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## Blood and its Complications

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### Review Article

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### ABSTRACT

In Medical terms blood mean hemo- or hemato- (haemo- and haemato-). Blood is an animal body fluid which function as a delivery boy. It delivers important substances such as nutrients, minerals, oxygen to the cells and metabolic waste products away from those same cells so called as the carriers of the body. Blood is a specialized form of connective tissue seen in the bones and presence of potential fibers called as fibrinogen.

### INTRODUCTION

It constitutes of blood cells in blood plasma. Half of the blood fluid consists of water (92% /v), dissolved proteins, glucose, mineral ions, hormones, carbon dioxide. It is the main medium for excretory product, plasma and blood cells. The main plasma protein to regulate the blood colloidal osmotic pressure is Albumin. The blood cells are mainly red blood cells (erythrocytes), white blood cells (Leukocytes), and platelets (Thrombocytes). The majority of cells in vertebrate blood are red blood cells. These contain an iron protein called hemoglobin, which helps in oxygen transport by binding reverse to increase its solubility. Carbon dioxide (CO<sub>2</sub>) is transported extracellularly in the form of bicarbonate ion (HCO<sub>3</sub><sup>-</sup>) [1-20].

Blood is bright red in colour called oxygenated and dark red called deoxygenated. Animals like crustaceans and mollusks have hemocyanin to carry oxygen replacing hemoglobin. Insects and some mollusks also have hemolymph. This does not mean that hemolymph is not a closed circulatory system. Insect blood does not contain oxygen-carrying molecules as their body is very small for oxygen supply [21-30].

Vertebrates have an adaptive immune system because of white blood cells. White blood cells are the killing factors of Bacterial and parasitic infections. The main and important blood clotting factor is platelets. Arthropods such as cockroaches use hemolymph and hemocytes as major part of their immune system [31-41].

Blood circulation all over the body is through blood vessels by heart pumping. Blood vessels are of two types Arteries and Veins. Arteries carry oxygen from inhaled air to the tissues and veins carries carbon dioxide from tissues to the lungs.

Blood is a constant circulating substance in the body. It contains numerous cells and proteins hence making it thicker than pure water. The average person has about 4-5 liters of blood. Half of the blood content is called as plasma. Plasma contains some factors that help in blood clotting which is an important and helpful function at the time of accidents. Blood plasma contains glucose and dissolved nutrients. There are rare complications in blood transfusion but very fatal to life [41-50].

## BLOOD COMPLICATIONS OR DISORDERS

### ***Hemorrhage (bleeding)***

Blood leaking out of blood vessels during accidents. Internal bleeding (into intestines) may not be immediately apparent. Their affect will be in the future <sup>[51-60]</sup>.

### ***Leukemia***

A type of blood cancer in which rapid multiplication of white blood cells. The excessive large numbers of white cells in the body cause severe damage to the organs.

### ***Multiple myeloma***

A type of cancer similar to leukemia. Anemia and kidney failure are the common symptoms found in multiple myeloma.

### ***Lymphoma***

A form of blood cancer in which abnormal multiplication of WBC's takes place inside the lymph nodes and other tissues. Inflammation of tissues and disruption of blood functions will eventually cause organ failure <sup>[61-70]</sup>.

### ***Anemia***

It is an abnormal blood condition with low RBC count which results in fatigue and breathlessness. There are no noticeable symptoms for anemia.

### ***Hemolytic anemia***

Anemia caused by rapid bursting of large numbers of RBC's. An immune system malfunction is one cause.

### ***Hemochromatosis***

A disorder causing excessive levels of iron in the blood. The iron deposits in the liver, pancreas and other organs, causing liver problems and diabetes <sup>[71-80]</sup>.

### ***Sickle cell disease***

A genetic condition of red blood cells in which it loses their proper shape (appearing like sickles, rather than discs). The deformed blood cells accumulated in tissues, causing pain and organ damage.

### ***Bacteremia***

Bacterial flow in blood is called as bacteremia. Blood infections are serious, and often require hospitalization and continuous antibiotic treatment into the veins.

### ***Malaria***

Infection of red blood cells by Plasmodium, a parasite transmitted by mosquitos. Malaria causes episodic fevers, chills, and potentially organ damage <sup>[81-90]</sup>.

### ***Thrombocytopenia***

Abnormal low number of platelets in the blood. Severe thrombocytopenia leads bleeding into the tissues and late blood clotting.

### ***Leukopenia***

Abnormal low numbers of white blood cells in the blood called as leukopenia. Leukopenia results in difficulty in fighting infections. A person suffering from Leukopenia will invite all the opportunistic infections due to low immunity.

### ***Hemophilia***

A genetic deficiency having low blood clotting proteins factors and blood plasma. Frequent or uncontrolled bleeding can result hemophilia and can be a cause for permanently debilitating and death.

### ***Polycythemia***

Abnormal increase in the number of red blood cells in the blood. It is a result due to low levels of blood oxygen which may lead to cancer.

### ***Myocardial infarction (MI)***

Commonly called as heart attack or cardiac arrest. Myocardial infarction occurs due to a sudden clot in one of the arteries which supply blood to the heart. It can be any artery in any part of the heart <sup>[91-106]</sup>.

## CONCLUSION

Blood disorders leads from deficiency of coagulation factors. These often effect the life style of the common person leading to severe complications which may be curable or in curable. Many advanced studies should be implemented or invented to fight against these and try to completely eradicate all over the world.

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