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Research Article

Survey on Blood Group with Rh Factor in a Cantonment School of Bangladesh

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Abstract

A survey is completed in a Cantonment School and College students (150 male and 150 female students). Result showed that O blood group was the highest (34%) and the lowest AB (9.33%). Overall blood group of 300 students the O was 34%, A 24%, B 32.67%, and AB 9.33%. In addition, Rh+ was found 96.67% and Rh- 3.33%. After observing male and female blood group separately B+ was the highest in male and O+ in female. AB+ which is universal recipient was found 14 (9.33%) in male and 13 (8.67%) in female and O- which is universal donor was 3 (2%) in both male and female out of 150 students each. Same type of parents B+ × B+, B+ × O+, and A+ × B+ showed the highest B+ in their son and O+ in daughter. So, this is obvious that blood group of human is controlled by multiple allele.

Introduction

ABO and Rh blood groups are the most studied blood systems among human populations due to their clinical genetic and anthropological importance [1-3]. The discovery of ABO and Rh blood groups has contributed immensely to blood banking services and transfusion medicine in preventing many of the immunogenetic hematological and transfusion problems [4].

In any emergencies, we need to take blood from the others. In this case, need to know own blood group with Rh factor. During blood transfusion, we need to identify pathogenic microorganisms like HIV, hepatitis, papilloma virus in blood through screening. Blood group of human is depended on the racial matter. Each ethnic group always tries to marriage with same group and ultimately their blood group genotypes remain more or less same. Blood group is controlled by multiple allele and for this, it is very tough to identify only basing on parents blood group. In human body, we carry lots of alleles of blood group genes and which will be acted, this is still unknown. Antigen A and B both are dominant on O and A and B they are co-dominant when both are present. Rh positive is of course dominant on Rh negative. Universal donor and universal recipient are essential in blood transfusion in any emergencies. When a female is Rh negative and her husband is Rh positive their second offspring will die by erythroblastosis foetalis for producing anti Rh antibody. In this case, these types of parents should not take their second child. The objective of this study is to find out which blood group is available in male and female students and blood group of students which I have found are coming from what type of blood group with Rh factor of parents.

Materials and Methods

For this study, male 150 and female 150 students randomly selected by their written statements of their blood group and parents. Science group students gave that report spontaneously but humanities students were not aware of this. Collected reports put in a table for observing the highest and lowest blood group with Rh factor. In my report, I have tried to show the highest number of blood group with Rh factor of students alongside their parents also. Sometimes, students are questioned about blood group with Rh factor.

Results

Table 1 (Figure 1) is showing the maximum blood group with Rh factor of 150 male and 150 female students. The highest was B+ (57) and the lowest A-. B- and, AB- (1) each in male students. On the other hand, in female students the highest was O+ (50) and lowest A- (1).

Table 1: *Maximum blood group with Rh factor*

Sex	Total	O-	O+	A-	A+	B-	B+	AB-	AB+
Male	150	3	46	1	27	1	57	1	14
Female	150	3	50	1	43	0	40	0	13

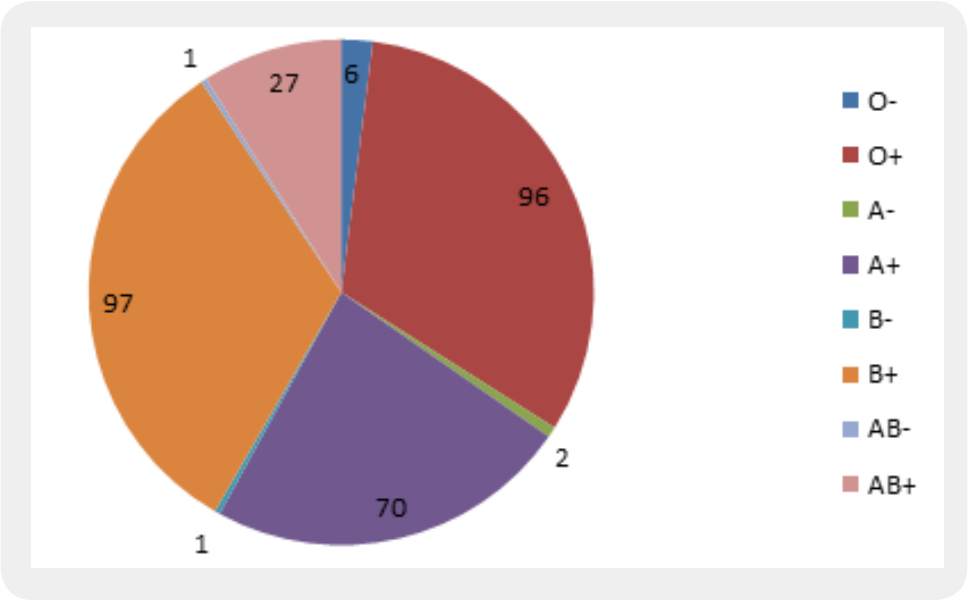

Figure 1: *Summarize (male + female) of the blood group with Rh factor*

For the highest B+ blood group of male students and the highest O+ of female students mention their parents' blood factor (Table 2).

