

Acquired hemolytic anemias (AHAs) are a group of conditions where red blood cells are destroyed prematurely due to external factors rather than an inherited genetic disorder. They can be classified based on their underlying cause.

## 1. Autoimmune Hemolytic Anemias (AIHA)

- **Warm Autoimmune Hemolytic Anemia (wAIHA)** – The most common type is caused by warm-reacting IgG autoantibodies that target red blood cells, leading to their destruction.
- **Cold Agglutinin Disease (CAD)** – Caused by IgM autoantibodies that activate in cold temperatures, leading to red blood cell destruction, primarily in the extremities.
- **Paroxysmal Cold Hemoglobinuria (PCH)** – A rare form often triggered by infections, where IgG antibodies attack red blood cells at cold temperatures and cause rapid hemolysis when the body warms up.
- **Mixed-Type AIHA** – A combination of warm and cold autoantibodies, leading to more complex hemolysis.

## 2. Alloimmune Hemolytic Anemia

- **Hemolytic Transfusion Reaction (HTR)** – Occurs when a patient receives mismatched blood during a transfusion, leading to an immune response against the transfused red blood cells.
- **Hemolytic Disease of the Fetus and Newborn (HDFN)** – Happens when a mother's immune system attacks the baby's red blood cells due to blood type incompatibility (such as Rh incompatibility).

## 3. Drug-Induced Hemolytic Anemia

- Certain medications can cause hemolysis by triggering an immune response or directly damaging red blood cells.
- Common culprits include **penicillins, cephalosporins, NSAIDs, and anti-malarial drugs**.

## 4. Microangiopathic Hemolytic Anemias (MAHA)

- **Thrombotic Thrombocytopenic Purpura (TTP)** – A disorder where small blood clots form in the blood vessels, leading to red blood cell destruction.
- **Hemolytic Uremic Syndrome (HUS)** – Often triggered by infections (such as E. coli), causing hemolysis and kidney damage.
- **Disseminated Intravascular Coagulation (DIC)** – A severe condition where widespread clotting depletes platelets and causes hemolysis.

## 5. Infections and Toxin-Induced Hemolysis

- **Infections** – Certain bacterial, viral, and parasitic infections can cause hemolysis (e.g., malaria, Clostridium perfringens, Epstein-Barr virus, Mycoplasma pneumoniae).

- **Toxins and Venoms** – Snake venom, certain chemicals, and heavy metals can lead to hemolysis.

## **6. Paroxysmal Nocturnal Hemoglobinuria (PNH)**

- A rare, acquired disorder where a mutation in bone marrow stem cells causes red blood cells to be highly vulnerable to immune destruction.

Each of these forms of acquired hemolytic anemia has unique causes and treatment approaches, but all share the common challenge of red blood cell destruction leading to anemia, fatigue, and other complications.

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