IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 20, Issue 6 Ser.9 (June. 2021), PP 09-11
www.iosrjournals.org

To study the ABO blood group discrepancy in patient requiring blood transfusion at SMS medical college Jaipur.

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Abstract
Background- To study the ABO blood group discrepancy in patients at SMS medical college jaipur
Methods- This is an observational, descriptive study of ABO blood group discrepancy in patients requiring blood transfusion and healthy donors at Department of immunohaematology and transfusion medicine SMS medical college, Jaipur from 1st august 2019 to 30 march 2020 till the designed sample size is achieved after approval from institutional ethical committee and research review board.
Results-During the period of study maximum discrepancies were obtained in the month of January (8 out of 35).
Conclusion- The study on analysis of ABO discrepancies showed the incidence in donor population as 35 out of 38511 (0.09%).
Keywords- *ABO, Discrepancies, RH, Disease.*

Date of Submission: 05-06-2021 Date of Acceptance: 18-06-2021

I. Introduction

ABO and Rhesus blood group system are clinically the most important. Blood Donors and patients must be correctly ABO and Rh grouped because transfusing ABO in-compatible blood may result in transfusion reaction which may lead even to death of the patient[1]

A genomic study done on 324 clinical samples involved in ABO discrepancy showed that number of definable alleles associated with ABO subgroups has increased from 14 to 29 than their earlier study[2.] Another study on analysis of ABO discrepancies in 35 French hospitals suggests that incidence of ABO discrepancy was 1 per 3400.This figure was 10 times higher than incidence of ABO mismatched transfusion[3]**.** In reports from Department of laboratory medicine in a National University, Korea chimerism and mosaicism are found to be important causes of ABO phenotype and genotype discrepancies by studying the STR (Short tandem repeat) loci by DNA-based techniques**..**[4]

II. Materials and methods

This is an observational, descriptive study of ABO blood group discrepancy in patients requiring blood transfusion and healthy donors at Department of immunohaematology and transfusion medicine SMS medical college, Jaipur from 1st august 2019 to 30 march 2020 till the designed sample size is achieved after approval from institutional ethical committee and research review board.

Methods

Inclusion Criteria

1. Patients of either gender and all age groups whose sample is received through blood requisition forms.

2. All the patient and donor samples, with EDTA or citrated anticoagulated blood for forward grouping and clotted blood samples for reverse grouping
3. Voluntary Blood donors who fulfill the criteria for blood donation(age>18, weight >50kg,Hb>12.5 gm%).
4. Patient and donors who are willing to participate in the study

Exclusion Criteria
1. Patients and voluntary donors not willing to participate in the study.
2. Donors who are medically unfit.
3. Hemolysed samples
4. Clotted samples of new born upto 3 months of age for reverse grouping

Statistical Analysis
All data obtained was entered, segregated and tabulated in micro excel software as per mentioned variables.

Statistical analysis was performed with SPSS, version 21 for windows statistical software package (SPSS inc., Chicago, IL, USA).
- Qualitative data was expressed in form of percentage and proportions. Significance of difference was inferred by Chi-square test.
- Quantitative data was expressed in the form of mean+/- standard Deviation.
- Significance of difference was inferred by t-test.
- Probability was considered to be significant if p value <0.05.
- Potential association between parameters was assessed by performing a correlation study.

III. Result

Table 1: Patient Details

Month	No: of Patients Blood Grouped	Discrepancies Noted	No Discrepancy
August	4746	3	4743
September	4935	2	4933
October	4810	4	4806
November	4959	3	4956
December	4879	5	4874
January	4728	8	4720
February	4781	7	4774
March	4708	3	4705
Total	38546	35	38511
Statistics	Chi square=31860	Degree of freedom=7	P value=<0.0000001

During the period of study maximum discrepancies were obtained in the month of January (8 out of 35).
Discussion

Leukemia, other malignancy and immunodeficiency is another important condition for ABO discrepancy. The reason for discrepancy is hypo gammaglobinemia. A similar case has been reported by Linz and Curie of a patient with a long history of susceptibility to Pneumonia associated with sepsis, who showed a discrepancy with forward and reverse typing by not showing a reaction with B cells even after extended incubation.Cause of this was found to be hypo gammaglobulinemia which result in immunodeficiency[5]

AIHA and multiple transfusions are leading causes of ABO discrepancy. Autoantibody in AIHA can be warm or cold which are coated on red cells that produce a positive coomb's test result. This may promote weak agglutination in the forward grouping, resulting in an ABO discrepancy.. Although AIHA may present with an ABO and Rh typing discrepancy, accurate blood group identification usually can be determined without specializedtechniques[6]

In a case study done by Rickard et al a 14-month-old mongol child developed acute haemolyticanaemia during the course of severe bronchopneumonia. The haemolysis was associated with polyagglutinability of the patient's red cells. The occurrence of polyagglutination was first noticed during the acute haemolytic episode when grouping and compatibility tests. The polyagglutination made ABO and Rh typing of the patient's cells impossible at room temperature. However, at 37 ° C the polyagglutination was much less marked and the cells were shown to be group 0 Rh (D) positive. Serum grouping confirmed that the child was group0·[7]

IV. Conclusion

The study on analysis of ABO discrepancies showed the incidence in donor population as 35 out of 38511 (0.09%).

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Dr Kuldeep Jareda, et. al. "To study the ABO blood group discrepancy in patient requiring blood transfusion at SMS medical college Jaipur."*IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(06), 2021, pp. 09-11.