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Frequency of Reactions Due to Whole Blood Transfusion in Obstetrical and Gynecological Patients

Dr Sanwal Azeem[1] Dr Uzma Zafar[2] Dr Zeeshan Sultan[3] Muhammad Zeeshan[4]
1.Medical Officer BHU Chak Frazi, Muzafar Garh
2.Woman Medical Officer THQ, Samundri
3.Medical Officer BHU Thul Najeeb, Khanewal
4.Msc. Statistician BZU, Multan

Abstract
Objective: To investigate the frequency of transfusion reactions after whole blood transfusion in gynecological and obstetrical patients.**Study Design:** Descriptive case series, **Place and duration:** Completed in the department of obstetrics and gynecology THQ Samundri, DHQ Khanewal and Nishtar Hospital, Multan from 20 August 2017 to 30 April 2018. **Methodology:** A total of 200 patients included in the study and main variables to be assessed were age, pregnancy status, early transfusion reaction, fever, rashes, shortness of breath, hypotension. Non probability consecutive sampling was used. SPSS version 23 was used to analyze the data and probability value ≤0.05 was taken as significant. **Results:** Early transfusion reaction was observed in 14.5% women. Fever was noted in 8% women. Rash was observed in 5.5% women. Shortness of breath was observed in 8.5% women. Hypotension and itching was noted in was observed in 11.5% and 1.5%women respectively. **Conclusion:** We concluded that frequency of early transfusion reactions is not too much high (14.5%), transfusion of blood components is safer than whole blood transfusion. Whole blood therapy should be restricted and avoided to overcome reactions due to transfusion.
Keywords: Early transfusion reaction, Whole blood, Pregnancy, Gynecology, Obstetrics.

Introduction

Transfusion of whole blood and its products should be advised with cautions after detailed investigations only those patients in whom blood transfusion is necessary for life saving[1]. Risks and complications are undeniable that can be fatal in extreme critical patients[2]. Due to its fatal risks a continuous debate is going on its need and safe use. Reactions during blood transfusion or within 24 hours of transfusion will be labelled as side effects and observed in 10% of transfusion either whole blood or it's components[3].

Sign and symptoms of transfusion reaction include pruritis, fever, urticaria and chills that are self emitting require no medication or treatment[4]. But in cases of severe reaction Luke high grade fever, red urine, shortness of breath and unconsciousness has a closed relationship with blood transfusion[5]. Additionally,after blood transfusion other non-hemolytic,hemolytic reactions,fluifd overload ,anaphylactic reactions andtransfusion transmitted infections like HIV,HCV,HBV etc. can reactive in blood recepient[6].

Serious hazards of transfusion (SHOT) is worldwide a challenge for medical professionals that can be divided in to early transfusion reactions and late transfusion reactions. In United Kingdom it was estimated that 29% of reactions occurred in early transfusion 5% hemolytic transfusion reactions, 2% transfusion related lungs injury, 2% circulatory overload, 0.2% post transfusion infections and 0.1% dyspne[7]. Blood transfusion in non surgical patients mostly done in cases of anaemia to improve the haemoglobin level that can cause a serious pre operative infection which leads to increase in length of hospital stay.It was suggested in previous literature that transfusion of fresh blood is safe and efficacious with minimum risk of infections and transfusion reaction[8].

Sometime transfusion during reaction occurred instantly after transfusion in critical cases, such type of reactions may complication of illness immediately after transfusion named coincidental complication[9]. Diagnosis of early transfusion reaction and coincidental complication of illness is necessary to overcome the deficiency of blood and its components. Patients having transfusion in past have greater risk of delayed hemolytic reactions due to low antibody titer that should be detected prior to transfusion[10].

Methodology

This study was a descriptive case series was completed in the department of obstetrics and gynaecology THQ Samundri, DHQ Khanewal and Nishtar Hospital, Multan from 20 August 2017 to 30 April 2018. Study was started after approval of study protocols from hospital ethical approval committee and informed consent was obtained from patients. Non probability consecutive sampling technique was used. Patients with age limit 20 to 60 years pre operative or post operative poor planned for blood transfusion of whole blood after screening or cross matching were included in the study. Patients of intraoperative blood transfusion, having fever more than 100F, with coagulation disorder (platelets count less than 150000 mm3), thrombocytopenia and idiopathic thrombocytopenia purpura were excluded from the study. Patient's complete demographic data, history of medical illness was noted. Blood transfusion reactions occurred within 6 hours of transfusion was labelled as

early transfusion reactions. Patients with sign and symptoms of fever were labelled as transfusion reaction. SPSS version 23 was used for data entry and analysis. Quantitative and qualitative variables were presented as mean standard deviation and frequency percentages respectively. Quantitative variables include age and qualitative variables were including early blood transfusion reactions. Student T test and chysquare test were applied for calculation of association between variables probability value less than or equal to 0.05 was labelled as significant.

