

Assessment of Transfusion Practices in a Tertiary Care Centre: An Institutional Based Study

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ABSTRACT

Background: Blood transfusions perform a vital role in the resuscitation and management of both medically compromised and patients in need of surgery. The blood transfusions are a primary need, whenever any improvement in oxygen delivery at tissue level is required and secondly to improve blood volume. The need of transfusion for patients undergoing any surgical procedures are being overestimated, as blood units arranged as a protocol for an elective surgery remain unutilized and usually get discarded.

Materials and Methods: The current study was carried out in Department of IHBT, AIIMS, Jodhpur, Rajasthan, India. The study was pre-approved by the ethics committee of our collage. The six months study was conducted in all the major departments of the hospital covering nearly 184 cases of blood procurement.

Results: A total of 184 patients selected, 744 units of blood were requested from the blood bank of our hospital. The maximum numbers of transfusion requests were from obstetrics and gynaecology department, i.e. 312 units out of 744 units (42%).

Conclusion: The current study was able to conclude that in our hospital, out of the total amount of blood requested and cross-matched for patients only half of the amount was actually utilized in the procedures. This did increase the workload as well as financial costs for the patient ultimately.

Keywords: Hospital, Resuscitation, Transfusion.

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INTRODUCTION

Blood transfusions perform a vital role in the resuscitation and management of both medically compromised and patients in need of surgery.¹ The blood transfusions are a primary need, whenever any improvement in oxygen delivery at tissue level is required and secondly to improve blood volume.² The need of transfusion for patients undergoing any surgical procedures are being overestimated, as blood units arranged as a protocol for an elective surgery remain unutilized and usually get discarded. This type of culture has led to outdated and wastage of blood, waste of time and resources of the blood bank and ultimately increasing patient's treatment cost.³

The situation in developing countries is not very soothing in terms of availability of adequate safe blood due to the lack of blood donors, lack of proper facilities for storage, poor knowledge of blood component preparation and most dangerous of all is inappropriate blood ordering and its utilization.⁴

Also the excessive ordering of blood leads to an unintentional misuse of blood bank services and resources. It has become part of the protocol for any surgeon and physician to order request for cross-matching of blood on the basis of a compulsion. It was seen as a trend that most of the medical and surgical departments

ordered more units of blood than what were actually needed for procedures.⁵ It becomes necessary to identify certain areas where costs could be significantly cut without impacting the quality of care. Considering a review of blood procuring habits and blood utilization data in Hospital Transfusion Committee meetings can help in improving these services and initiate measures to regulate current blood transfusion practices. Ideally a cross-match to transfusion ratio is used as a measure of the efficiency of blood procuring culture. The aim of the present study was to assess transfusion practices in the hospital.

MATERIALS AND METHODS

The current study was carried out in Department of IHBT, AIIMS, Jodhpur, Rajasthan, India. The study was pre-approved by the ethics committee of our collage, headed by the dean of our institute. The six months study was conducted in all the major departments of the hospital covering nearly 184 cases of blood procurement. The department of orthopaedics, department of trauma and intensive care, emergency, general surgery, obstetrics and gynaecology and paediatrics were majorly focused. Whereas, department of internal medicine, department of ENT, department

of oncology, dental and ophthalmology were excluded from the study. As the units procured were less than 10 in six months. The analysis was accompanied with blood request forms and the cross-match worksheets of the blood bank for each case.

The meticulous recording of data was made under the headings; (a) the number of patients for whom transfusion requests was made, (b) number of units cross-matched, (c) number of units issued, (d) number of units transfused, (e) total number of units

