BLOOD GROUPS

TOPIC IN BLOOD GROUPS: ABO BLOOD GROUP SYSTEM, RH SYSTEM AND RED BLOOD CELL COMPATIBILITY

VENUE: KENDRIYA VIDYALAYA NELLORE

DATE & TIME: 7TH APRIL 2018

NUMBER OF STUDENTS ATTENDED: AROUND 70 MEMBERS

GIVEN BY: MYTHILI MALLEMALA (IWSA LIFE TIME MEMBER)

KENDRIYA VIDYALAYA NELLORE

STUDENTS ATTENDED THE CLASS

EXPLAINING BLOOD GROUPS

EXPLAINING RED BLOOD CELL COMPATIBILITY

BLOOD GROUPS

DESCRIPTION:

Blood is a very important fluid connective tissue of the body that delivers necessary substances such as nutrients and oxygen to the cells and transports metabolic waste products away from those same cells. It mainly made up of plasma (made of water, salts and proteins) and blood cells (RBC, WBC and platelets). The presence and absence of antibodies in plasma and also based on the presence or absence of inherited antigenic substances on the surface of red blood cells (RBCs) classify the blood into different **blood groups**.

ABO BLOOD GROUP SYSTEM:

The most well-known and medically important blood types are in the ABO group. They were discovered in 1900 and 1901 at the University of Vienna by Karl Landsteiner in the process of trying to learn why blood transfusions sometimes cause death and at other times save a patient. In 1930, he belatedly received the Nobel Prize for his discovery of blood types. The ABO blood group system involves two antigens and two antibodies found in human blood. The two antigens are antigen A and antigen B. The two antibodies are antibody A and antibody B. Regarding the antigen property of the blood all human beings can be classified into 4 groups, those with antigen A (group A), those with antigen B (group B), those with both antigen A and B (group AB) and those with neither antigen (group O).

Blood group A – has A antigens on the red blood cells with anti-B antibodies in the plasma

Blood group B – has B antigens on the red blood cells with anti-A antibodies in the plasma

Blood group O – has no antigens, but both anti-A and anti-B antibodies in the plasma

Blood group AB – has both A and B antigens on the red blood cells, but no antibodies

Rh BLOOD GROUP SYSTEM:

The Rh blood group system is the second most important blood group system, after the ABO blood group system. The first rhesus blood type was discovered in 1937 by Landsteiner and Wiener, who named it after a similar factor found in rhesus monkey blood. The Rh blood group system involves Rh (D) antigen. Rh (D) status of an individual is normally described with a positive (present) or negative (absent) suffix after the ABO type.

A Rh (D) positive **(A+)**

A Rh (D) negative **(A-)**

B Rh (D) positive **(B+)**

B Rh (D) negative **(B-)**

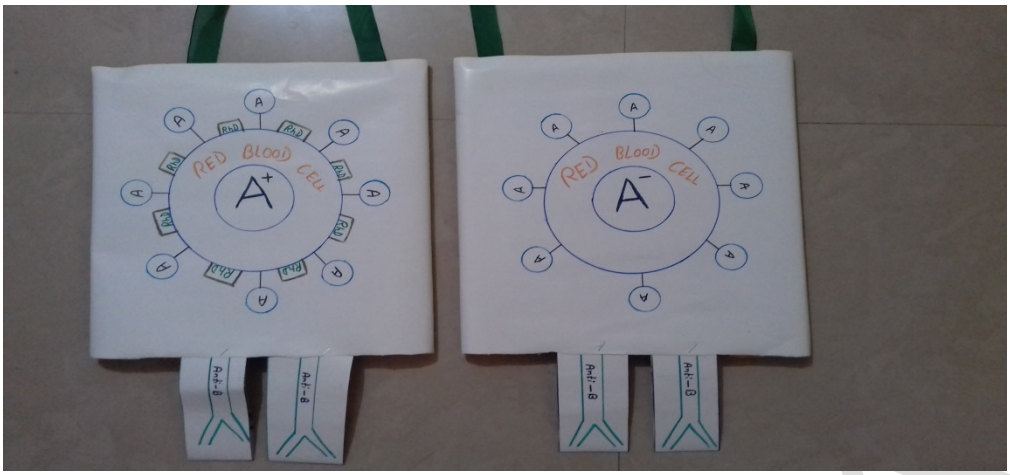
O Rh (D) positive **(O+)**

O Rh (D) negative **(O-)**

AB Rh (D) positive **(AB+)**

AB Rh (D) negative **(AB-)**

BLOOD GROUPS



A+ & A- BLOOD GROUPS

B+ & B- BLOOD GROUPS

O+ & O- BLOOD GROUPS

BLOOD GROUPS

AB+ & AB- BLOOD GROUPS

RED BLOOD CELL COMPATIBILITY:

Red blood cell compatibility is very important during the blood transfusion**.** When a transfusion is given, it is preferable for patients to receive blood of the same ABO and Rh (D) group. However if the required blood type is unavailable, a patient may be given a product of an alternative but compatible group.

Red blood cells from a donor that is type O+ can be transfused into patients of four different blood types: A+, B+, AB+, and of course O+. People with type O- blood are called **universal donors** because their donated red blood cells have no A, B or Rh antigens and can therefore be safely given to people of any blood group. People with type AB+ blood are **universal recipients** because they have no antibodies to A, B or Rh in their blood and can receive red blood cells from a donor of any blood type.

Blood group A individuals have the A antigen on the surface of their RBCs, and blood plasma containing antibodies against the B antigen. Therefore, a group A individual can receive blood only from individuals of groups A or O (with A being preferable), and can donate blood to individuals with type A or AB.

Blood group B individuals have the B antigen on the surface of their RBCs, and blood plasma containing antibodies against the A antigen. Therefore, a group B individual can receive blood only from individuals of groups B or O (with B being preferable), and can donate blood to individuals with type B or AB.

BLOOD GROUPS

RED BLOOD CELL COMPATIBILITY

THANK YOU