

Blood transfusion in Obstetrics and Gynaecology: A retrospective analysis

Kawthalkar Anjali¹, Kose Varsha², Joshi Sulabha³, Bhalerao Anuja¹, Kumare Bhavana⁴, Somalwar Savita⁴

Abstract:

Blood transfusion is an important part of patient management in Obstetrics and Gynaecology. There is a need to periodically assess the blood transfusion practices to identify the areas of improvement. A retrospective analysis of ninety cases was done to study the indications of blood transfusion, use of whole blood and blood components and measures taken to minimize the need of blood transfusion. The indications in obstetric cases are evenly distributed between three – anaemia complicating pregnancy, obstetric haemorrhage and postpartum correction of anaemia. In Gynaecology, majority of the subjects (53.1%) received blood transfusion for preoperative correction of anaemia in cases of abnormal uterine bleeding. In 51.1% cases, whole blood transfusion was given for correction of anaemia. Special measures to minimize BT requirement were practiced in 41.4% of obstetric cases and 25% of gynaecology cases. There is a need to change the inappropriate blood transfusion practices such as use of blood transfusion for preoperative correction of anaemia in elective surgery, use of whole blood for correction of anaemia. Use of alternative measures to reduce the need of blood transfusion should be practiced more aggressively.

¹Associate Professor,

²Lecturer,

³Professor and Head,

⁴Lecturer, Department of Obstetrics and Gynaecology, NKP Salve Institute of Medical Sciences and Research Centre, Digdoh hills, Hingana road, Nagpur-440019.

anjalikawthalkar@gmail.com

Keywords: Blood transfusion, Blood components, Indications of blood transfusion.

Introduction

Blood transfusion is the integral part of patient management in Obstetrics and Gynaecology. Blood transfusion facility is the backbone of this branch of medicine. Blood is a precious product as it needs to be obtained from human beings and it is a costly product. It needs to be used judiciously. Prescription of blood is usually dependent on clinician's assessment of blood loss and patient's condition. In the modern era of evidence-based medicine, there is a need to periodically review blood transfusion practices at a tertiary care centre.

Fears about the safety and availability of blood in the UK have prompted efforts to encourage evidence-based blood transfusion in all areas of medicine. Unfortunately, there is little information from randomised controlled trials to inform best practice in blood transfusion. The Royal College of Obstetricians and Gynaecologists (RCOG) has recently produced guidelines for the appropriate use of blood products that neither compromises Obstetric patients nor exposes them to unnecessary risk (1).

Long-term complications of allogenic transfusion have a bigger impact on the obstetric patients, as patients are young. These long-term complications are rarely discussed outside the world of blood banking but would include transfusion-related immune suppression, microchimerism, alloimmunization and possibly an increase in the risk of blood-borne cancers (2).

Epidemiological data regarding blood transfusion is useful in that it is an important first step in answering the question regarding how much blood is transfused

(gross data) and who is receiving the blood (description of recipient populations). However, this in itself is essentially nothing more than a data gathering exercise and will not change or influence practice. Addressing the concern as to why blood is transfused in various clinical situations is by far the most challenging question. Answering this question has the potential to impact substantially on the other two questions and will be the only way to effectively control blood usage (3).

The present study has been carried out to understand the practice of blood transfusion in the department of Obstetrics and Gynaecology. It will help in the formulation of future departmental blood transfusion guidelines.

Objectives

1. To study the indications of blood transfusion in Obstetrics and Gynaecology.
2. To study the use of blood components in Obstetrics and Gynaecology.
3. To study the measures to minimize the requirement of blood transfusion.

Material and Methods

The present study was carried out over a period of one year in the department of Obstetrics and Gynaecology at tertiary care centre. Retrospective analysis of one year data, available in the blood transfusion register, was done to study blood transfusion practice. Retrospective analysis of 90 patients who were given blood transfusion was done from the data available in

indoor files, to study indications of blood transfusion and use of blood components.