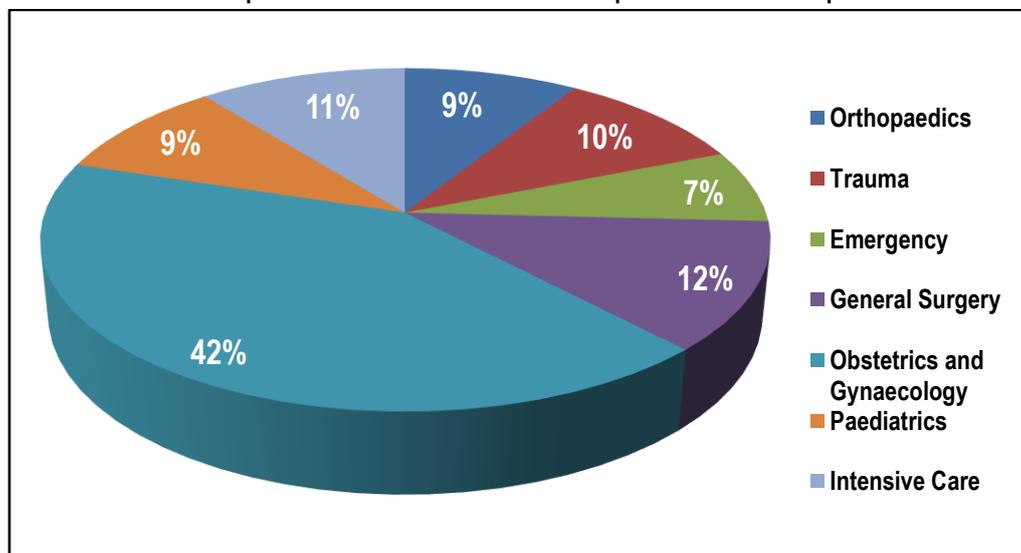
unutilized in the procedure. In addition, all cross-matched units which were not collected for transfusion within 72 hours of seeking were considered as not issued.

These units were reserved and stored in the blood bank and re-cross-matched for other patients. Also, all units issued out and not returned to the blood bank within 2 hours were considered as utilized or transfused units, as blood units need proper storage and preparation before re using.

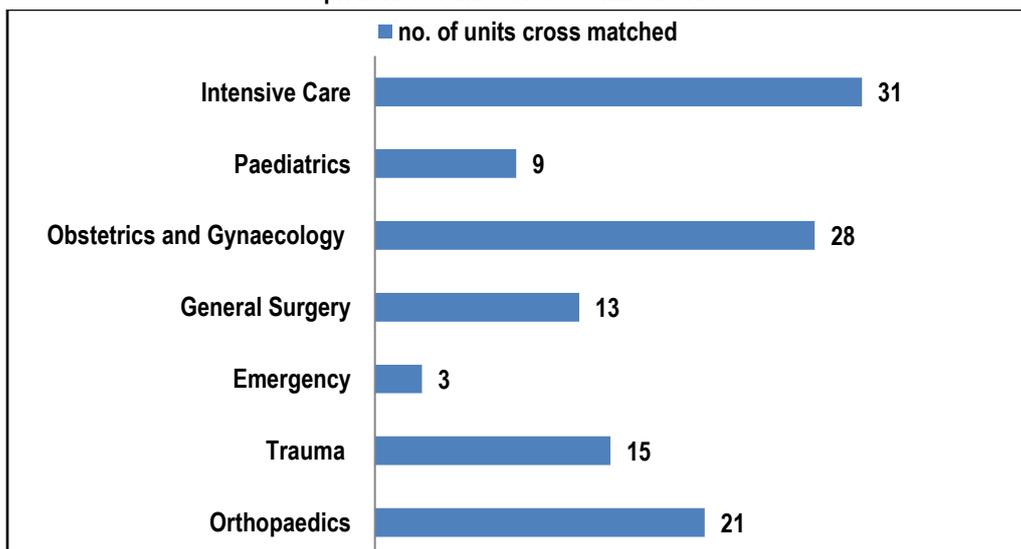
Table 1: The amount of blood units required in different departments

Name Of Department	no. of patients	no. of units requested	no. of units returned	no. of units cross matched
Orthopaedics	54	67	21	21
Trauma	22	74	20	15
Emergency	19	51	19	3
General Surgery	13	90	41	13
Obstetrics and Gynaecology	35	312	18	28
Paediatrics	10	70	25	9
Intensive Care	31	80	27	31
Total	184	744	177	120

