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KEY WORDS: Adverse transfusion reactions, Hemovigilance .

A STUDY OF ADVERSE TRANSFUSION REACTIONS IN A TERTIARY CARE HOSPITAL

Dr. M. Raveendran Tutor, Department of Pathology, Government Mohan Kumaramangalam Medical college, Salem, Tamilnadu.

Dr. D. Saranya Assistant Professor, Department of Pathology, Government Mohan Kumaramangalam Medical college, Salem, Tamilnadu.

ABSTRACT

Blood transfusion is an important intervention in the field of medicine. The risk of adverse reactions pose a major challenge in the treatment. The aim of our study is to analyse the incidence of transfusion reactions in our institute..

MATERIALS AND METHODS: It is a prospective study conducted in the Pathology department, Government Mohan Kumaramangalam Medical college and Hospital, Salem, Tamilnadu from May 2016 to June 2019 . All the reactions were evaluated according to the standard guidelines and recorded regularly.

RESULTS: During the study period 72,518 units were issued among which 52 reactions were reported. Males comprises 18% and females comprises 76% and pediatric age group comprises 6%. The most common reactions were allergic reactions (79%) followed by FNHTR (17.3%) . Majority of the adverse reactions were seen in whole blood 63.4% followed by Packed cell and then FFP.

CONCLUSION: Strict hemovigilance to be maintained and transfusions should be given only when necessary.

INTRODUCTION:

Blood transfusion is unavoidable and life saving procedure in the field of medicine. Every blood bag transfused carries a risk of adverse effects that varies from mild to life threatening complications.

Transfusion reaction is defined as any unfavourable event occuring in a patient during or after transfusion of blood and its components [(1)]. It can be categorised as immune and Non immune reactions based on the underlying pathology, as immediate and delayed reactions based on the time of occurrence (few hours to days). Knowledge about various types of reactions not only helps in identifying and treating the same but it is also necessary to take preventive measures to avoid such adverse effects. Thus there is a need of strict hemovigilance system in the field of transfusion medicine[(2).]

MATERIALS AND METHODS:

It is a prospective study for a period of three years from June 2016 to May 2019 conducted by the Department of Pathology, Government Mohan Kumaramangalam Medical college, Salem, Tamilnadu, India. Among the total 72,518 units issued 51 transfusion reactions were recorded over the study period. Whenever any adverse reaction is reported by the doctor, the following details are documented in the transfusion reaction form. It includes

(1) Patient details
(2) Blood bag details
(3) Time while starting and stopping of transfusion
(4) Volume of blood transfused
(5) Onset of reaction time
(6) Symptoms of the patient.

Along with this details the transfusion set undetached from bag, Post transfusion blood sample and urine sample are received with time, date and signature.

Following protocol is followed in our blood bank to analyse the type of reactions:

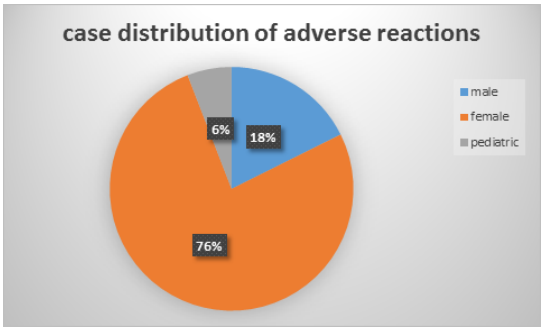
(1) All the documents are verified to rule out any clerical error.
(2) Pre transfusion and post transfusion blood samples rechecked for blood grouping and cross matching and the results are documented.
(3) Post transfusion blood sample is subjected to direct and indirect coombs test to rule out hemolysis.
(4) Post transfuion urine sample is examined for hemoglobinuria and myoglobinuria.
(5) The particular blood bag along with transfusion set is sent to microbiology department for culture to rule out bacterial contamination.

Transfusion reactions are classified as immediate (within 24 hours of transfusion), and delayed (after 24 hrs of transfusion). Febrile non hemolytic transfusion reaction (FNHTR) is defined as unexplained rise in temperature of at least 1°C during or shortly after transfusion. Allergic reactions includes urticaria and rashes. Anaphylactic reactions includes hypotension and/or loss of consciousness and/or shock. Transfusion related acute lung injury (TRALI) is defined as acute respiratory insufficiency (non cardiogenic pulmonary edema) and/or X-ray findings consistent with bilateral pulmonary infiltrates. Hemolytic reactions were diagnosed based on the clinical and/or laboratory evidence of hemolysis and Direct Antiglobulin test (DAT).

