

FEB 2008
QUESTION 21

Explain the ABO blood groups and how blood group is determined.
How is blood tested for compatibility using the ABO system

There are more than 400 red cell antigens, most have minimal significance because patients require multiple exposures to develop a response. ABO and Rhesus are the two most significant.

ABO antigens

most important clinically

result from the presence of antigenic carbohydrates on the end of a H stem

O has only the H stem - 45% population - it is the universal donor

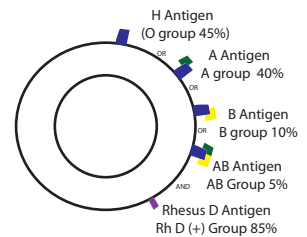
A has the A antigen - 40%

B has the B antigen - 10%

AB has both antigens - 5%

most people have IgG and IgM antibodies to the antigens they do not express

the titre determines the speed of haemolysis and agglutination in the event of a mismatch



Rhesus antigens

expressed on all cells in C or c, E or e and D or d

D is the most antigenic, therefore Rhesus D is termed Rhesus positive (85%) of the population

Anti-D IgG is usually formed in negative people following exposure to Rh positive blood

hence concerns in Rh -ve women who are pregnant

Testing process

ABO and Rh testing for donor

ABO and Rh testing for recipient

Antibody screen of recipient

Crossmatch recipient and donor to detect significant antibodies

electronically if antibody screen negative

serologically if antibody screen positive

Indirect Coombs test (Indirect Antiglobulin Test - IAT)

If the patient has been transfused in the past 3 months or is pregnant the cross match is valid for 72 hours