■ *Short Communication*

Blood ordering and transfusion practice in routine operation theatres of BPKIHS: a pilot study

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Abstract

Background: The practice of blood ordering before surgery is usually excessive. Hazards of over ordering include burden to blood banking, outdating of blood, unnecessary wastage of hospital resources, mental and physical stress to patient party. A study on blood ordering practice provides important feedback for improvement of blood ordering service system and developing Maximum Surgical Blood Ordering Schedule (MSBOS). **Objectives:** To find out the ratio between cross-matched and transfused blood units (C:T ratio) in routine operation theatres (OT) of BP Koirala Institute of Health Sciences (BPKIHS) and the time lag between blood demand and arrival in the OTs. **Methods:** Data of 94 patients undergoing elective surgery with potential need for blood transfusion over the period of one month were collected and analyzed prospectively. The variables noted include age, gender, body weight, blood group, hemoglobin level, diagnosis, type of surgery, maximum allowable blood loss, actual blood loss; number of blood units cross-matched and actually transfused. **Results**: Altogether, 161 blood units were cross matched and only 24 of them were transfused making the C:T ratio of 6.7:1. Fourteen out of 24 units were transfused only in gynecological & obstetrical patients. The mean time interval between the demand and the arrival of blood units was 10 ± 7.6 minutes. **Conclusion:** The overall C:T ratio in the routine OT of BPKIHS is comparatively high. Further study with larger sample size is needed for recommending MSBOS.

Keywords: Blood transfusion, C:T Ratio, MSBOS.

Introduction

The Maximum Surgical Blood Ordering Schedule (MSBOS)[1] is a criterion developed from institutional usage statistics providing a figure for the number of blood units to be cross-matched for any given surgical procedure. It is a table of elective surgical procedures listed against the number of blood units to be routinely cross-matched.

Blood ordering before surgery is usually excessive. Hazards of over ordering include burden to blood banking, outdating of blood and extra cost, unnecessary wastage of hospital resources, mental and physical stress to the patients and their relatives. A transfusion service may follow any of the several policies that lead to more efficient use of blood inventory control and consequently a reduction in blood bank operating costs. The most important policy is the 'Type and Screen' whereby units are not cross matched until an actual need for transfusion occurs.[2] We aimed to study current practices so that it would help to develop MSBOS in our hospital.

Methods

This one month pilot study was carried out in routine OTs including gynaecology and obstetric OT of BPKIHS, a community based university hospital located in eastern region of Nepal. The number of

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blood units cross-matched, received in operation theatre, transfused and the respective times of demand and arrival of blood were noted to calculate the C:T ratio and the duration of arrival of blood after demand. Data were entered in Microsoft Excel and analyzed using SPSS for windows.

Results

Out of the 94 patients of different surgical departments who underwent elective surgery during the study period of one month, 30 (32%) were male and 64 (68%) female with the age ranging from 12 years to 85 years.

The most frequently encountered blood group was O+ve (35%) followed by A+ve (29%) and B+ve (23). AB+ve group was found in 10% subjects while O–ve and A-ve group was found in 2% and 1% patients respectively. B-ve and AB-ve blood groups were not encountered at all.

Mean time (mean ± S.D.) for the arrival of blood in the OT after ordering was 10 ± 7.6 minute. The minimum time taken was 7 minutes in two cases while more than 20 minutes was required in 7 cases. Among various departments**,** the C: T ratio was highest in the General Surgery Department and was the least in the Ottorhinolaryngology department (Table 1).

Table 1: Department-wise distribution of patients, cross-matched blood units and transfused blood units with calculated C:T ratio

Department	No. of Patients	Blood Demand (unit)	Blood Supplied	C:T Ratio
General Surgery	28	41	3	13.7:1
Orthopaedic	15	30	5	6:1
Ottorhinolaryngology	6	9	2	4.5:1
Gynecology and Obstetrics	45	81	14	5.78:1
Total	94	161	24	6.7:1

Discussion

The main finding of the study is that in overall one unit of blood is transfused out of approximately 7 units cross-matched and it takes an average of 10 minutes for arrival of the blood for use after ordering in BPKIHS. In gynaecology and obstetrics patients our C:T ratio of 5.8:1 is nearly equal to 5.7:1 as proposed by Gilan Penny et al[3] which is probably a coincidence as several factors including types of procedures performed, capacity and facilities of the of the blood banks turnover of blood units etc are likely to influence the ordering practice. The C:T ratio we calculated in our study is higher than the blood cross match to transfusion ratio of 2.5:1 as suggested to be realistic and economic by Rouault and Gruenhagen.[4] This finding could also be the results of the influence of the factors mentioned above.

Though our sample includes a wide range of age groups, patient conditions, surgeries and surgeons, the sample size is too small to recommend MSBOS. Hence further more study for the recommendation of MSBOS is advocated.

Conclusion

The mean C:T ratio, 6.7:1 in our hospital is much higher than the recommended C:T ratio of 2.5:1. The interval between the demand and arrival of blood units was 10 ± 7.6 minute (Mean ± S.D).

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