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Clinical Research

A STUDY ON BLOOD GROUPS

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ABSTRACT Blood transfusion is generally the process of receiving the blood or blood products into one's circulation intravenously. Transfusions are used for various medical conditions to replace the lost components of the blood. Before transfusion the blood group of the recipient and donor are determined to know whether the blood groups are matched or not. In the present study 60 students are examined for blood group and Rh typing. B group is more prevalent (45%) than the other blood groups(A,AB and O). Rh positive percentage is 76.67% and percentage of Rh negative is 23.33%.

KEYWORDS : blood transfusion, Rh, Blood groups

INTRODUCTION

A **blood group** is a classification of blood based on the presence and absence of antibodies and also based on the presence or absence of inherited antigenic substances on the surface of red blood cells (RBCs). These antigens may be proteins, carbohydrates, glycoproteins, or glycolipids, depending on the blood group system.

A total of 35 human blood group systems are now recognized by the International Society of Blood Transfusion (ISBT).[2] The two most important ones are ABO and the RhD antigen; they determine someone's blood type (A, B, AB and O, with +, − or Null denoting RhD status). [1] Blood types are inherited and represent contributions from both parents.

In human blood there are two antigens and antibodies. The two antigens are antigen A and antigen B. The two antibodies are antibody A and antibody B. The antigens are present in the red blood cells and the antibodies in the serum. Based on 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). The antibodies present together with the antigens are found as follows : 1. Antigen A with antibody B 2. Antigen B with antibody A 3. Antigen AB has no antibodies 4. Antigen nil (group O) with antibody A and B.

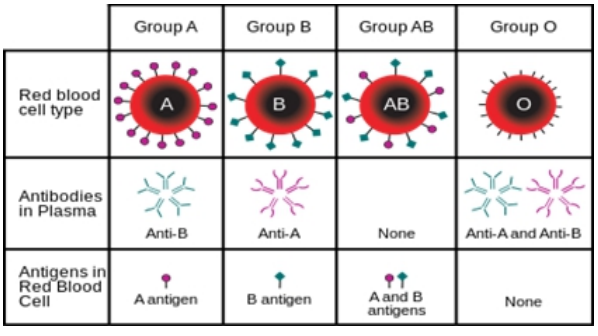

Fig 1: ABO blood group system

The Rh system (Rh meaning *Rhesus*) is the second most significant blood-group system in human-blood transfusion with currently 50 antigens. The most significant Rh antigen is the D antigen, because it is the most likely to provoke an immune system response of the five main Rh antigens. An individual is called Rh+ve if he has Rh factor or antigen D. Rh negative individuals do not have Rh factor and antibodies. Rh antibodies are not naturally occurring and they develop only after sensitisation or exposure of an individual to Antigen D.

CLINICAL SIGNIFICANCE/ BLOOD TRANSFUSION

The main purpose behind doing Grouping is to prepare blood for transfusion or to have information that will make it easier or quicker to prepare blood for transfusion at a future date.

Much of the routine work of a blood bank involves testing blood from both donors and recipients to ensure that every individual recipient is given blood that is compatible and is as safe as possible. If a unit of incompatible blood is transfused between a donor and recipient, a severe acute hemolytic reaction with hemolysis (RBC destruction), renal failure and shock is likely to occur, and death is a possibility. Antibodies can be highly active and can attack RBCs and bind components of the complement system to cause massive hemolysis of the transfused blood. In the present study the blood groups of our college students are studied and analysed .

MATERIALS AND METHODS

Blood grouping kit, glass slides, glass rods, test tubes, saline. Grouping and typing is done by using blood grouping kit containing anti A, anti B and anti D sera.

ABO Grouping and typing

By this test we observe the reaction between the cells we are grouping and specific anti sera, anti-A anti-B and anti-D and name the blood group based upon the observation.

Slide Technique:
A clean glass slide is taken, two circles are drawn on the slide using glass marking pencil and left circle is labelled as anti-A or just A and the right circle as anti B or Just B. A 5% suspension in saline of the red blood cell to be grouped is made in a test tube. This is made by adding 2-5 drops of sediment cells to 1-2 ml of saline in the test tube. One drop of anti A sera is added to the left circle of the slide and one drop of anti B sera is added to the right circle. One drop of cell suspension is added to each side. The cells and sera are mixed well with the help of a fine glass rod. The reaction is examined after ten minutes both microscopically and macroscopically for agglutination.

REACTION	REACTION	INTERPTRETATION
Anti-A	Anti-B	Group
+	-	A
-	+	B
+	+	AB
-	-	O

+ = Agglutination; - = No agglutination

Blood typing : It is done by anti-D sera with the same procedure as mentioned above. But only one circle is drawn on the slide. The person is said to be Rh negative if agglutination is not seen and Rh positive if agglutination is present.

ANALYSIS OF THE DATA : 88

Blood grouping is done for sixty students. The incidence of blood groups is as follows:

Blood group	A +ve	A -ve	B +ve	B –ve	AB +ve	AB –ve	O +ve	O –ve
No. of students	7	3	21	6	4	0	14	5
Percentage	11.66 %	05%	35%	10%	6.66%	0%	23.33 %	8.33%

DISCUSSION:

In south India the approximate percentage of people in each of these groups is as follows.

O group 45%	B group 30%	A group 20%	AB group 5%

In the present study B group is predominant with 45%, next comes O group with 32%.Rh positive Percentage is 76.67% and Rh negative is 23.33%

REFERENCES

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2. Human physiology Guyton.