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Distribution Pattern of ABO Grouping and Rh Typing Blood Donors – A Study from Blood Bank Mahatma Gandhi Hospital, Bhilwara.

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Abstract

Background- There are many blood group systems to classify red blood cells based on the presence of inherited antigens on their surface.

Methods- Present study was conducted at Blood bank of a Mahatma Gandhi Hospital, Bhilwara over a period from Dec 2017 to May 2018.

Results- 4438 blood donors that were enrolled in the present study. Out of 4438 blood donors, 1583 (35.66%) were having blood group O positive, 1467 (33.05%) donors having blood group AB positive,896(20.18%) donors having blood group A positive and 319 (7.10%) donors having blood group AB positive.

Conclusion- Out of 4438 blood donors, 4265 (96.10%) were having RH positive and 173 (3.90%) donors having blood group RH negative.

Keywords- ABO, blood bank, Rhesus.

Introduction

Human Blood is a type of body fluid. It delivers many important substances like nutrients and oxygen to the peripheral tissue and transports metabolic waste products away from those same cells. There are many cellular components in blood like red blood cells, white blood cells, platelets etc. In the human blood circulation main function of RBC is to transport fresh oxygen from the lungs to the peripheral tissues.[1]

There are many blood group systems to classify red blood cells based on the presence of inherited antigens on their surface. This also helps to find out the paternity of a child in disputed cases. [2]

The discovery of the ABO blood groups by Karl Landsteiner was an important achievement in the history of blood transfusion for which he received the Noble Prize that was followed by his and Wiener discovery of Rh (D) antigen. [3]Alfred Von Decastello and Adriano Sturli discovered the fourth type AB, in 1902. [4] Blood groups are known to have some association with diseases such as duodenal ulcer, diabetes mellitus, urinary tract infection, Rh incompatibility, and ABO incompatibility of newborn. The knowledge of the distribution of ABO and Rh blood groups at local and regional levels are imperative in the effective management of blood banks and safe blood transfusion services.

Material and Methods

Present study was conducted at Blood bank of a Mahatma Gandhi Hospital, Bhilwara over a period from Dec 2017 to May 2018. The blood groups of all healthy blood donors of both sexes were studied. All the voluntary and

replacement healthy blood donors coming for blood donation to blood bank premises. All blood donors were done counselling as per NACO guidelines and considered fit for blood donation were included in this study. All necessary information regarding their personal details, marital status, demographic details, occupational details and past medical history was elicited. All blood donors having hemoglobin level more than 12.5 gm/dl, blood pressure was within normal limit, weight was more than 45 kilogram, having good mental health and also physically fit were selected. The donors were then asked to fill and sign the donor questionnaire form inclusive of informed consent form.

Results

Table 1: Distribution of ABO blood groups type

Blood group	No. of donor	Percentage
O+	1583	35.66
A+	896	20.18
B+	1467	33.05
AB+	319	7.10
O-	47	1.05
A-	32	0.72
B-	73	1.64
AB-	21	0.47
Total	4438	100

4438 blood donors that were enrolled in the present study. Out of 4438 blood donors, 1583 (35.66%) were having blood group O positive, 1467 (33.05%) donors having blood group AB positive,896(20.18%) donors having blood group A positive and 319 (7.10%) donors having blood group AB positive.

Table 2: Distribution of rhesus blood groups type

Blood group	No. of donor	Percentage
RH positive	4265	96.10
RH negative	173	3.90
Total	4438	100

Out of 4438 blood donors, 4265 (96.10%) were having RH positive and 173 (3.90%) donors having blood group RH negative.

Discussion

In our study 4438 blood donors that were enrolled in the present study. Out of 4438 blood donors, 1583 (35.66%) were having blood group O positive, 1467 (33.05%) donors having blood group AB positive,896(20.18%) donors having blood group A positive and 319 (7.10%) donors having blood group AB positive. Out of 4438 blood donors, 4265 (96.10%) were having RH positive and 173 (3.90%) donors having blood group RH negative.

The studies done at Durgapur by Nag I et al,[5] at ShimogaMalnad by Girish CJ et al [6]and at Bangalore by Periyavan A et al[7] the commonest ABO blood group was 'O', which is in similar to present study where O is the most common ABO blood group. On other hand, studies done at Ahmedabad by Patel PA et al and Wadhwa MK et al,[8,9] at Uttarakhand by Parul G et al,[10] at Lucknow by Chandra T et al,[11] at Amritsar by Kaur H et al, [12] and at Maharashtra by Giri PA et al. [13] The commonest ABO blood group was 'B', which is in contrast to present study where O is the most common ABO blood group.

Conclusion

Out of 4438 blood donors, 4265 (96.10%) were having RH positive and 173 (3.90%) donors having blood group RH negative.

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