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Original Research Article

Alloimmunisation of Red Blood Cells in Multitransfused Patients

Vilas M. Sangole[1*], Devendra R. Chaudhari[2**@]

[*]Professor, [**]Assistant Professor
[1]Department of Pathology, [2]Department of Pharmacology
Dr. Ulhas Patil Medical College & Hospital, Jalgaon, Maharashtra, India.

[@]Correspondence Email: devendra7681@gmail.com

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ABSTRACT

This study was carried at Acharya Vinoba Bhave rural hospital Sawangi [Meghe] in patients having blood transfusion reactions to determine the incidence of alloimmunisation against red cell antigens in multiple blood transfusions. Antibody screening was performed in thalassemia group of patients, including sickle cell disease, and chronic renal failure patents where hemodialysis is required frequently. Regrouping and re-cross matching was performed using various standard methods. It was observed that antibodies were highest in thalassemias in 50% of cases, and sickle cell disease and chronic renal failure in 25 % of cases respectively.

Key Words Alloimmunisation, Indirect Antiglobulin Test [IAT], Low Ionic Strength Solution [LISS]

INTRODUCTION

Blood transfusion are given for life saving, hence it is a still part of health care. Homozygous variant of sickle cell disease requires multiple transfusions. Anemias in B- thalassemia homozygous patient requires multiple transfusion at frequent in intervals also reveals alloantibodies. [1, 2]

Anemia in chronic renal failure also needs multi transfusion of blood when these patients are on hemodialysis. These patients are subjected to many hazards including the alloimmunisation of R.B.C.antigens. Alloimmunisation not only faces of problem of cross match testing but it also can produce hemolytic transfusion reaction. [3] In this study alloimmunisation of red blood cell antigen in multitransfused patients are reported.

MATERIALS & METHODS

The present study was carried out from 1st January 2005 to 30th June 2005 retrospectively and 1st July 2007 to 31st December 2007 prospectively at Acharya Vinoba Bhave rural hospital Sawangi [Meghe] in patients having blood transfusion reactions. None of the patient was on immunosuppressive therapy. All the patients received ABO and Rh0 [D] antigens compatible whole blood. Blood transfusion reaction history was obtained from the bed head tickets of patients and blood bank records. Regrouping and recross matching was performed .Also tests were performed

according to standard operating procedures for saline, enzymes, LISS [DIAMED]

RESULTS

In present study the blood transfusion reactions was observed in 46 patients in above period of study. Only 8 cases of 46 total transfusion reaction cases were screened and demonstrated alloantibodies. These 8 cases were belonged to B-thalassemia, sickle cell disease, and chronic renal failure patients who were on hemodialysis.

Table no.1- Details of immunized patient

		METHODS OF DETECTION			
S.No	No. of pts.	Diagnosis	LISS	ENZYME	SALINE
1.	4	B-Thalassemia	2+	1+	Neg.
2.	2	Sickle cell disease	2+	1+	Neg.
3.	2	Chronic renal failure [on hemodialysis]	1+	Neg.	Neg.

Thus all antibodies were observed highest in thalassemias in 50% of cases, and sickle cell disease and chronic renal failure in 25 % of cases respectively.

On analysis the majority of all antibodies were belonged to antiRh specificity predominantly anti-C, anti-c and anti-E respectively.

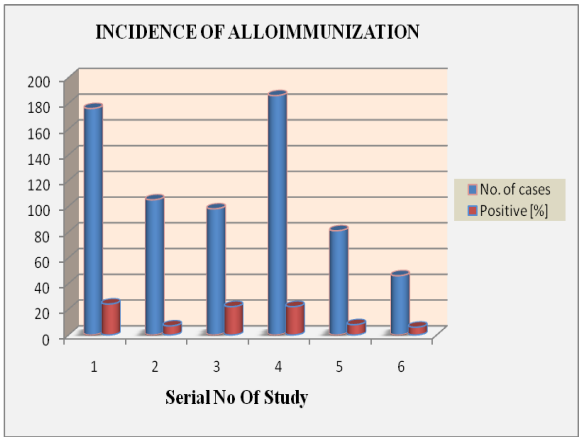
DISCUSSION

The present study was under taken to determine the incidence of alloantibodies after multiple blood transfusions. Blood-banks provides ABO and Rh[D]antigens matched blood.RBC alloimmunisation results from disparity of antigen between donor and recipient.

The present study we observed alloimmunisation in 13%. The rate was observed similar to other studies 4 & 6 as shown in table no. 2

Table no.2- Incidence of alloimmunisation in multitransfused patients

S. No.	year	Author	No. of cases	Positive [%]
1	1983	Blumber et al [4]	176	24 [13.63]
2	1984	Lasky et al [5]	105	07 [6.66]
3	1988	Domen et al [3]	98	22 [22.44]
4	1990	Fluit et al [6]	186	22 [11.82]
5	1999	J.Shukla [7]	81	08 [9.87]
6	2009	Present study	46	06 [13.04]



Recipient's immune status immunogenicity of antigens and dose of antigen are the factors which play significant role in alloimmunisation. [8]

CONCLUSIONS

To conclude, the transfusions should be rationally used, so as to decrease the exposure to foreign red cell antigens thus preventing the risk of alloimmunisation.

Use of saline washed red blood cell can prevent risk of alloimmunisation in multi transfusion cases without changing the physiology of red blood cells

It is recommended that the screening should be carried at time intervals in patients receiving regular blood transfusions.

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