

DETERMINATION OF BLOOD GROUP

Background:

The blood group detection is termed as 'Typing of Blood'. Blood of different people have been classified into different groups depending on the nature of agglutinin present in them. There are more than 10 different blood grouping systems but the ABO is accepted universally.

Significance: Intravenous administration of blood to help replenish excess blood loss due to haemorrhage or otherwise is known as blood transfusion. Prior to giving a transfusion, it is necessary to determine blood group of recipient and blood group of donor so that bloods will be appropriately matched. Blood transfusion is essential in following conditions:

1. Haemorrhage either acute or chronic
2. Shock- in order to increase blood volume
3. Blood diseases where the haemoglobin is below 40% - aplastic anaemia, haemorrhagic, haemophilia.
4. In carbon monoxide poisoning.

The aim of the experiment is to identify the blood group of a given subject.

APPARATUS REQUIRED:

Spirit, cotton, needle, antisera (α , β , δ), glass slide, compound microscope

METHOD: The blood group detection that is typing of blood is carried out using the Slide Technique.

PROCEDURE:

1. The finger tip of the subject is sterilized with spirit and a bold prick is made to have free flow of blood.
2. A drop or more blood is removed. This is then diluted with approximately 60% of saline.
3. Two drops of this suspension are placed on a microscope slide.
4. A drop of anti A agglutinin serum is mixed with one of the drops of suspension while a drop of anti B serum is mixed with the second drop of cell suspension.
5. After allowing several minutes for the agglutination process to take place, the slide is observed under a microscope to determine whether or not the cells have clumped. If they have clumped one knows that an immune reaction has resulted between the serum and cells.

Red blood cells (Groups)	Sera	
	Anti-A	Anti-B
O	-	-
A	+	-
B	-	+
AB	+	+

The above illustrates the reaction that occur with each of the four different types of blood.

1. **Group O red blood cells have no agglutinogens and therefore do not react with either of the sera.**
2. **Group A red blood cells have A agglutinogens therefore agglutinates with anti-A agglutinins.**
3. **Group B red cells have B agglutinogens and therefore agglutinates with anti-B agglutinins.**
4. **Group AB red cells have both A and B agglutinogens therefore agglutinates with both types of serum**

REFERENCE:

1. Haematology, Practical Human Anatomy And Physiology, S.R. Kale et al., Nirali Prakashan, Eight Edition, 2002, pp. 33-34