Al Mustaqbal University
Department of Medical Laboratory Techniques
Edaan
Lab: Practical Blood Transfusion

Msc.Safa hammodi alshujery
MSc. Basma abidalkhalik

Lab 4

Rh typing

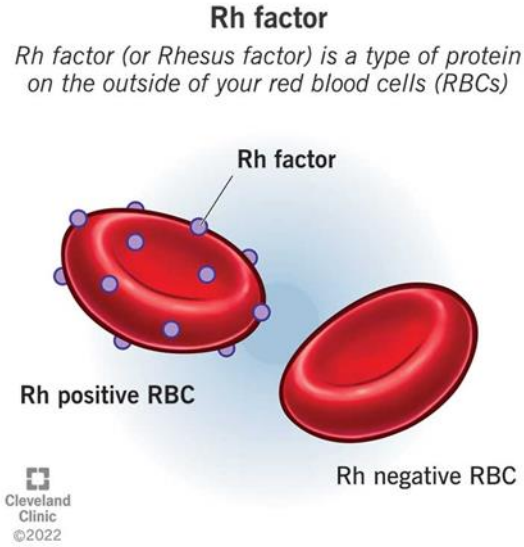
The Rhesus blood group system is the second most important system in transfusion practice. Rh typing is routinely performed along with ABO grouping in all donors and recipients. The positive or negative sign next to the blood groups is known as the Rhesus (Rh) factor. The Rh factor is an inherited protein that can be found on the surface of the red blood cell.

***If blood type is (+) positive, the blood cells have the Rh protein.**
***If blood type is (-) negative, the blood cells lack the Rh protein.**

-The Rh D antigen cause an immunogenic effects, meaning it provokes an immune response and cause a transfusion reaction in the recipient.

Properties of Rh antigens:

1- They are proteins
2- Rh antigens are not soluble
3- Not expressed on the tissues
4- Developed at birth
5- They are very good immunogens
6- The Rh factor inherited from our parents,
7- Located on the short arm of chromosome 1.
8- Inherited independently of the ABO blood type alleles



Weak D (Du) testing

Du is the weak expression of Rh D antigen. The cells which are not immediately agglutinated by Anti-D sera cannot be easily classified as D negative
because some of these agglutinate after addition of antiglobulin sera. This weak reactivity is termed as Du. Du positive cells are likely to elicit an immune response in D negative individuals and the Du cells could be destroyed if the recepient is already immunized.
Therefore, Du positive donor is treated as D positive and recipient is treated as negative.
Some red cells possess the D antigen but it is expressed so weakly that the cells are not agglutinated directly by anti-D sera. An indirect antiglobulin test is necessary to identify patients with the Weak D (formerly known as $D^{u)}$ phenotype.
Weak D testing is done on all prenatal patients and candidates for Rh immune globulin.
Also done prior to blood transfusion.

Principle of Du Test

D antigen on red blood cells that react weakly or not at all in direct agglutination test with anti-D may react with anti-D on the presence of AHG.

Material required:

1- 37oC incubator
2- Normal saline
3- AHG (anti human globulin) AHG (anti human globulin), anti D, tube, pipette, centrifuge.

Procedure:

1- Prepare a washed, 3-5% suspension of patient RBCs cells.

2- in a cleaned labelled test tube add one 1 drop of anti D and 1 drop of 3-5% RBCs suspension.
3- Mix and incubate at 37^0 C for 30 minutes

*If still negative, wash 3 times with Normal saline then add one drop of AHG reagent and Centrifuge at 1000rpm for 1 min.

* **No agglutination - D^U negative**
***Agglutination - D^U positive**

*A true weak D should give at least a 2+ positive result. Weaker results may be due to mixed field agglutination in an Rh negative individual who received Rh positive blood, or vice-versa. Obtain a recent transfusion history on patients who give inconclusive weak D result