



Original Article

Study on ABO & Rhesus Blood Groups in Rajshahi Medical College Hospital

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Abstract

About fifty two thousand admitted patients in different wards & cabins of Rajshahi Medical College Hospital are grouped in the Transfusion Medicine Department for the purpose of blood transfusion during the period of July/ 1997 to June/2000. It is found that out of 51966 patients, 16928 (32.38%) are group B, 16704(32.15%) are group O 13005 (25.02%) are group A, & 5329 (10.25%) are group AB, Among those patients, 50141 (96.51%) are Rh D positive, 1828(3.49%) are negative.

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Introduction

There are 23 blood group systems & more than 500 blood group antigens¹. In addition to these, there are private antigens in some races. Among 23 blood group systems ABO & Rhesus blood groups are clinically significant. So they are called major blood groups. Because they have their high frequency and destructive activity. ABO & Rhesus blood groups are routinely done in Transfusion Medicine Department for prevention of hazards of blood transfusion. Other blood groups are not routinely done because they are not producing clinically harmful effect in the body. Blood groups are genetically inherited. Frequency of blood groups varies from race to race, one country to another, and even different region of a country². The aim of this study was to find out frequency of ABO & Rhesus blood groups of patients admitted in Rajshahi Medical College Hospital.

Material and methods

Blood samples from 51966 patients were collected in the Transfusion Medicine Department of Rajshahi Medical College Hospital during the period of July 1997 to June 2000. Among 51966 patients, 31598 were male & 20368 were female. Blood groups were done in patients admitted in different wards & cabins for blood transfusion. For the blood grouping of the patients, 5cc of clotted blood were sent to the Transfusion Medicine Department from different wards and cabins of the hospital.

Blood group was determined in standard agglutination method, both tube & slide methods were used. For ABO Blood group system, forward & reverse blood grouping were done. Washed red cells were used in blood grouping where needed. Commercial and laboratory made Anti-A, Anti-B Anti-AB, Anti-D of standard titre were used. A cell, B cell, O cell of optimum concentration were used in blood grouping.

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Results

The study was carried out in 51966 patients who needed blood grouping in the Transfusion Medicine Department of Rajshahi Medical College Hospital. Out of 51966 patients, 16928 (32.58%) were group B, 16704 (32.15%) were group O, 13005 (25.02) were group A and 5329 (10.25%) were group AB (Table-1). This result show that group B and group O were more common in Rajshahi; out of 51699 patients, RhD positive were 50141 (96.51%) and 1828 (3.49%) were negative.

Discussion

Karl Land Steiner truly opened the door of blood banking with the discovery of the first human blood group system ABO in 1890³. This discovery made safe use of blood for transfusion. In 1939 Levine & Stetson had noticed intra group agglutination. In 1940 Land Steiner & Winner discovered Rhesus blood group on this basis.

Most blood groups are genetically determined. So it varies from race to race, one country to another and regional variation in a country is quite common.

For the safe blood transfusion we do routinely ABO & Rhesus blood group systems. In Rhesus blood group system there are 50 antigens³. Among them D is most immunogenic, i.e., they have capacity to produce antibody. Other 49 antigens are not clinically significant. Among 23 blood group systems, 21 blood group systems are minor blood groups, i.e. they are not clinically significant, Because their antigenicity is low & their antibody if present are rarely active at 37⁰.C⁴.

In our present study we collected blood from 51966 patients who needed blood transfusion in the different wards & cabins of Rajshahi Medical College Hospital. Out of 51966 patients, 31589 were male & 20368 were female. In Bangladeshi population, 35.2% are group B, 33.97% are group O, 22.44% are group A and 8.39% are group AB⁵. In our present study it is found that group B is more common. So this finding co-relates with Bangladeshi population. Table 1 shows the frequency of ABO group in different regions of Bangladesh in percentage.

Table-1:

Place	Group A	Group B	Group O	Group AB
Chittagong	24.23	31.37	36.83	7.57
Jessore	23.71	34.15	34.33	7.79
Faridpur	25.18	34.70	30.84	9.26
Rajshahi	25.02	32.58	32.15	10.25
Dhaka (NICVD & H)	28.50	32.18	31.72	7.6

From Table 1 it is found that in Chittagong group O is predominant. Group O predominance is possibly due to migration of group O dominant people from countries like Arab, U.K., Portugal, France, and other Caucasian countries⁶. As the Chittagong port were being used for trading centers by the above countries and the port was attractive for settlers before the revolution in Europe. Table II shows the frequency ABO groups among various races.

Table-II:

Population	Group A	Group B	Group O	Group AB
Bangladeshi	22.44	35.2	33.97	8.39
English	42	8	47	3
S.A. Indian Tribes	0	0	100	0
Japanese	40	20	30	10

In our study it is found that Rh D positive is 96.51% & 3.49% is Rh D negative. So this finding co-relates with Bangladeshi population. On the contrary, in Chinese population 100% are Rh D positive & Caucasus people have 84.6% are Rh D positive & 15.4% are Rh D negative.

Conclusion

We conclude that blood group B predominant in the northern part of Bangladesh like other part of Bangladesh with the exception of Chittagong. In Rhesus blood group system, Rh D positive is predominant in the northern part of Bangladesh like other part of country.

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