

EXPERIMENT (7)

7. ABO BLOOD GROUPING & Rh GROUPS

7.1 Objectives:

- 1- to determine the blood group and therefore the type of antigen carried on the surface of erythrocytes in the ABO system.
- 2- to test for the availability of the Rh factor (D antigen) on the surface of erythrocytes

7.2 Introduction:

ABO blood group system is one of 30 genetically independent human blood –group system. Each of these system contain a group of structurally related antigens. All are inherited according to mendelian laws of genetics. blood group antigens are not found only as part of erythrocyte membrane but also found in a wide variety of tissues and biological fluids such as saliva, milk , seminal fluid, urine , and gastric juice. blood group antigens must be determined to secure a safe practice of blood transfusion. They are also useful in determining familial relationships in forensic medicine. the chemical nature of only a few blood –group systems is known. The ABO system is associated with three blood group substances (antigens) on erythrocytes designated as the A,B and H antigens. These antigens have the following antigenic determinants at the non-reducing termini of oligosaccharides

7.3 Materials:

Citrate saline
Glassware
Slides.
Tooth pick

7.4 Method:

Pick the finger and draw up blood with the W.b.c. pipette up to mark 0.5 .such citrated saline up to mark 11.this gives a 1:20 suspension of

erythrocytes (red blood cells). Divide the slides into three compartments with grease pencil line. Label them A, B and x . On no account should the dropper of one serum core in contact with the other serum. Add one fair sized drop or erythrocytes suspension to each compartment .mix the suspension and serum in each compartment by racking the slide gently to and one or two minutes and then look for agglutination.

7.5 Results:

Agglutination looks like red pepper grains. it is easily visible in most cases. If there is a beaker, racking it occasionally, and noting for agglutiation from time to time. In case of doubt compare the appearance of mixture in compartment A and B and that X which acts as a control. If no agglutination occurs for 10 minutes, it may be examined under low power of microscope to make certain that agglutination has occurred. Rouleaux formation is no agglutination .Record your findings in a tabular form and draws a diagram of the appearance on the slide. Record the name of your blood group. Repeat the procedure using anti-D sera to find the Rh group using undiluted blood and after mixing the sera and the blood , the slide is incubated for 1/2 -1 hour at 37c.

7.6 Discussion and conclusion:

7.7 Questions:

- 1- for what group can you act as a donor and recipient?
- 2- what is the importance of blood groups in transfusion of blood?
- 3- what other grouping factors do you keep in mind in addition to the classical groups?
- 4- what is the importance of Rh factor?
- 5- what is percent distribution of blood groups among the world population?
- 6- what is the importance of blood groups in the medical jurisprudence?

7.8 References:

Henry.J.B .Clinical Diagnosis and Management by Laboratory
Methods, 17th Edition, ,1984.