BLOOD GROUPS

Compiled by

Campbell M Gold

(2012)

CMG Archives
http://campbellmgold.com

--()--

IMPORTANT

The health information contained herein is not meant as a substitute for advice from your physician, or other health professional. The following material is intended for general interest only; and it should not be used to diagnose, treat, or cure any condition whatever. If you are concerned about any health issue, symptom, or other indication, you should consult your regular physician, or other health professional. Consequently, the Author cannot accept responsibility for any individual who misuses the information contained in this material. Thus, the reader is solely responsible for all of the health information contained herein. However, every effort is made to ensure that the information in this material is accurate; but, the Author is not liable for any errors in content or presentation which may appear herein.

--()--

Introduction

Blood groups are determined by a protein (antigen) on the surface of the red cell. Consequently, the ABO system has "A" and "B" antigens, and the RhD system has the "D" antigen.

Science has developed 30 major blood group systems - means that an individual may be A RhD positive, and at the same time Kell (Kell system) positive, and M and N (MNS system) positive, and Lea and Leb (Lewis system) positive.

However, the ABO blood group system is commonly used, and is the one described here.

--()--

ABO Blood Group System

If an individual has "Blood Group A" it means that they have got the A antigen on their red cells.

"Blood Group B" means that an individual has the B antigen on their red cells.

Individuals with "Blood Group O" has neither A or B antigens on their red cells.

"Blood Group AB" individuals have both A and B antigens on their red cells.

Antibodies

Additionally, the ABO system has associated anti-A and anti-B antibodies - antibodies are the body's natural defence mechanism against foreign antigens. These antibodies are found in the plasma.

Blood Group A has the A antigen - This group recognises the B antigen as foreign and can make anti-B antibodies.

Blood Group B has the B antigen - This group recognises the A antigen as foreign and can make anti-A antibodies.

Blood Group AB has both the A antigen and the B antigen; consequently, this group makes no antibodies.

Blood Group O has neither A nor B antigen; consequently, this group can be safely given to any other group. This is why Group O donors are known as "universal donors". Additionally, Group O can make both anti-A and anti-B antibodies if exposed to these antigens.

--()--

Warning

Giving someone a blood transfusion from the wrong ABO group could be life-threatening.

The anti-A antibodies in Blood Group B attack Blood Group A cells; and anti-B antibodies in Blood Group A attack Blood Group B cells.

Consequently, Blood Group A blood must never be given to a Blood Group B person, and Blood Group B blood must never be given to a Blood Group B person.

--()--

The RhD (Rhesus) System

Another important blood group system when considering transfusion is the "RhD (Rhesus) System".

The Rhesus factor is a blood group antigen "D" possessed by Rh-positive individuals; if an Rh-negative person receives a blood transfusion from an Rh-positive person it can result in haemolysis and anaemia.

Typically, 85% of individuals have the D antigen on their red blood cells and are therefore "RhD Positive".

The remaining 15% of individuals lack the D antigen on their red blood cells and are therefore "RhD Negative".

--()--

Blood Group Definitions

An individual's blood group is defined by their ABO group together with their RhD group.

Thus, an individual who is Blood Group A and RhD - Negative is known as "A - Negative". An individual who is Blood Group A and RhD - Positive is known as "A - Positive", etc.

--()--

Typical Western National Distribution of Blood Groups

ABO Blood Group	Rh(D) Type	Antigen	Typical Percentage of Western Population with this Group
O Blood Group			
O Positive	Positive	No Antigen	37%
O Negative	Negative	No Antigen	7%
Total Blood Type O			44%

A Blood Group			
A Positive	Positive	A Antigen	35%
A Negative	Negative	A Antigen	7%
Total Blood Type A			42%
B Blood Group			
B Positive	Positive	B Antigen	8%
B Negative	Negative	B Antigen	2%
Total Blood Type B			10%
AB Blood Group			
AB Positive	Positive	A&B Antigens	3%
AB Negative	Negative	A&B Antigens	1%
Total Blood Type AB			4%
Positive/Negative Totals for All Blood Types			
Total for All Blood Types	Positive		83%
Total for All Blood Types	Negative		17%

End

--()--

http://campbellmgold.com

03062012