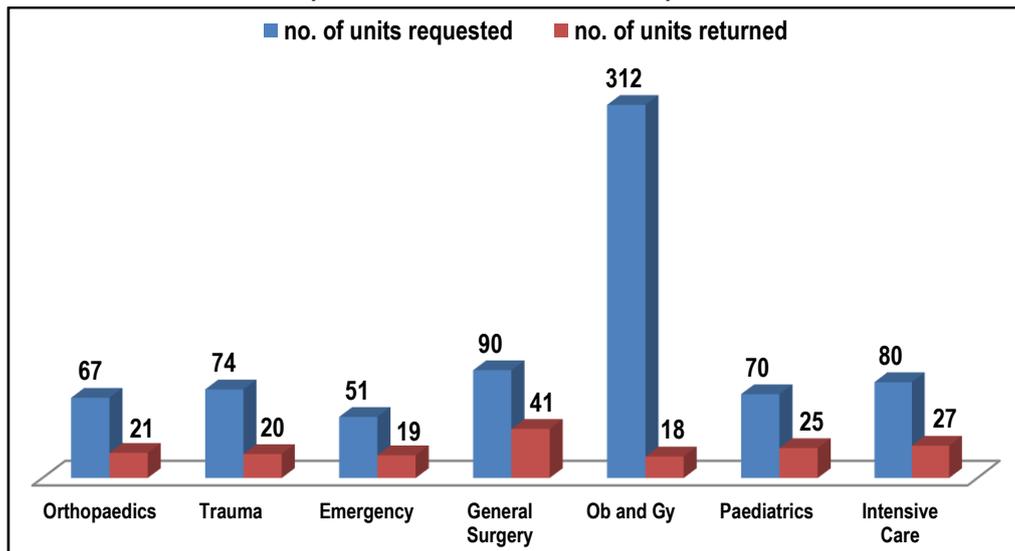
Graph 1: The amount of blood units required in different departments



Graph 2: No. of units of cross matched blood



Graph 3: Number of units of blood required and returned



RESULTS

A total of 184 patients selected, 744 units of blood were requested from the blood bank of our hospital. (Table 1) The maximum numbers of transfusion requests were from obstetrics and gynaecology department, i.e. 312 units out of 744 units (42%). The least number of units were requested from the department of emergency, i.e. 67 units out of 744 units (9%). (Graph 1) In terms of cross-matching intensive care unit conducted the most number of matches for all 31 patients. Whereas, department of trauma conducted merely 3 cross-matching in total of 22 patients. (Graph 2) Department of general surgery returned the maximum number of blood units returned within 2 hours of being dispatched. Whereas department of obstetrics and gynaecology retained the maximum number of units, rendering most number of units as waste. (Graph 3)

DISCUSSION

Patients cost turns out to be a major concerning factor for patients in developing countries. Especially in the private institutes, where without any proper state support and insurance facilities the expenses of treatment are borne by the patients themselves.⁶ In a study from the neighbouring state neither the public nor the private hospitals were observed meticulous or rational in the use of blood.⁷ The trend of conducting timely auditing and periodic feedbacks turn out to be a crucial step in improving current blood transfusion and utilization methods. By involving the entire team involved in the surgery an effort can be made to reduce the total number of units procured for the surgery by avoiding over procuring and later rendering it as waste. A suboptimal transfusion practice or let's say a less judicious methods which are characterized by high CTR and NUP leads to wastage of blood and unavailability of blood for patients who are in actual need. This happens because the cross-matched blood is usually held in reserve for variable period of time which usually is 72 hours before the utility.^{8,9} This leads to a premature transfusion requests made by junior/ less experienced doctors which most of the time are cancelled after a review by a senior consultant. Another reason which was observed was the postponement of operative procedures due to the improper patient preparation or busy

schedule of operation theatres and staff. An effective method of maximum surgical blood ordering schedule should be devised using national transfusion guidelines, proper audits, staff training programs, clinicians meetings and the proper selection of the hospital transfusion committee. This will lead to reduce the number of unused cross matched blood units by maintaining inventory. Leading to reduced financial costs and freer technical hands.¹⁰ Considering The other group where transfusion probability is very high, a maximum surgical blood ordering schedule (MSBOS) should be implemented, so as to identify the number of units to be cross-matched and kept handy prior the procedure. By simply considering the methods proposed in this study problem of over-ordering will decrease considerably and will lead to maximum usage and less wastage.¹¹ The growing need of blood transfusions for the survival of patients in suitable cases is now clear to everyone. Without adequate blood and blood donations, majority of the operative procedures cannot be carried out without any risk.¹² On the contrary it is also impossible to predict or estimate blood consumption or blood loss during any surgery. Thus, a strict implementation of MSBOS within any hospital institution is actually difficult but with proper efforts from clinician and senior doctors, blood inventory can be maintained and wastage can be prevented.

CONCLUSION

The current study was able to conclude that in our hospital, out of the total amount of blood requested and cross-matched for patients only half of the amount was actually utilized in the procedures. This did increase the workload as well as financial costs for the patient ultimately. So, more scientific and meticulous policies for ordering a transfusion are in need to be implemented. This is only possible with the discussion, proper audits and agreement made by the Hospital Transfusion Committee.

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