

Retrospective Study Of ABO & Rh Blood Groups In Blood Donors At Dharpur

Dr Tarun Kotadiya*, Dr. Ankur Patel **, Dr. B.H.Parmar***

*Assistant Professor, Department of Pathology, **Assistant Professor, Forensic Medicine. ***Professor & Head, Department of Pathology, GMERS Medical College, Dharpur- patan.

Abstract : Background and Objectives: In these days of fast life nobody knows when he or she will be in urgent need of human blood for surgical or accidental causes. That is why to keep a record of blood donors with their blood groups may be of lots of help. This study was conducted to record the ABO & rhesus blood group pattern in blood donors at Blood Bank of GMERS Medical College, Dharpur - Patan. **Methods:** This is a retrospective study. After the permission of Departmental head and Medical Superintendent we used the data available at blood bank. **Results:** From the month May 2012 to June 2013 total 652 donors donated their blood. Out of which 640 were males and 12 were females. The commonest blood group found was B blood group in 42.63%, followed by O blood group in 26.38% , A blood group in 19.94% and AB blood group in 11.04%. While 96.01% donors were Rh positive and 3.99% donors were Rh negative. The maximum numbers of donors were between in age group 21-30 years. **Conclusion:** Blood group B is the commonest blood group followed by blood group O, A and AB. Most common age group is 21-30 years amongst the all donors. [Kotadiya T et al NJIRM 2013; 4(4) : 91-93]

Key Words: Blood groups, ABO blood group, Rhesus blood group..

Author for correspondence: Dr.Tarun Kotadiya, 127- Shyam satya bungalows, B/H Satyamev Hospital, Chandkheda, Ahmedabad. Email: tarunpatho@gmail.com

Introduction: Karl Landsteiner truly opened the doors for blood banking with his discovery of first human blood group system, ABO. This marked the beginning of concept of individual uniqueness defined by RBC antigens present on RBC membrane. It is the only blood group system in which individual predictably have antibodies in their serum to antigens that are absent from their RBCs. This occurs without any exposure to RBCs by transfusion or pregnancy. ABO forward and reverse grouping tests are required to be performed on all donors and patients. ABO blood group system divided into four types of blood groups, A, B, AB, and O¹. Rhesus blood group system was first discovered on human red cells by the use of antisera prepared by immunizing rabbits with red cells from a Rhesus monkey. In practice, Rh grouping is performed with anti- D antiserum. Individuals who are D-positive are referred to have Rh positive and those who lack D antigen are termed Rh negative. The knowledge of distribution of ABO blood groups at local level helpful in management of blood bank and to fulfill the requirement whenever required².

Material & Methods: For this study we took prior permission of Pathology departmental head and Medical Superintendent. This study is a retrospective study. The data was cumulated from the blood bank registers. As GMERS Medical

College is a tertiary care centre, blood requirement is very common in emergency and surgical departments. So blood donation is occurring as and when at the blood bank.

Blood groups were determined by slide agglutination method, by using Anti sera A and anti sera B. After which reverse grouping is also done. Cell suspension is prepared by sodium chloride solution. Rhesus factor is determined by using of Anti D sera.

Results: Out of 652 donors 640 were males and only 12 were females (Table 1).

Table 1: Gender Wise Distribution Of Donors

Males	Females	Tptal
640	12	652

As we can see the blood group B is the most common amongst the donors, followed by blood groups O, A and AB (Table 2).

Table 2 : Distribution according to ABO blood groups

Blood group	No of donors	Percentage
B	278	42.63%
O	172	26.38%
A	130	19.94%
AB	72	11.04%
Total	652	100%

Table 3 : Distribution according to Rhesus factor

RH factor	No of donors	Percentage
Positive	626	96.01%
Negative	26	3.99%
Total	652	100%

Rh positive blood groups are far more common than Rh negative (Table 3).

Table 4: Distribution According To Prevalence Of Age

Age group(years)	No. of donors	Percentage
< 21	42	6.44%
21-30	317	48.63%
31-40	203	31.13%
41-50	80	12.27%
51-60	10	1.53%
Total	652	100%

Maximum prevalence of donors was between the age group 21-30 years and minimum is between the age group 51-60 years (Table 4).

Discussion: In this study, the distribution of blood group B was the highest with percentage frequency of 42.63%, followed by blood group O and A with frequency of 26.38% and 19.94% respectively and the least percentage frequency is that of blood group AB which is 11.044%.

Similar studies (Table 5) were carried out by Agarwal N et al³ and Nanu A et al⁴. The results are same as our study, blood group B is the most common group followed by blood group O, A and AB. Similar results are found in the studies of Khan M N et al⁵ and Afzal M et al⁶.

Table 5: Comparison with other studies

Bloo group	Present study	Agarwal N ³	Nanu A ⁴
A	19.9%	21.91%	21.77%
B	42.63%	36.51%	37.39%
O	26.38%	32.37%	31.85%
AB	11.04%	09.19%	08.99%

The distribution of ABO blood group varies from one population to another. Blood group O has been found to be the most common blood group in studies by Raju G et al⁷ (37.87%), Purandare V et al⁸ (37.5%) and Javed et al⁹ (38.43%) followed by blood group B, A and AB.

This study shows Rh positive donors with 96.01% rate and Rh negative with rate of 3.99%. In all other studies mentioned here, Rh positive blood groups are more common than Rh negative.

In this study most common age group of donors is 21-30(48.63%) years and least common is 51-60(1.53%) years. This is because young persons are more willing to donate blood than any other age group. Study of Raju G et al⁷ shows similar results with highest prevalence of donors in age group 20-29(64.5%) years.

Conclusion: At the blood bank of GMERS Medical College & hospital, total 652 blood donation was occurred during the time between months of May 2012 to June 2013. Out of which 640 were males and 12 were females. Blood group B is the commonest blood group followed by blood group O, A and AB. Most common age group is 21-30 years amongst the all donors.

References:

1. Harshmohan. Textbook of pathology. 6th edition. India. Jaypee brothers medical publishers. 2010; p- 339.
2. Denise M Harmenning. Modern Blood Banking & Transfusion Practices. 5th edition. India. Jaypee brothers medical publishers. 2011; p- 109.
3. Agarwal N, Rakesh Mohan Thapliyal. Blood group phenotype frequencies in blood donors from a tertiary care hospital in north India. Blood Res. 2013; March, 48(1); 51-54.
4. Nanu A and Thapliyal RM (1997). Blood group gene frequency in a selected north Indian population. Indian Journal of Medical Research: 106; 242-246.
5. Khan M N, Khalid I. Distribution of ABO and Rh blood groups in the population of poonch

- district, Azad Jammu and Kashmir, eastern Mediterranean health journal. 2009: vol -15 no. 3; 717 – 721.
6. Afzal M, Ziaur-Rehman, Hussain F and Siddiqi R. A survey of blood groups. The Journal of the Pakistan Medical Association. 1977: 27(11); 426–428.
 7. Raju G M, Vijayanath V, Anitha M R. Observational Cross Sectional Study on Blood Donors. International journal of medical toxicology and forensic medicine. 2011: 1 (2); 65 -69.
 8. Purandare VR and *Prasad NB, Distribution of ABO blood groups in healthy young adults in Pune city. International Journal of Basic and Applied Medical Sciences. 2012: Vol. 2 (3); 74-78.
 9. Javed A, Nasir A. The ABO and Rh blood groups in kashmiri population. Indian journal of practicing doctor.2006: vol.3; No.2.

Conflict of interest: None

Funding: None
