

ORIGINAL ARTICLE

FREQUENCY OF ABO AND Rh BLOOD GROUPS IN STUDENTS OF AKHTAR SAEED MEDICAL AND DENTAL COLLEGE, LAHORE

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Background: This study was conducted to find out the frequency of ABO and Rh blood groups and association of a specific blood group with a cast in students of this medical institution. **Methods:** It was a cross sectional study carried out in Akhtar Saeed Medical and Dental College, Bahria Town, Lahore. A total of 618 students participated in the study. Informed consent was taken from each participant of the study. Personal data of each participant including cast was recorded on a proforma. Blood groups were determined by slide test method using anti sera A, B and D. **Results:** The results of the study showed that blood group B was most common (40.45%) blood group followed by O (31.06%), A (20.38%) and AB (8.09%). Regarding Rh blood group, 89.48% of the students were Rh⁺. There was no gender difference in frequency of ABO and Rh blood groups. In Arian, Rajput, Jutt, Sheikh, Mughal and Baloch casts; blood group B⁺ was most common but in khans and Syeds, blood group O⁺ was most common. **Conclusion:** Blood group B⁺ is the most common blood group in the students of Akhtar Saeed Medical and Dental College and there is an association between a specific cast and blood group. In Khans and Syeds, blood group O⁺ is most common.

Keywords: ABO blood group, Rh blood group, Casts

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INTRODUCTION

Since the discovery of blood groups in 1901 by Landsteiner, 20 different types of blood group antigens have been identified.^{1,2} Among these, ABO and Rh blood groups are clinically the most important.³ The genes for antigens of ABO and Rh blood groups are located on chromosome 9 and 1 respectively.⁴ Depending on presence or absence of antigens, there are four types of ABO blood groups, i.e., A, B, O and AB. Blood group is Rh-positive if Rh antigen is present and Rh-negative if the Rh antigen is absent from surface of red blood cells.⁵ Determination of blood groups is important because of its role in genetics, blood transfusion, forensic pathology and association with certain diseases like diabetes mellitus, duodenal ulcer, carcinoma of cervix, urinary tract infection and Rh incompatibility.^{1,6,7} The prevalence of blood groups varies in different parts of the world due to racial differences.⁸⁻¹⁰

This study was conducted to find out the frequency of ABO and Rh blood groups and association of specific blood group with a specific cast in students of Akhtar Saeed Medical and Dental College, Bahria Town, Lahore.

SUBJECTS AND METHODS

This was a cross-sectional study carried out in Akhtar Saeed Medical and Dental College, Lahore. The study population consisted of 618 students. Informed consent was taken from each participant of the study.

Personal data including cast was recorded on a proforma. The blood grouping was done by slide test method using antisera A, B and D (Human test GmbH-Germany). Blood was drawn by finger prick under

aseptic conditions, blood drops were taken and mixed with anti-sera A, B and D on three separate slides. Agglutination was observed with naked eye and under low power of microscope (in case of doubt) after 10 minutes. Number and percentage of subjects with different blood groups were determined. Chi-square test was applied to find out association between casts and the blood groups.

RESULTS

Blood group B was most common blood group (40.45%) followed by O (31.08%), A (20.38%) and AB (8.09%). Rh antigen was present in 89.48% of the participants (Table-1).

Table-1: Frequency and percentage of ABO and Rh blood groups in students [n (%)]

Blood group	Rh +ve	Rh -ve	Total
A	113 (20.43)	13 (20)	126 (20.38)
B	233 (42.15)	17 (26.15)	250 (40.45)
AB	42 (7.59)	8 (12.30)	50 (8.09)
O	165 (29.83)	27 (41.55)	192 (31.08)

Distribution of ABO and Rh blood groups was same in both males and females (Table-2).

Table-2: Gender difference of ABO and Rh blood groups [n (%)]

Blood group	Male (n=214)		Female (n=404)	
	Rh +ve	Rh -ve	Rh +ve	Rh -ve
A	37 (19.38)	4 (17.39)	76 (21.08)	9 (20.94)
B	68 (35.60)	9 (39.14)	164 (45.42)	10 (23.25)
AB	18 (9.42)	2 (8.69)	24 (6.64)	6 (13.95)
O	68 (35.60)	8 (34.78)	97 (26.86)	18 (41.86)
Total	191 (100)	23 (100)	361 (100)	43 (100)

In Khan, Baloch and Syed casts, blood group O was the most frequent while in other casts like Arian, Rajput, Mughal, Jutt and Qureshi casts, blood group B was the most frequent. There was significant association

(Chi-square=38.59, $p=0.02$) between blood groups and various casts. (Table-3).

Table-3: Frequency of ABO blood groups according to cast

Cast	Blood groups			
	A	B	AB	O
Arian (n=172)	35	83	12	42
Rajpoot (n=94)	16	38	8	32
Jutt (n=91)	22	33	6	30
Sheikh (n=27)	4	13	3	7
Mughal (n=23)	7	13	2	1
Qureshi (n=19)	5	9	0	5
Syed (n=22)	5	5	2	10
Khan (n=19)	6	4	1	8
Baloch (n=14)	2	3	2	7

Chi-square=38.59, $p=0.02$

DISCUSSION

This was a cross sectional study, carried out in Akhtar Saeed Medical and College, Lahore. The results of the present study showed that blood group B (40.45%) was most prevalent among study participants, followed by blood group O (31.06%), A (20.38%) and AB (8.09%). Similar pattern of distribution of ABO blood groups was also found in a study conducted in Lahore by Sidra *et al.*² Ilyas *et al.*¹¹ conducted a study in Sialkot and found that blood group B was most common in urban as well as rural population in this city. Studies conducted in other areas of Pakistan like Multan, Bahawalpur, Rawalpindi, Gujranwala, Islamabad, Mirpur, Kashmir, Peshawar, Swat and Mardan also support the results of present study.^{7,9,12-18} However, some studies conducted in Sindh and Balochistan showed high prevalence of blood group O.¹⁹⁻²¹

The frequency of Rh positive blood group in this study was 89.48% which is in consistence with the results of other studies.^{13,21}

There was no gender difference in frequency distribution of ABO and Rh blood groups. This is also accordance with other studies.²² However, in one study conducted in Rahim Yar Khan by Saghir Ahmad; the frequency of O+ blood group was highest among females.¹⁴

The distribution of blood groups according to the cast showed that blood group O was the most common blood group in Khans (42.10%) and Syeds (45.45%), while in other casts like Arain, Rajput, Jutt, Sheikh, Mughal, Qureshi, and Baloch, blood group B was the most common blood group.

CONCLUSION

Blood group B+ is the most common blood group in students of Akhtar Saeed Medical College, Lahore. There is no gender difference in frequency distribution of blood groups. There is association of specific blood

groups with certain casts. In Khans, Balochs, and Syeds blood group O+ is the most common.

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