Results

Two hundred women were included in this study. The mean age of the women was 26.61±2.98 years. There were n=139 (69.5%) women pregnant. Early transfusion reaction was observed in n=29 (14.5%) women. Fever was noted in n=16 (8%) women. Rash was observed in n=11 (5.5%) women. While Shortness of breath was observed in n=17 (8.5%) women. Hypotension and itching was noted in was observed in n=23 (11.5%) and n=3 (1.5%) women respectively (Table. I).

Table. I

Variable	Presence
Age (years)	26.61±2.98
Pregnancy status	n=139 (69.5%)
Early transfusion reaction	n=29 (14.5%)
Fever	n=16 (8%)
Rash	n=11 (5.5%)
Shortness of breath	n=17 (8.5%)
Hypotension	n=23 (11.5%)
Itching	n=3 (1.5%)

Discussion

Climent-Peris C et al[11] conducted a study on blood transfusion reaction in European population and reported early transfusion reaction in 0.2% of patients, non hemolytic febrile reactions occurred in 36 patients, allergic reaction were observed in 40 patients, circulatory overload in 3 patients and bacterial contamination was found in 2 patients. In our study early transfusion reaction was observed in 14.5% women. Observations of our study can be compared with our study.

Another study was conducted on South American population by Henderson R et al[12] and reported 0.34% of transfusion reactions. Most common reaction found as urticarial and rashes in 30% of patients, rigors found in 33% of patients, fever was reported in 72% patients. Although some other reactions were hypotension and pulmonary edema, angioedema but severity was not found all reactions were mild to moderate. This study results are comparable with our conclusion.

In a study Ahmed S et al[13] reported 11.8% transfusion reaction among which 0.01% reactions were acute hemolytic transfusion reactions and non hemolytic reactions were 9.8% and 2% allergic transfusion reactions. He also reported that these reactions can be reduced with proper grouping and providing facilities of leukocyte depletion and red cell washing at blood banks of all medical centers. We can compare these study variables with our study variables.

Gwaram B et al[14] conducted a study on acute blood transfusion reactions in Nigerian people and reported acute transfusion reactions in 3.6% of patients among which 3.3% were non hemolytic transfusion reactions, 0.03% were allergic reactions. In this study all reaction cases presented with fever (90% of cases) plus chills and rigors during or after transfusion. He recommended that blood to be transfused should be fresh bleed not stored blood to overcome the complication of reaction.

Parveen R et al[15] conducted a study on frequency on blood transfusion reactions in gynaecological patients and reported 8% of eraly transfusion reactions and most common allergic symptoms was fever which was observed in 6.67% of patients, secondly shortness of breath was found in 2.67% of patients, hypotension in 2% of patients, rashes in 1.33% and itching was observed in 0.67% of patients. This study is also comparable with our study.

Another study was conducted by Nawaz S et al[16] on gynaecological patients and frequency of blood transfusion reaction and reported 20.9% transfusion reactions, among them hemolytic reactions occurred in 4.9% of patients, non hemolytic in 9.2% of cases and at the end febrile reactions occurred in 11.7% of cases. Two cases of reactions were gone worse among them and expired. Transfusion should be done after complete taking complete vitals and and hemodynamic stability.

Another similar study was conducted on Pakistani population by Khanum F et al[17] and reported in 5% of patients. Transfusion reactions reported in this study were fever, respiratory distress, itching and chills. He also recommended that transfusion related complication can be minimized but it is impossible to stop them completely. Proper grouping and cross matching, avoidance from stored blood transfusion are major

complications that can be inhibited with gentle care.

Here is another study on this topic by *Chowdhury FS et al*[18] *and reported that transfusion reactions are severe emergencies that can be avoided.* In his study 6.66% reactions were reported of different categories. Febrile reactions were 62.5%, pulmonary congestion was observed in 12.5% of patients and allergic reactions were observed 25% of cases shortness of breath and cessation of respiration was also reported.

A study by Tahir H et al[19] reported early transfusion reaction in 87.5% of patients and delayed transfusion reaction was observed in 12.5% of patients. But he conducted this study on thalassemia patient who required multiple transfusions; results of his may differ from our study because thalassemia patients required more frequency of blood transfusion as compared to gynecological patients and chances of reaction are more in these patients. A study was conducted by Rahman et al[20] and reported 10% transfusion reactions. Internationally it was reported that rate transfusion reactions decreasing day by day due to transfusion quality improvement and qualified expert hands.

Conclusion

Results of our study reveal that frequency of early transfusion reactions is not too much high (14.5%), transfusion of blood components is safer than whole blood transfusion. Whole blood therapy should be restricted and avoided to overcome reactions due to transfusion.

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