



Pattern of Blood Groups Among 1st Year Medical Students for the Year 2015-2016 at Veer Surendra Sai Institute of Medical Sciences and Research ,Burla

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ABSTRACT

Objective-Pattern of ABO Blood group distribution among 1st year medical students.Study design-Cross sectional study. Place & duration of study-October 2015 to January 2016 at the department of physiology at VIMSAR.Material & **Methods**-All the medical students of the first year included in the study. Blood was collected by finger prick method adopting sterility. Red cell suspension prepared. A drop of Anti A & anti B & RhD antibody is added to red cell suspension taken on separate clean glass slide, mixed well. Result of agglutination was recorded. Results-There were total 150 students. Four students absent.Out of 146 students, screened for ABO system of blood group & Rh system of blood group.Statistical analysis are done for both blood group patterns.**Conclusion**-Study showed that O blood group is common, followed by B blood group in ABO system and Rh positive is more common than Rh negative in Rh system of blood group. Blood typing is very important prior to transfusion of blood, to save life in crisis

KEYWORDS

ABO Blood group,Rh blood group, Gender, Blood transfusion

INTRODUCTION--

Blood grouping & typing is very vital in clinical medicine. The presence of specific agglutinin on the cell membrane of RBC is the determinant of blood group.Type A individual have A agglutinin,Type B have B agglutinin,type AB individual have both A & B agglutinin, O type have neither of these antigen. These A & B antigens are complex oligosaccharide on the surface of RBC that differ in their terminal sugar. The gene coding for these antigens is located on chromosomes 9 and 19. Recent research data show that ABO blood groups are associated with various diseases such as duodenal ulcer, gastric cancer, diabetes mellitus, urinary tract infection, and venous thrombosis.^{3,4} In order to avoid danger of mismatched blood transfusion, it is important to determine the blood groups of those involved prior to a transfusion. The routine practice of blood typing and cross matching blood products should prevent adverse transfusion reactions caused by ABO antibodies. However clerical error can result in transfusion reaction that can be fatal.⁵ it was found that carcinoma of cervix had higher frequency in blood group A.⁶ A significant association was identified for cholera in which cholera patients were twice as likely to have blood group O and one ninth as likely to have blood group AB as community controls.⁷ Aside from the antigens of the ABO system, those of the Rh system are of the greatest clinical importance. Rh system composed primarily of the C, D, and E antigens. D is the most antigenic component, and the term "Rh-positive. anti-D antibodies do not develop without exposure of a D-negative individual to D-positive red cells by transfusion or entrance of fetal blood into the maternal circulation The "Rh-negative" individual has no D antigen and forms the anti-D agglutinin when injected with D-positive cells.⁸ **Aim & objective** of this study was to find the frequency of different blood groups among the medical students & to make them aware about the associated diseases. Data in the blood bank can be kept for future reference.

MATERIALS & METHODS

Type of study-Cross sectional Place of study-Veer surendra-sai institute of Medical Science & Research, Burla. Duration of study--October 2015 to January 2016. Out of 150 total students, 4 students absent.146 students in the age group 17-21 years were selected. The exclusion criteria for selection of the students were, history bleeding disorder, & NSAID drug intake. Procedure Done-Blood group was determined

during practical class of their grouping physiology laboratory by standard antisera. Blood samples were collected by finger prick with sterile needle after cleaning the puncture site with spirit. Red cell suspension (RCS) was prepared. One drop of The anti A, AntiB, Anti D are mixed with a drop of RCS on separate cleaned glass slide. Blood group was determined by observing presence or absence of agglutination. Observation were done by naked eye & microscopic by low power objective lens. Data were collected from each student & compiled for statistical analysis. Stastical analysis--Available data were expressed in different table to find out %. Of different blood groups .

OBSERVATION-

TABLE-I Frequency of blood group-(ABO system)

Blood Group	Frequency	Percentage-%
A	24	16.4
B	50	34.2
AB	13	8.9
O	59	40.5
Total of all Blood group	146	100

TABLE II--Sex wise distribution of blood group-(ABO system)

Blood Group	Frequency Male	Percentage-%	Frequency -Female	Percentage %
A	14	9.5	10	6.8
B	36	24.6	14	9.6
AB	06	4.1	07	4.8
O	39	26.7	20	13.6
Total	95	--	51	--

TABLE III--Rh blood group system frequency

Rh+ve in no	RH-ve in no	Total	Rh+ve %	Rh-ve %
138	8	146	94.5	5.5

TABLE IV--Sex wise distribution of Rh system of blood group

Blood Group	Male	Percentage %	Female	Percentage %	Total M+F	Percentage %
Rh +ve	98	67	40	28	138	94.5
Rh-ve	04	2.7	4	2.7	08	5.5

102	--	44	--	146	100
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TABLE V-- ABO & Rh frequency distribution

ABO Gp sys	Rh+ve in no	Rh-ve in no	Total
A	A ⁺ 22	A ⁻ 2	24
B	B ⁺ 48	B ⁻ 2	50
AB	AB ⁺ 11	AB ⁻ 2	13
O	O ⁺ 57	O ⁻ 2	59
Total-146	138	8	146

TABLE VI-- ABO & Rh ,Blood group distribution in %

Blood group	Rh+ve %	Rh-ve %	Total
A	A ⁺ 15.0	A ⁻ 1.36	24
B	B ⁺ 32.8	B ⁻ 1.36	50
AB	AB ⁺ 7.5	AB ⁻ 1.36	13
O	O ⁺ 39.04	O ⁻ 1.36	39
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OBSERVATION & RESULT

Out of Total 146 students studied the frequency for a,B,AB,O, Blood groups were 24,50,13, 59 & the corresponding % were 16.4%,34.2%,8.9% & 40.5%, which show s the distribution of O blood group were common in the resent study. **Table-I**