Results

Total number of blood transfusions given to the women admitted in the department of Obstetrics and Gynaecology over a period of one year was 1008. 632 transfusions were given to the obstetrics patients,

whereas 376 transfusions were given to the gynaecology patients. A detail analysis of 90 patients who received blood transfusion showed the following results: Out of 90 patients, 58 were obstetrics and 32 were gynaecology cases. To know the status of anaemia at the time of hospitalization, haemoglobin level was seen. Table 1 shows the distribution of cases according to the haemoglobin level.

Table 1: Haemoglobin % on admission

Ob/gyn	>11gm%	8to10.9gm%	6to7.9gm%	4to5.9gm%	<4gm%	Total
Obstetrics	1	21	23	12	1	58
Gynaecology		7	15	7	3	32
	1(1.1)	28(31.1)	38(42.2)	19(21.1)	4(4.4)	90

All patients (except 1) had anaemia at the time of hospitalization. Four women had very severe anaemia with Hb % of less than 4 gm%. Majority of the patients (42.2%) had moderate anaemia in the range of 6-8 gm%.

Table 2: Distribution of obstetric cases as per trimester of pregnancy

Trimester	Number	Percentage
First	12	20.6
Second	4	7
Third and <37 weeks	18	31
Term (>37 weeks)	24	41.4
Total	58	100

As shown in Table 2, majority of obstetrics patients (41.4%) who required blood transfusion were term pregnancies (gestational age >37 weeks).

Table 3: Indications of blood transfusion in obstetrics

Indication	Subgroup	Number	Percentage
Anaemia in pregnancy		20	34.5
	Moderate anaemia at term	13	
	Severe anaemia	4	
	Sickle cell disease	3	
Obstetric Haemorrhage		21	36.2
	First trimester haemorrhage	14	
	APH	3	
	PPH	4	
Postpartum anaemia		17	29.3
Total		58	100

As shown in Table 3, the indications in obstetric cases are evenly distributed between three – anaemia complicating pregnancy, obstetric haemorrhage and postpartum correction of anaemia. Out of 14 cases of first trimester haemorrhage, 4 cases were of abortion, 6 cases were of ruptured ectopic pregnancy and 4 cases were of vesicular mole. Three patients had sickle cell disease complicating pregnancy.

Table 4: Indications of blood transfusion in gynaecology

Indication	Subgroup	Number	Percentage
Abnormal uterine bleeding		24	75
	Preoperative anaemia correction	17	53.1
	Preop and postop postoperative	5	
Genital malignancies		2	
		8	25
Total		32	100

As shown in Table 4, in Gynaecology, majority of the subjects (53.1%) received blood transfusion for preoperative correction of anaemia in cases of abnormal uterine bleeding.

Table 5: Number of blood transfusions received by individual subject

Number of BTs	Obstetrics cases	Gynaecology cases	Total	percentage
1	26	10	37	41.1
2	17	10	27	30
3	8	7	13	14.4
4	1	4	6	6.7
5	0	1	1	1.1
>5	6	0	6	6.7
Total	58	32	90	100

As shown in Table 5, majority of the subjects (41.1%) received single blood transfusion. Six patients who received more than five blood transfusions were all obstetric cases.

Table 6: Analysis of cases requiring more than 5 blood transfusions

Sr. No.	Diagnosis	Whole blood	PRC	Platelets	FFP	Total
1	Ruptured ectopic pregnancy	2	3	-	2	7
2	Post-LSCS acute fatty liver with DIC	2	1	-	10	13
3	Post-LSCS infective Hepatitis with DIC	2	1	-	10	13
4	Episiotomy Hematoma	4	2	-	-	6
5	LSCS with ITP	1	-	8	-	9
6	LSCS with ITP	3	-	8	-	11

Table 7: Distribution of blood transfused as whole blood or blood components

Type of BT	Obstetric cases	Gynaec cases	Total	Percentage
Whole blood	71(32.3%)	19(8.6%)	90	40.9
Packed Red Cells	40(18.2%)	56(25.5%)	96	43.6
Platelets	22	-	22	10
Fresh Frozen Plasma(FFP)	12	-	12	5.5
cryoprecipitate	-	-	-	-
Total no of BT	145	75	220	

As shown in Table 6, total number of blood transfusions given to the ninety subjects was 220, out of which 145 were given to obstetric cases and 75 were given to gynaecology cases. As shown in Table 7, obstetric cases received whole blood in majority of the cases (32.3%), whereas gynaecology cases received packed red cells in the majority of the cases (25.5%). Other blood components, such as platelets and FFPs were used only in obstetric cases.