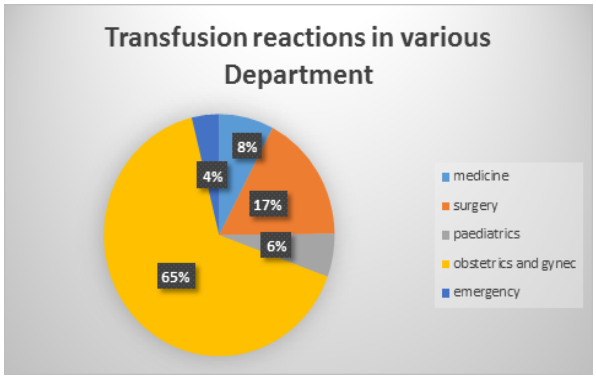
RESULTS:

During the study period of three years we issued totally 72,518 units of blood and blood components of which 52 transfusion reactions were reported to our blood bank.

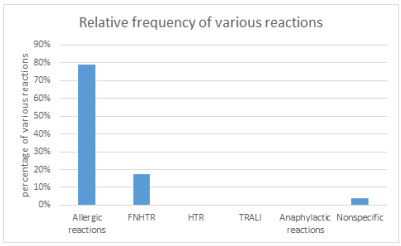
Among the 52 patients, 3 patients were under pediatric age group and remaining 48 patients were adults. Among the adults female patients were 40 (76%) and male patients were 9 (18%).



On categorising the adverse transfusion reactions in various departments Obstetrics and gynecology comprised 65% (34 cases), surgery comprised 17%(9 cases), medicine comprised 7.6%(4 cases), pediatrics comprised 5.7%(3 cases) and emergency comprised 3.8%(2 cases).



On categorising various reactions commonest was allergic reactions in 41 cases (79%) followed by FNHTR in 9 cases (17.3%). No cases of HTR, anaphylactic reactions, and TRALI were reported during the study period.



Among the various types of blood units issued whole blood constitute the major portion of adverse reactions 63.4% of which 53.8% of allergic reactions and 7.6% of FNHTR were reported. Packed cell contributed 34.6% of adverse reactions of which 23% of allergic reactions and 9.6% of FNHTR and 1.9% of Non specific reaction were reported. One case of allergic reaction (1.9%) reported on transfusion of FFP. No adverse reactions were reported in platelets and cryoprecipitate during the three year study period. (Table 1)

Table 1: Various reactions in different blood units

Type of blood	Allergic reactions	FNHTR	HTR	TRALI	Anaphylactic reactions	Non-specific reaction	TOTAL
Platelets	-	-	-	-	-		-
Fresh frozen plasma	1 (1.9%)	-	-	-	-		1 (1.9%)
Cryopreci-pitate	-	-	-	-	-		-
Total	41 (78.8%)	9 (17.3%)	0	0	0	2 (3.84%)	52

DISCUSSION:

Transfusion reactions ranges from mild to lethal complication in the recipients. Analysing their incidence helps to take necessary preventive measures. Our study analysed the incidence of various reactions in our institute over a period of three years.

The overall incidence is 0.07%. Study conducted by Sangeetha et al reported 0.19%[3],urmi et al reported 0.16%[4], Dhruva Kumar et al reported 0.92% which was slighlty higher than our study and this may be due to the lower number of blood units issued.

In our study females were the major group affected with adverse transfusion reactions (76%) which is similar to the study conducted by Sharma et al (59%)[5], .Study conducted by Urmi Et al.,documented adverse reactions in pediatric age group and young females equally 28%[4]. Study by Sangeetha et al documented male predominance (54%) [3].

We documented majority of adverse reaction in females in Obstetrics and gynecology department (65%) which is similar to the study conducted by Urmi et al.,12%[4].This may be due to the multiple transfusions administered to a single patient or may be in multiparous women.

Allergic reactions was the commonest adverse reaction that we encountered that is similar to Sharma et al 65.6%[5]. Many other studies documented FNHTR as the commonest reaction 38%[4],64%[3],60.4%[6].

Many of the transfusion reactions are seen on transfusing whole blood when compared to packed cell and other blood components. Plasma in the whole blood contains antibodies and proteins which is responsible for most of the reactions. This is similar to study conducted Sangeetha et al [3] who documented major reactions in whole blood when compared to other blood components. Many studies had reported adverse reactions in packed cell transfusion [4], [6].

We did not encounter any transfusion reactions in cryoprecipitate and platelets during the entire study period.

In case of multiple transfused patients like Thalasemia and pregnant women usage of leucodepleted blood can be of greater help in reducing the incidence of adverse reactions[7].

CONCLUSION:

Blood transfusion is a double edge sword so adverse reactions should always be kept in mind while transfusing blood and blood components. Usage of leucodepleted whole blood and packed cell can minimise the risk of adverse reactions especially in multiple transfused patients.

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