



PATTERN OF ABO AND RHESUS BLOOD GROUPS DISTRIBUTION OF 1ST YEAR MEDICAL STUDENTS OF J.L.N MEDICAL COLLEGE, AJMER (RAJASTHAN)

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ABSTRACT objective of this study is to find the frequency of different blood group among the medical students and to make them aware about the associated disease.

Material & Method: This cross sectional observational study was conducted on medical students in the department of physiology at JLN Medical College, Ajmer, After taking their informed consent. Out of 200 total students, 184 Students volunteered to participate in the study, out of them 100 were Males and 84 were Females. They were all in 17 to 21 years age group. . The ABO blood grouping and Rh factor typing was determined by glass slide method By Finger pricking method.

Statistical Analysis: The data was analyzed and final results were listed according to frequency and gender. Data was expressed in percentages.

Conclusion: The study showed that O blood group is most common and AB blood group is least common of the ABO blood group system among medical students. Rh positive are more common than Rh negative.

KEYWORDS : ABO and Rh Blood groups , medical students frequency, distribution.

INTRODUCTION

Blood grouping and Typing is very vital in clinical medicine.

Since 1901, numerous blood group systems have been identified but the ABO and Rhesus (Rh) blood groups remain clinically most important .Australian scientist Karl Landsteiner in 1901 discovered the first human blood group, which was the ABO group¹. Later Rh blood group was discovered by Landsteiner and Wiener in 1941². Together these two systems have proved to be the most important for blood transfusion purposes.

According to the presence of antigens and agglutinins patterns, ABO blood group individuals are divided into four major blood group namely, A,B, AB and O^{3&4}. Group O blood has neither A nor B antigens, group A blood has type A antigens , group B blood has type B antigens and AB blood group has both A and B antigens. Also plasma from blood O has both A and B Antibodies , Plasma from blood group A contain Anti-B antibodies which act against type B antigens, whereas plasma from type B blood contain Anti- A antibodies , which act against type A antigens and type AB has neither type of antibody^{5&6}.

The ABO and Rh blood group antigens are hereditarily transmitted and are used in studies relating to population genetics, to study patterns of population migration and resolving medico legal issues, more so of issues of paternity disputes. The blood group studies are not only important in evolution but also in clinical practice, with recent research show that ABO blood groups are associated with various diseases⁷⁻⁹.

The frequencies of ABO and Rh blood groups are different in different communities. Blood group distribution also varies in different races. The Frequency distribution patterns of ABO blood groups differ in same population in different time zones.¹⁰⁻¹²

AIMS & OBJECTIVE

Aims and objective of this study is to find the frequency of different blood group among the medical students and to make them aware about the associated disease.

MATERIAL & METHOD

This cross sectional observational study was conducted on medical students in the department of physiology at JLN Medical College, Ajmer, After taking their informed consent. Out of 200 total students, 184 Students volunteered to participate in the study, out of them 100 were Males and 84 were Females. They were all in 17 to 21 years age group. Exclusion criteria for selection of the students were history of bleeding disorder and prolonged NSAID drug intake.

Procedure Done – Blood group was determined during their hematology practical classes of physiology department. Blood

samples were collected by finger prick method under aseptic precautions . The ABO blood grouping and Rh factor typing was determined by glass slide method. Commercially available standard anti-sera A,B and D were used for the study. Four separate glass slides were marked as A, B, D and control were used to detect blood group. This method was based on antigen antibody agglutination and the blood group was determined on the basis of agglutination. If agglutination was observed on slide A , it is blood group type A . If agglutination observed on slide B its belongs to B blood group. If no agglutination was observed on both A and B slides it is O blood group. If agglutination was present on both A and B slides it is AB blood group. In the same way if agglutination was observed on slide D it is Rh positive, but no agglutination on slide D, Rh negative. If agglutination occurs in the control slide, in which normal saline and a drop of blood is mixed, the test is invalid. We have to repeat the test. The data was calculated in percentage.

Statistical Analysis

The data was analyzed and final results were listed according to frequency and gender. Data was expressed in percentages.

OBSERVATION AND RESULTS

Out of 184 medical students whom volunteered, 100 were Males and 84 were Females. The results are shown in table 1 and 2 , figure 1 and 2.

