

Evaluation of Appropriateness of Platelet transfusions in a Tertiary Care Centre

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 25 Nov 2023	Introduction: Blood transfusion is an essential part of modern health care. Transfusion is considered appropriate when it is used to treat conditions leading to significant morbidity and mortality and which cannot be prevented or managed effectively by other means. The aim of this study was to evaluate appropriateness of platelet transfusions in a tertiary care centre as per National blood transfusion guidelines. Materials & Methods: This study was conducted in a tertiary care centre. A total of 4236 blood request forms were analyzed over a period of 12 months out of which 8.3% (n=352) were for Platelets (PLT). Number of units requested were noted and appropriateness of requested transfusions was assessed according to the National guidelines on transfusion. Results: A total of 4236 blood request forms were analyzed in this study out of which 8.3% (n=352) were for Platelets (PLT). There were 352 platelet requests out of which 59.6 % (n=210) requests were considered appropriate, 30.2% (n=106) were considered inappropriate and 10.2% (n=36) requests could not be assessed due to unavailability of platelet count. Out of 30.2% (n=106) inappropriate transfusions, in 14.8% (n=52) transfusions were appropriate but number of units transfused was inappropriate and in 15% transfusion itself was considered inappropriate. Conclusion: It was observed that 30.2% (n=106) were considered inappropriate and in 10.2% (n=36) requests could not be assessed due to unavailability of platelet count. Regular audits and CMEs should be conducted and development of standard hospital transfusion guidelines are the measures which can be incorporated in this hospital to rationalize the use of blood components.
CC License CC-BY-NC-SA 4.0	Keywords: Transfusion, Appropriateness, Platelet.

1. Introduction

Blood transfusion is an essential part of modern health care. Used correctly, it can save life and improve health. However, as with any therapeutic intervention, blood transfusion may result in acute or delayed complications like acute hemolytic reactions, transfusion-related acute lung injury, red cell alloimmunization, platelet transfusion refractoriness and transfusion immunosuppression and carries the risk of transmission of infectious agents such as HIV, hepatitis viruses, syphilis and Chagas disease. It is also a scarce human resource. The decision to transfuse blood or blood products must be based on a careful assessment of clinical and laboratory indications that indicate that transfusion is necessary to save life or prevent significant morbidity.

Transfusion is considered appropriate when it is used to treat conditions leading to significant morbidity and mortality and which cannot be prevented or managed effectively by other means (1). The aim of this study was to evaluate appropriateness of platelet transfusions in a tertiary care centre as per National blood transfusion guidelines (2).

2. Materials And Methods

This study was conducted in a tertiary care centre. A total of 4236 blood request forms were analyzed in this study out of which 8.3% (n=352) were for Platelets (PLT). Number of units requested were noted and appropriateness of requested transfusions was assessed according to the National guidelines on transfusion (2).

Each transfusion was classified as one of the following categories:

1. Transfusion appropriate and number of units transfused appropriate
2. Transfusion appropriate but number of units transfused inappropriate
3. Transfusion considered inappropriate
4. Quality of documentation did not allow an accurate decision regarding appropriateness (3).

Request forms of neonates and children upto 18 years of age were excluded from the study. CT ratio was calculated with the formula: Cross-match (C) to Transfusion ratio = No. of units cross-matched / No. of units transfused. Microsoft Excel was used for data entry and analysis.

3. Results and Discussion

A total of 4236 blood request forms were analyzed in this study out of which 8.3% (n=352) were for Platelets (PLT). In those 352 requests for platelets, platelet count was mentioned in 71.6% (n=252) forms and not mentioned in 28.4% (n=100). There were 352 platelet requests out of which 59.6 % (n=210) requests were considered appropriate, 30.2% (n=106) were considered inappropriate and 10.2% (n=36) requests could not be assessed due to unavailability of platelet count. Out of 30.2% (n=106) inappropriate transfusions, in 14.8% (n=52) transfusions were appropriate but number of units transfused inappropriate and in 15% transfusion was considered inappropriate. 1405 units of Platelets were ordered for cross matching and 1319 units were issued and CT ratio came out to be 1.1.

Many studies suggest that monitoring of blood transfusion practice and its healthy criticism have brought a positive response among clinicians and thus decrease in the number of inappropriate transfusions (4). This study was therefore conducted to evaluate appropriate usage of platelets.

In a study conducted by Thomson et al, it was stated that reason for transfusion were documented in 38.5% (n=77), deduced in 57% (n=114) and unknown in 4.5% (n=9). Correct documentation of all blood components were mentioned only in 33% (n=66). Adequate investigation details before transfusion was mentioned in 86.5% (n=173) and after transfusion was mentioned in 76.5% (n=153). Documentation of response to transfusion was mentioned in 35% (n=70) (5). Inadequate documentation was definitely a problem in the present study. Diagnosis and indications were collected from various wards through phone in many cases and could not be traced in 10.2% (n=36) forms even after these efforts. Investigation details that are not mentioned (28.4%) were collected from Hospital Information System (electronic data).

In a prospective study conducted by Verma et al at a multidisciplinary hospital in North India over a period of 2 months, 66% of platelets were transfused prophylactically and 34% therapeutically. 23% of prophylactic and 15% of therapeutic transfusions were considered inappropriate. Most common reason stated for inappropriateness of prophylactic transfusions was unavailability of pre-transfusion platelet count (6). In a study conducted by Hui et al it was stated that 88% of Platelet transfusions were appropriate (7). In the present study, there were 352 platelet requests out of which 59.6 % (n=210) requests were considered appropriate, 30.2% (n=106) were considered inappropriate and 10.2% (n=36) requests could not be assessed due to unavailability of platelet count.

In a study conducted by Singh et al, overall C:T ratio was 3.7:1 (8). In another study conducted by Chawla et al, C/T ratio was around 2.5 (9). In the present study, overall CT ratio was 1.3 and it was 1.1 for platelets. This indicates that there was significant blood usage in this hospital.

4. Conclusion

It was observed that 30.2% (n=106) were considered inappropriate and in 10.2% (n=36) requests could not be assessed due to unavailability of platelet count. Regular audits and CMEs should be conducted and development of standard hospital transfusion guidelines are the measures which can be incorporated in this hospital to rationalize the use of blood components.

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