antibodies are typically IgG, may or may not fix complement and destruction of RBCs occurs in the spleen.

Etiological Classification of AHA

Idiopathic (50%)   Secondary (50%)

DRUGS   DISEASES

e.g: methyl dopa mefenamic acid   Malignancy of lympho reticular system,
L-dopa procainamide   SLE, RA, ulcerative colitis, paroxysmal
                                         cold hemoglobinuria (PCH) Infections:
                                         Mycoplasma pneumonia, CMV
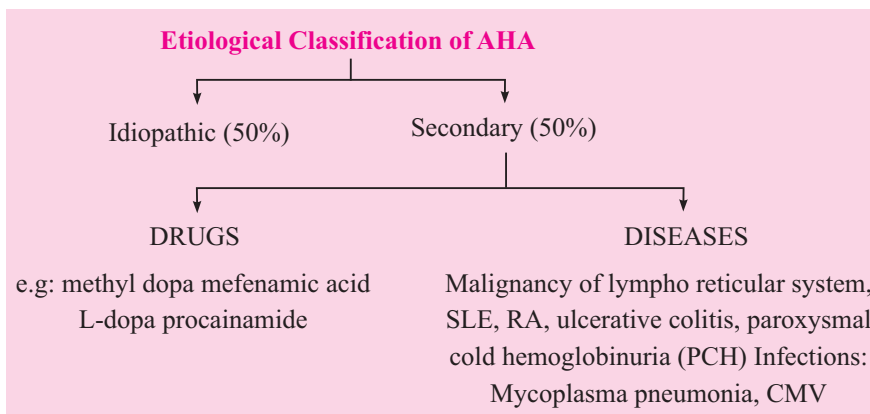
AHA can also be classified according to the temperature at which antibody reacts with RBC.

TYPES OF AUTO ANTIBODIES

Warm Antibodies   **Cold antibodies**
They combine with RBCs   They have little/no activity at 37^0C
at a temperature of $37°C$ Affinity increases as temperature
                                         decreases

Idiopathic   **Secondary**   Idiopathic   Secondary
                    Lymphomas, SLE   Mycoplasma pneumonia
                    Infections Drugs: methyldopa   Infectious mononucleosis
                                         Cold agglutinin   Lymphomas, PCH
                                         disease

25.3 DIAGNOSIS OF AUTOIMMUNE HEMOLYTIC ANAEMIA

1. Tests for hemolysis:

    Complete blood count with peripheral blood smear, serum bilirubin, lactate dehydrogenase, serum haptoglobin and urine hemoglobin

2. Serological test:

    The diagnosis of AHA depends on demonstrating the auto antibodies on surface of RBCs. This is done using the antiglobulin test wherein adding Antihuman Globulin (AHG) serum causes red cells to agglutinate.

INTEXT QUESTIONS 25.1

1. Autoimmune hemolytic anemia is caused by .... type of antibodies

2. Autoimmune hemolytic anemia may be classified based on .... and also on the basis of ....

3. Secondary etiological causes of autoimmune hemolytic anemia are .... & ....

4. Warm antibodies combines with RBC at a temperature of ....

5. Cold antibodies combines with RBC at a temperature between .... to ....

6. Autoimmune hemolytic anemia can be detected by .... test

7. Secondary causes of cold antibodies of autoimmune antibodies are .... & ....

WHAT HAVE YOU LEARNT

●   Autoimmune hemolytic anemia are caused by antibodies directed against the patient's own RBCs which are usually Ig type

●   Autoimmune hemolytic anemia are classified based on etiology and on the temperature at which antibody reacts with RBCs

●   Etiological causes are drugs like methyl dopa, mefanamic acid, L-dopa and diseases like malignancy of lymphoreticular system, SLE, RA, ulcerative colitis

●   Based on the temperature at which antibody reacts with RBCs they are classified as warm & cold antibodies

- Warm antibodies combine with RBCs at a temperature of 37°C

- Cold antibodies combine at temperature between 30 – 32°C and 24°C

- For diagnosis, tests for hemolysis and anti globulin test are done

TERMINAL QUESTIONS

1. Classify autoimmune hemolytic anaemia

2. Explain the diagnosis of autoimmune hemolytic anaemia

ANSWERS TO INTEXT QUESTIONS

25.1

1. Ig

2. Etiology & temperature at which antibody reacts with RBC

3. Drugs & Diseases

4. 37°C

5. 30 – 32°C to 24°C

6. Antiglobulin test

7. Infections & lymphoma