Table 2: *Parents' blood group with Rh factor for the highest B+ and O+ of the students*

Sex	Highest Blood group with Rh factor	Lowest blood group with Rh factor	Parents blood group with Rh factor
Male	B+	A-, B-, AB-	B+ × B+ B+ × O+ A+ × B+ AB+ × A+ AB+ × B+ AB+ × O+
Female	O+	A-	B+ × B+ B+ × O+ A+ × B+ A+ × A+ A+ × O+ O+ × O+

Out of 150 male students the highest was B (58) where the lowest AB (15) and in female O (53) was the highest and the lowest AB (13). Rh positive was 144 and 146 in male and female out of 150 students in each group (Table 3) (Figure 2).

Table 3: *Total number of blood group with Rh factor of 150 male and female students each*

Blood group with Rh factor	Male	Female
O	49	53
A	28	44
B	58	40
AB	15	13
Rh positive	144	146
Rh negative	6	4

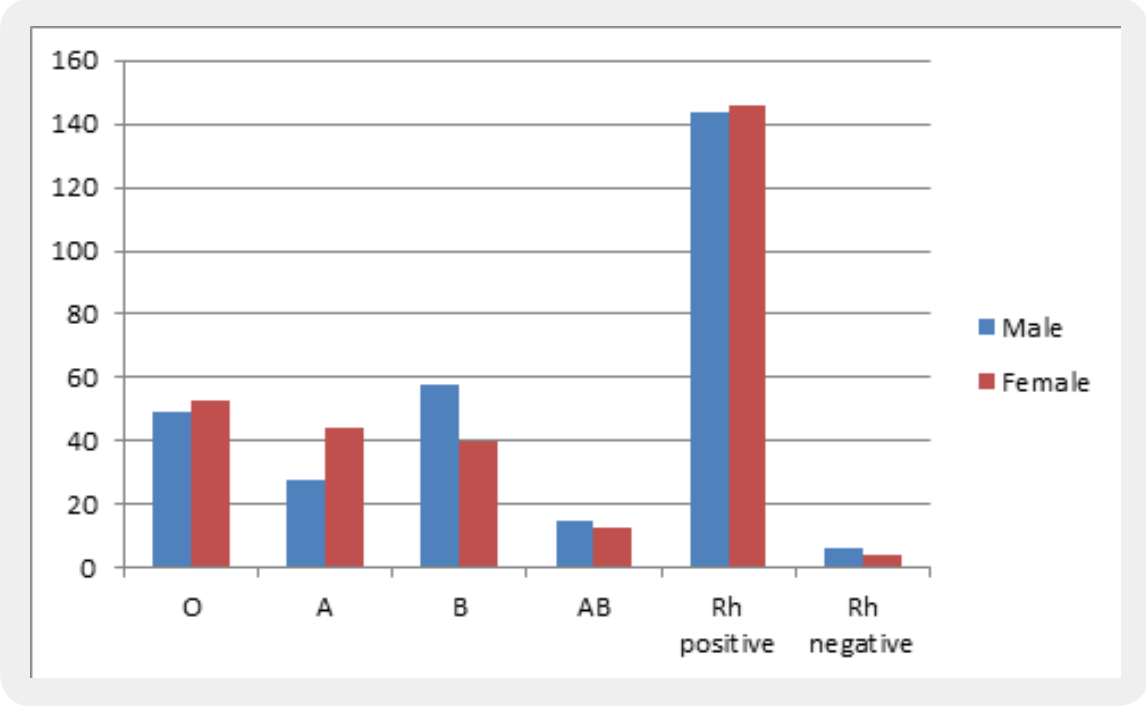

Figure 2: *Comparison of blood group and Rh factor of the students*

Average total percentage was the highest in case of O group (34%) and the lowest AB (9.33%). Rh positive was the highest (96.67%) in both male and female students (Table 4) (Figure 3).

Table 4: *Total percentage of the blood group with Rh factor*

Blood group with Rh factor	%
O	34
A	24
B	32.67
AB	9.33
Rh positive	96.67
Rh negative	3.33