Considering the sex wise distribution ABO system in male were 14,36,06, 39 & the % were 9.5%,24.6%,4.1%, &26.7%. So also the frequency of ABO system for female were 10, 14, 7, 20, which is 6.8%, 9.6%,4.8%, & 13.6%. Commonest blood group for male were O & female also O blood group. **TableII**

Cosidering the frequency of Rh blood grouping of 146 studied strength 138 students belong to Rh +ve& 8 students belong to Rh -ve. Corresponding % were 94.5% for Rh+ve,5.5% for Rh -Ve, **Table- III**

Referring to sex wise distribution of Rh +ve system in male were 98,female were 40 corresponding to 67% male &28% female. For Rh -ve male & female were only 4 each representing 2.7%. **Table- IV**

Considering both ABO & Rh system frequency distribution of A+ve,B+ve,AB+ve,O+ve the coresponding fig were 22,48,11,57 totaling -138(Rh+ve). So also considering both ABO Rh the frequency of student in A-ve,B-ve,AB-ve,O-ve were 2,2,2,2. Totaling 8 Rh-ve. **TableV**

Again considering the% distribution both ABO,Rh system blood group of A+ve.B+ve,AB+ve& O+ve were 15%,32.8%,7.5%, & 39.04%. So also considering the ABO Rh system of frequency of student of Rh -ve categories sequentially A-ve,B-ve,AB-ve,O-ve were 1.36% for each categories. **TableVI**

DISCUSSION

In our study the O blood group system is more common, the 2nd common group were B group the sequence being O>B>A>AB which oppose the study of Pasha, Hashir, in which B blood as dominant followed by O blood group the sequence being O>A.AB. Study of Kaur & sing etal show again the B blood group is more common followed by 2nd most common blood group that were O. The % distribution of east European people were A 42%,B-9%,AB-3%,O -46%, some east European people show B blood group up to 40%.¹¹ The % distribution of Indian population were A25%,B25%,AB5%,O-45%.¹² Study of the blood group trends show prevalence B>O>A>AB by various researcher.¹³ Cotrary to our study Asiatic trends of prevalence of blood group>B>A>AB had been reported by many researcher.¹⁴ 85% of white population were Rh +ve & 15% Rh -ve. .In our study Rh+ve were 94.5% & Rh -ve were 5.5% which correspond to indo Asiatic study. Indo Asiatic population study show O>37.12%>B32.26%>A22.28% & AB7.74%. Considering Rh system 94.61% Rh+ve & rest 5.39% Rh-ve.¹⁵ Our study show the pattern O followed B,A,AB.It coincide with the previous

study done by Nag et al.¹⁶ Rh system also coincide with Indian study which varies from 94-98%Rh +ve& 2-6% Rh-ve.¹⁷

SUMMARY & CONCLUSION

The O+ve blood group were significantly high in this study, the least frequency being AB+ve. O+ve Blood group were also significant in male-26 % & in female 13.6% in contrast to the least frequency AB only 4.1% were male & 4.8% were female In Rh system 67% of male were Rh+ve & 28% of female Rh+ve & 2.7% of male& female were Rh -ve. The distribution of above blood group help to keep the data base up-to-date in the blood banking, transfusion record, for emergency management of needy people. Knowledge of blood group also helpful to correlate the disease process in different geographical area.

REFERENCES-

1. Ganong WF.Review of medical physiology,22nd edi,2005pp 537.McGraw-hill Education.
2. SchleeF M,Strobel E,DickAet al-relation between ABO secretor genotype ith plasma level factor VIII & von wilbrandfactor in thrombosis patient& control individual.Br J Hematology 2004;128;100-07
3. Zhang H, Mooney cj,et al--ABO blood group & cardio vascular disease. Int J Vasc med 212;article ID 641917-1:11
4. Wiggins Kl, Smith NL et al-ABO genotype & risk of thrombotic events & haemoragic stroke J Thromb Haemost 2008;7;263-9.
5. Qureshi MA, Bhatti R et al- Frequency of ABO blood group among the diabetes mellitus type 2 patient. J coll physician surg Pak 2003;13;453-55.
6. Kar I.SingIP et al- Blood group in relation to carcinoma of cervix uteri. Hum-her 1992;42;324-26
7. Glass RI,Holmgren J et al-Predisposition of choleraof individual with o blood group possible evolutionary significance. Am j Epidemiol1985;121;791-96
8. Samson wrights applied physiology 12th edition page 34-35,Oxford Medical Publication
9. Pasha A,K,Hashir M M,et al-Frequency of ABO blood groups among medical student,Jr of surg, Pakistan 14 (2) 2009 :93-95
10. Kaur M,Singh A,et al-Blood group distribution & its relation withbleeding time & clotting time;National jr of physiology & phama;2015 vol5(3) 253-54.
11. Samson wrights applied physiology 12th edition-Page 35-36. Oxford Medical Publication
12. Srivastav- A manual of practical physiology1993,3rd edition- Scientific book company, Patna.
13. Patil SV, Gaikwad PB, Vaidya SR, Patil US, Kittad SD. To study the blood group distribution and its relationship with bleeding andclotting time in dental students. Asian J Medical Pharmaceutical Sci.2013;1(1):1-4.
14. Thenmozhi S, Neelambikai N, Aruna P. Comparison of bleeding time and clotting time in differerent ABO blood groups. National Journal of Physiology, 2013;1(1):19-24
15. www.nlm.nih.gov.PMC4140055 dt 9.8.16.(Internet)
16. Nag I,Das ss etal, Asian jr of transf.science.2012;6;54-55
17. Nitte University Jr of health science -vol 4 No 3,sept 14.