Table 1 : ABO And Rh Blood Group Distribution Among Medical Students

Blood Group	Rh Positive	Rh Negative	Total
A	37(20.10%)	7(3.81%)	44(23.91%)
B	54(29.35%)	6(3.26%)	60(32.61%)
AB	15(8.15%)	1(0.54%)	16(8.69%)
O	62(33.70%)	2(1.09%)	64(34.79%)
Total	168(91.30%)	16(8.70%)	184(100%)

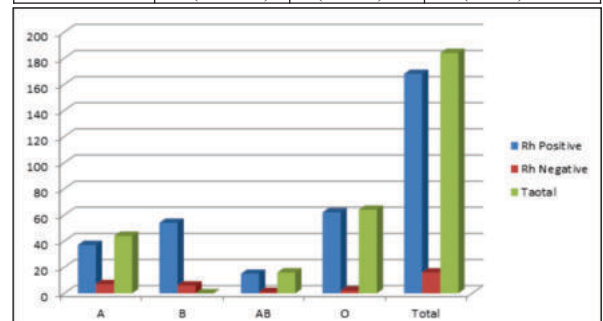
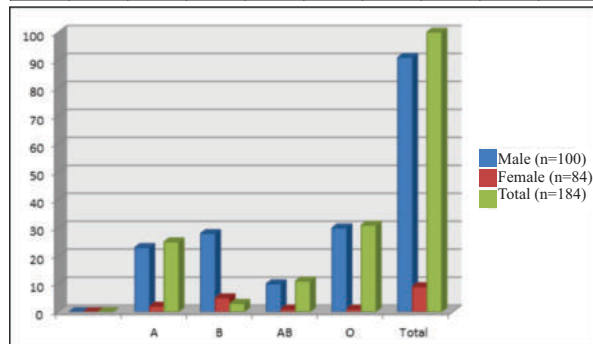


Fig. 1: ABO and Rh Blood Group Distribution Among Medical Students

Table 2 : Gender Wise Distribution Of ABO And Rh Blood Group Among Medical Students

ABO	Males (n=100)			Females (n=84)			Total (n=184)		
	RH pos.	Rh neg.	Total	RH pos.	Rh neg.	Total	RH pos.	Rh neg.	Total
A	23	2	25	14	5	19	37	7	44
B	28	5	33	26	1	27	54	6	60
AB	10	1	11	5	Nil	5	15	1	16
O	30	1	31	32	1	33	62	2	64
Total	91	9	100	77	7	84	168	16	184

**Fig 2: Gender Wise Distribution Of ABO And Rh Blood Group Among Medical Students**

In our study, the most frequently occurring blood group was O (34.79%) followed by B group (31.61%), A group (23.91%) and the least frequently occurring blood group was AB (8.69%) (figure 1). 91.30% (168) students were Rh positive, whereas only 8.70% (16) students were Rh negative.

DISCUSSION

It has been observed, that percentage of blood group distribution is different in different parts of the world depending upon the ethnic origin of the races. South African Indians all belong to group 'O'. The commonest groups in Australian origins are 'O' and 'A'. In Europeans, There is a higher frequency of A, while in Africans B group is much common. In the United States of America, 46% constitute group O, 41% A, 9% B and 4% AB¹³.

Our Study corroborate with the findings of studies conducted in south which show Asiatic trend of prevalence of blood groups (O>B>A>AB)¹⁴⁻¹⁵.

In our study, the most frequently occurring blood group was O (34.79%) followed by B group (31.61%), A group (23.91%) and the least frequently occurring blood group was AB (8.69%) (figure 1). 91.30% (168) students were Rh positive, whereas only 8.70% (16) students were Rh negative.

There is variation in the frequency of blood group in different population of India. Study done in Eastern part of India, Durgapur by Nag et al¹⁶ and in Southern part of India by Periyavan et al¹⁵ Bangalore, Das PK Nair et al¹⁷ at Vellore, at Davangere by Mallikarjuna S. et al¹⁸ and at Shimoga – Malnad study done by Girish et al¹⁹ found that commonest blood group was O followed by B, A and AB, similar to our study.

The studies done in Northern parts of India by Chandra et al at Lucknow²⁰, Sindhu et al²¹ Punjab and Behra et al at Jodhpur²² showed blood group B was the commonest, followed by O, A and AB, which is different from our study. In Western parts of India like in Ahmedabad region of India, most predominant blood group is B (36.5%), followed by O (30.5%), A (21%) and AB (12%)²³.

Available literature indicates that over 99% Asian are Rh positive 21 but among our subjects 91.30% were Rh +ve and 8.7% Rh –ve. It is close to the findings of Parmanik and Parmanik from Nepalese students, in Nepal medical college, Kathmandu. Their subjects were 96.66% Rh+ve and 3.33% Rh –ve²⁴.

SUMMARY & CONCLUSION

The study showed that O blood group is most common and AB blood group is least common of the ABO blood group system among medical

students. Rh positive are more common than Rh negative. The knowledge of distribution of blood group help in blood bank management, in paternity disputes cases, in clinical correlation of diseases and in emergency management of blood transfusion cases.

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