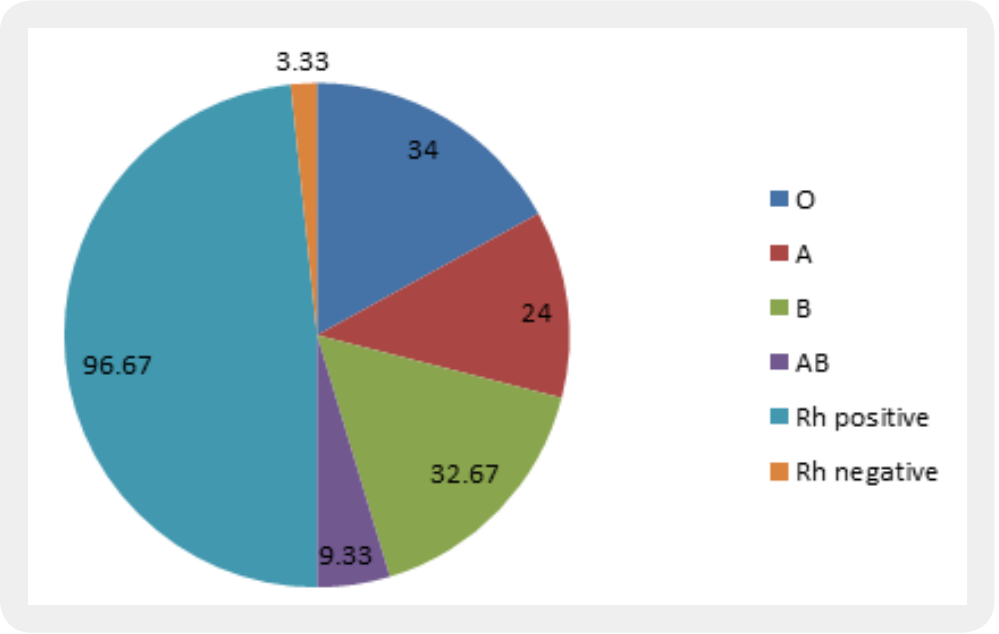

Figure 3: *Showing the percentages of group and factor*

Table 5 is showing the universal recipient and universal donor of the students which are very important for receiving or donating blood in any emergencies.

Table 5: *Showing the universal recipient and universal donor*

Sex	AB+ (%)	O- (%)
Male	14 (9.33)	3 (2)
Female	13 (8.67)	3 (2)

Discussion

In Chinese and Bengalis only 1-5% may be Rh negative [5]. A strong evidence to suggest that there is an association between AB blood group and certain like personality [6], intelligence [7], and diseases [8-12]. In Bagdad College of Science, Hasson showed that patient with blood group O had higher rate of the hemodialysis in compare with other blood groups [9]. Blood group positive were at great risk of upper gastric and duodenal ulcer than other group [8], also there is a study in India said that there is no relation between blood group and diabetes mellitus [11]. Thompson [13] in 1936 found that there is no relationship between blood group type and intelligence, emotion, idiosyncrasies or personality. A study by Ibraheem (2016) [14] mentioned blood group O 42%, A 28%, B 20.8% and AB 8.4%. A previous Ethiopian report showed O 40%, A 31%, B 23%, and AB 6% [15]. Among African-American ABO blood group, the distribution of type O 46%, type A 27%, type B 20%, and type AB 7%. In Caucasians in the United State, type O 47%, type A 41%, type B 9%, and type AB, 3%. Also among western Europeans, type O 46%, type A 42%, type B 9%, and type AB 3% [16,17]. Atire in 2015 [18] found O 40%, A 31%, B 23%, and AB 6%. This report is very similar with Muhammad Jaff (2010) [19] where blood group O was 35.4%, A 22.5%, B 32.2% and AB 8.7% and Patel (2012) [20] who reported Rh positive 92.92% and Rh negative 7.08% in female.

Conclusions

Each student should know their blood group with Rh factor alongside their parents. This is very important decision for their entire life. If any emergencies arise, anyone can take or give blood and that time knowing this group is very important. Science students are basically well-known about their blood group whereas maximum humanities group students were not concerned with this. Rh factor is another point for remembering in second child's death for erythrobla++stosis foetalis. If female is Rh negative and her husband is Rh positive, their second child may die by this incident. Rh negative female should try to avoid Rh positive male for marrying. Blood group is controlled by multiple allele. For instance, if mother is B+ and father A+ but their offspring is O+. This incident is nothing but if mother's blood group genotype is BO and father is AO then from both OO if added may reproduce O blood group children. In intermediate college students, they have a chapter of this blood group with Rh factor. So this is very important for their academic purpose. A zoology teacher always tries to clarify this to their students. Blood is the main indicator for any diseases in human body. Through hematological test, we easily understand any problems within the blood and blood group with Rh factor. Within our relatives, we can easily donate blood to others. For social welfare or through blood banking by understanding this blood group we can help others. Inheritance or genetics of blood group of human is very interesting for its multiple allelic patterns. Somebody says blood group can be changed but this is wrong. Sometimes, several pathological centers can detect different blood group of the same people. This is just a wrong detection due to wrong or date-expired chemicals. In this case, everybody should test their blood group with Rh factor several times and this will be of course minimum three. Universal recipient and universal donor students should maintain their secrecy for blood receiving or donating especially universal donor can donate their blood to everybody so here secrecy is more important. They will donate blood in severe cases.

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