

# Haematological drugs: blood derivatives and thrombolytic drugs

[Health & Medicine](#)



**ASSIGN  
BUSTER**

## **Blood derivatives**

Blood derivatives are substances derived from human blood. They are sometimes referred to as biologic drugs. Among the blood derivatives known today include whole blood, blood components and plasma derivatives. These blood products essential improve tissue oxygenation when given to a person that has lost 25 per cent or more blood volume.

### 1. Whole blood

Whole blood is a substance originate from human blood. It consists of Red and white blood cells, platelets, electrolytes, plasma and stable clotting factors. Whole blood use depend on the massive blood loss which should have a minimum of 25 per cent. However, whole blood has not been practically administered to patient instead it has been replaced by blood components.

### 2. Blood components

This include red blood cell concentrates or suspensions, platelets produced from whole blood, plasma and cryoprecipitate. These blood components come from the voluntary donation make by people without any compensation.

### 3. Plasma derivatives

These are substances prepared by pharmaceutical manufacturing conditions. Plasma derivatives include Albumin, coagulation factor concentrates and immunoglobulin. These are useful in replacing blood which has lost.

#### 4. Mechanism of action of blood derivatives

The mechanism of action of blood derivatives is related to their ability to increase the colloid oncotic pressure, and hence the plasma volume. This is achieved by pulling fluid from extravascular space to the intravascular space.

#### 5. Uses of blood derivatives

Blood derivatives are important in the treatment of various clinical conditions, and their use rely on the specific indication. For example, cryoprecipitate and PPF are useful in the treatment of acute bleeding in which 50 percent of the blood has been lost. Slowly or 20 per cent rapidly. Fresh frozen plasma (FFP) increase clotting factor level and PRBCs increase oxygen-carrying ability in patients with anemia, in patients with substantial hemoglobin deficits as well as patients who have lost up to 25 per cent of their total blood volume.

#### 6. Interaction of blood derivatives

Blood derivatives can interaction with calcium and aspirin which normally affect coagulation when infused in the body in a similar way they interact with body's own blood components.

Blood derivatives produce undesired effects that could be serious to human. In 2017, blood derivatives exhibited incompatibility behavior with recipients of immune system.

## **Thrombolytic drugs**

These are drugs that dissolve a preexisting clot or thrombin that occur in an acute or emergency situation. This includes alteplase, reteplase, streptokinase, tenecteplase and urokinase. When these drugs are administered, they spread throughout the circulation system, which activates plasminogen. These drugs (alteplase, reteplase, streptokinase, tenecteplase and urokinase) are removed by the liver. However, streptokinase is removed from the circulation by antibodies and the reticuloendothelial system.

### **How it acts**

Thrombolytic drugs convert plasminogen to plasmin, which dissolves thrombi, fibrinogen and other plasma proteins.

### **Uses**

Thrombolytic drugs are useful in many situations. The most common uses include treatment of certain thromboembolic disorders such as acute M.I., acute ischemic stroke and peripheral artery occlusion, dissolve thrombi in arteriovenous cannulas and I.V. catheters to reestablish blood flow.

## **Conclusion**

Haematological drugs are very important as they target or remedy the clinical conditions that are crucial to blood, especially red blood cells. The core role of these drugs as seen in the above discussion, promote the formation of red blood cells which, if low would lead to a wide variety of disorders. Although such drugs are differently made, we can conclude that a number of disorders relating to blood are predominantly treated by haematological drugs.

Haematological drugs can treat anemia of all kinds, prevent new clot

formation, prevent acute bleeding, treat acute ischemic stroke, peripheral artery occlusion and thromboembolic disorders are some of the examples.