

Original article:

Analysis of blood transfusion practices by medicine department in a tertiary care hospital

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Abstract

Background: There is increasing need for appropriate utilization of blood and its components as the concern for cost, safety and adequacy of blood supply is growing. An analysis of transfusion practices in a hospital set up can be of help to identify key areas where there is a need to change policy and formulate strategies for clinicians' education.

Objective: The present study aims to evaluate the transfusion practices, pattern of blood requisition, utilization trends & appropriateness by medicine department.

Material and methods: A concurrent audit was conducted on 15126 blood requisitions which were reviewed for stated indications & pre transfusion haematological values (transfusion triggers). Utilization trends were calculated as CT ratio, transfusion probability, transfusion index & overall blood utilization.

Result: Out of 15126 requisitions, 6384 units were transfused. 6270 requisitions were urgent . Whole blood utilization was 24%. Single unit utilization was 80. Transfusion Trigger was followed in 97%, 90%, & 76% for packed cells, platelets & FFP respectively. Cross match to transfusion ratio was 1.4, transfusion index was 0.7 and transfusion probability was 32. Overall blood utilization was 70%.

Conclusion: CT ratio of <2.5, transfusion probability >30, and transfusion index >0.5 indicated significant usage of blood by department of medicine. There was high proportion of appropriate use of packed cells mainly because of rational use of this component by the clinicians.

Key words: audit, blood components, blood requisition, transfusion trigger.

Introduction

There is increasing need for appropriate utilization of blood and its components as the concern for cost, safety and adequacy of blood supply is growing. Appropriate use of blood or its component remains a formidable challenge faced by clinicians in a developing country. It has been observed that there is a gross over and inappropriate ordering of blood and its products in many medical centers in India and

abroad and transfusions are being given in response to habit or availability and not for indications.

This may have medical, legal and ethical complications regarding patient care. An analysis of transfusion practices in a hospital set up can be of help to identify key areas where there is a need to change policy and formulate strategies for clinician education.

The judicious and appropriate use of blood and blood products refers to its safe transfusion only to manage

a condition which can otherwise lead to significant morbidity or mortality and cannot be managed effectively by some other means. Use of components, improved communication between clinicians and blood bank and regular auditing of transfusion practices holds promise for judicious blood usage.

Aims & objectives

- 1) To review transfusion practices-
pattern of blood requisition
utilization trends
appropriateness

- 2) To create awareness, formulate guidelines and improve communication with clinicians for judicious use of blood and its components.

Materials and methods

Ethical clearance and informed consent.

Study period-3yrs

Type of study- concurrent

Case records- blood requisitions, type of component, stated indication & pre transfusion haematological values.

WHO guidelines regarding transfusion of blood and its products: (Transfusion trigger)

Safe limits of the vital investigations of the recipient patient below which transfusion of respective blood and blood products can be done.

Investigation	Target value
Hemoglobin(Hct)	<10g/dl(0.33)
Platelet count	>50 x 10 ⁹ /L
Prothrombin time	<1.5 x control

Study of Utilization trends – calculated as:

- CT ratio:Units cross matched / Units transfused.
- Transfusion probability :
no. of patients transfused x 100/ no. of units cross matched
- Transfusion index :
Units transfused / units cross matched
- Overall blood utilization:
Units transfused x100 / units cross-matched

CT ratio of <2.5, transfusion probability of >30 and transfusion index of >0.5 indicates significant blood usage.

Data analysis.

Study of appropriateness by comparative studies.

Observation & Results

	Units	%age	SU
WHOLE BLOOD	1485	24%	80%
COMPONENT	4899	76%	

Component	Units	%age	Indications	Tr Trigger	NA
Packed cells	2324	47%	Anemia(69%)	97%	11%
FFP	2040	42%	Liver disorder(40%)	76%	32%
Platelet	535	11%	Hematological (60%)	90%	07%

Blood usage by department of medicine:

Number of patients: 2924

Total requisition: 15126

Total units cross matched: 9044

Urgent: 6270

Total units transfused: 6384

Cross match-Transfusion ratio(C/T ratio) = 1.4

Transfusion probability: 32

Transfusion index: 0.7

Overall blood utilization : 70%

Experiences shared by others:

Present study	Saxena P et al		
	1992	1993	1994
80%	87%	87%	89.9%

Whole blood , SU utilization

Packed cells

Present study		Vijay PA et al	
utilization	Indication	utilization	Indication
47%	Anemia (69%)	32%	Anemia(80%)

FFP

Present study			Kaur P et al		
utilization	Indication	Inapp.	utilization	Indication	Inapp.
42%	Liver disorder (40%)	24%	26%	Liver disorder (38%)	22%

➤ **Platelets**

There was no utilization of platelets in the study by Vijay PA et al.

In our study also platelet utilization was least as compared to other components.

➤ **CT ratio was comparable to study by Kaur et al which was 1.4 for department of medicine.**

Conclusion

- Component utilization was higher than whole blood utilization.
- Single unit utilization should be discouraged, can be minimized by following WHO guidelines, considered subtherapeutic.
- High proportion of appropriate use of packed cells mainly because of rational use of this component by the clinicians.

- Transfusion Trigger was followed in 97%, 90%, & 76% for packed cells, platelet & FFP respectively.
- C/T ratio of 1.4, Transfusion probability-32, Transfusion index-0.7 and overall blood utilization was 70%.

This indicated significant blood usage by department of medicine.

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