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Distibution of ABO and RH (D) Blood Group System among Phase I MBBS Students in North East Karnataka

Anitha Lakshmi*, Leena S. Hiremath**

Abstract

Background: Knowledge of blood group distribution is also important for clinical studies, for reliable geographical information and it will help a lot in reducing the maternal mortality rate, as access to safe and sufficient supply of blood will help significantly in reducing the preventable deaths. *Aims and Objectives:* To study the distibution of ABO and Rh(D) blood group system among phase I MBBS students in North East Karnataka. *Material and Methods:* The retrospective study done by using records of 300 healthy medical students of 2014-15 and 2015-16 batch studying at the Vijayanagar Institute of Medical Sciences belonging to both the sexes volunteered for the study. The study was conducted at the department of Physiology during the month of August 2015. *Results:* Distribution of ABO blood group system among phase I MBBS students. The study shows the distribution of various blood groups in numbers as well as in percentage form. Males constituted 60% and females constituted 40% of this study. 'B' blood group formed the most common with 52% (50.6% B+ and 1.4% B-) followed by 'O' blood group with 22%(21% O+,1% O-). 'A' blood group with 16%(14.2% A+, 1.8% A-). AB blood group with 10% (9% AB+.1% AB-). *Conclusion:* The study depicts the frequency occurrence of different blood groups among the students in VIMS, Bellary. Also to create awareness as to which blood groups should be stored and given importance.

Keywords: Blood Group; ABO System; Students; Percentage; North East Karnataka.

Introduction

Since the discovery of the ABO blood group by Landsteiner, different blood typing systems have been devised. Blood group antigens are integrated parts of the red blood cell (RBC) membrane and have many essential functions (membrane transporters and protein canals, ligand receptors, adhesion molecules, enzymes, and structural proteins). These surface antigens also have different biochemical compositions [1].

Knowledge of blood group distribution is also important for clinical studies, for reliable geographical information and it will help a lot in reducing the maternal mortality rate, as access to safe and sufficient supply of blood will help significantly in reducing the preventable deaths. Apart from their importance in blood transfusion practice, the ABO and Rh blood groups are useful in population genetic studies, researching population migration patterns as well as resolving certain medico legal issues, particularly of disputed paternity cases. In modern medicine besides their importance in evolution, their relation to disease and environment is being increasingly important. It is, therefore imperative to have information on the distribution of these blood groups in any population group [2].

The ABO and Rh blood group system is the most important system in transfusion and organ transplants [3]. The ABO system derives its importance from the fact that A and B are strongly antigenic and anti A and anti B occur naturally in the plasma of persons lacking the corresponding antigen. These antibodies are capable of producing hemolysis in vivo. From the point of view of transfusion, rhesus blood group system is the second most important blood group [4].

Our aim was to determine the distribution of

Author's Affiliations: *Assistant Professor, Department of Physiology, Vijayanagar Institute of Medical Sciences, Ballari, Karnataka 583104, India. **Assistant Professor, Department of Physiology, KS HEGDE medical academy, Deralakatte, Karnataka, India.

Corresponding Author: Anitha Lakshmi, Assistant Professor, Department of Physiology, Vijayanagar Institute of Medical Sciences, Ballari, Karnataka 583104, India.
E-mail: anithalakshmi1612@gmail.com
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different blood groups in this region. Blood group determination was carried out for 2 year batch phase I MBBS students, from 2014 -15, 2015-16.

Aims and Objectives

To study the distibution of ABO and Rh(D) blood group system among phase I MBBS students in North East Karnataka.

Material and Methods

The retrospective study done by using records of 300 healthy medical students of 2014-15 and 2015-16 batch studying at the Vijayanagar Institute of Medical Sciences belonging to both the sexes volunteered for the study. The study was conducted at the department of Physiology during the month of August 2015.

Statistical Analysis

The data analysis was carried out using the Statistics (SPSS). Statistical significance of difference in mean values between groups was assessed using independent samples t-test.

Results

Table and graph showing distribution of ABO blood group system among phase I MBBS students. Table shows the distribution of various blood groups in numbers as well as in percentage form. Males constituted 60% and females constituted 40% of this study. 'B' blood group formed the most common with 52%(50.6% B+ and 1.4% B-) followed by 'O' blood group with 22%(21% O+,1% O-). 'A' blood group with 16%(14.2% A+,1.8% A-). AB blood group with 10%(9% AB+.1% AB-).

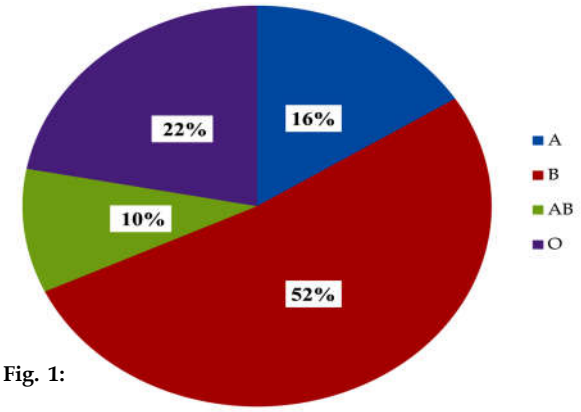

Fig. 1:

Table 1:

Blood Groups	Percentage
A	16
B	52
AB	10
O	22

Disscussion

In this study, the distribution of ABO and Rh blood groups. The results of this study were comparable to the studies done at Eastern Ahmedabad, Punjab and Pakistan. All these studies have described 'B' as the most frequent and 'AB' as the least common blood group [2]. In our study also similar findings of 'B' as the most frequent and 'AB' as the least common blood group. The study by Nanu and Thapliyal in North Indian population reports that group B was predominant [5].

In this study, B was the most common blood group followed closely by the O group. This finding is in concordance with other studies published from India [5,7]. However, overall worldwide frequency of the B antigen is low, excluding some areas, such as central Asia and Africa. In studies from Europe, America, and South East Asia, the O antigen has been found to be the most common blood group [8,9]. The study also estimates the gene frequency of ABO and Rh (D) genes under the standard assumption of Hardy Weinberg equilibrium. It was found that while the distribution of ABO blood groups did not differ significantly from those expected under the Hardy Weinberg equilibrium, it differed significantly in case of Rhesus group. These findings were very similar to those reported by Wagner et al [6].

Conclusion

The present study has a significant implication regarding the management of blood bank and transfusion services in the area. Knowledge of blood group distribution is also important for clinical studies, reliable geographical information and for forensic studies. The different types of information are useful for medical diagnosis, genetic information, genetic counseling and also for the general well-being of individuals [2].

The study depicts the frequency occurrence of different blood groups among the students in VIMS, Bellary. Also to create awareness as to which blood groups should be stored and given importance.

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