Table 8: Indications of whole blood transfusions (WBT)

Indication of WBT	Obstetric cases	Gynaecology cases	Total
Correction of anaemia	33	13	46 (51.1%)
Haemorrhage	38	6	44 (48.9%)
Total	71	19	90

As shown in Table 8, in 51.1% cases, whole blood transfusion was given for correction of anaemia.

Table 9: Measures to minimize the requirement of blood transfusion

Measure	Number	Percentage
Obstetric cases	24/58	41.4
Antepartum IV iron	1	
Postpartum IV iron	20	
Ante and postpartum IV iron	2	
Uterine Artery Ligation	1	
Gynaecology	8/32	25
Preoperative IV iron	1	
Pre and post-op IV iron	2	
Post-operative IV iron	5	

General measures such as antepartum oral iron administration and use of uterotonics in the third stage of labour were practiced in all obstetrics cases. As shown in Table 9, special measures to minimize BT requirement were practiced in 41.4% of obstetric cases

and 25% of gynaecology cases (Table 9). There was no blood transfusion reaction observed in the study group. There was no documentation of indication of blood transfusion in the indoor files. Consent for blood

transfusion was not taken. Blood transfusion was prescribed by the individual treating gynaecologist.

Discussion

Blood bank facility forms the backbone of every tertiary care centre and especially of the department of Obstetrics and gynaecology. As shown in Table 1, moderate to severe degree of anaemia (haemoglobin percentage less than 8 gm %) is seen in majority of women getting admitted in the department of Obstetrics and Gynaecology. This pre-existing anaemia is the most important risk factor for morbidity as well as mortality in these women.

As the pregnancy advances and reaches near term, requirement of blood transfusions for correction of anaemia keeps on increasing in obstetrics (Table 2). As per Royal College of Obstetrics and Gynaecology guidelines (4), blood transfusion is rarely recommended in obstetrics if Hb level is >10.5 gm % and patient is stable, but it is almost always required if HB is < 6 gm %. Majority of women in the present study had HB level less than 6 gm % at the time of hospitalization, as shown in Table 1.

In a similar study conducted in Pakistan (5) about the blood transfusion practice in women undergoing caesarean section, indication of blood transfusion was low haemoglobin in the majority followed by on-going blood loss. In the present study also, correction of anaemia was the commonest indication in antenatal and postnatal cases (Table 3).

In present study, preoperative correction of anaemia is the most common indication of blood transfusion in cases of Abnormal Uterine Bleeding (AUB). The standard treatment of AUB with anaemia is medical therapy, such as iron supplementation and progestogen therapy followed by surgery. According to WHO, blood is often unnecessarily given to raise a patient's haemoglobin level before surgery or to allow earlier discharge from hospital. These are rarely valid reasons for transfusion (6).

Also, whole blood transfusion was given for anaemia correction in 51.1 % of cases. As per WHO, the preparation of blood components allows a single blood donation to provide treatment for two or three patients and also avoids the transfusion of elements of the whole blood that the patient may not require (6). Packed Red Cell transfusions should be preferred in these cases.

Similar observations were made in a UK study titled 'retrospective analysis of transfusion outcomes in pregnant patients at tertiary obstetric centre' (7). In this retrospective study over a period of one year, 74 patients received blood transfusions. Mean pre-transfusion haemoglobin value was 7.6 gm % and 55 % of the patients received 1-2 transfusions. In 34 % of the cases, no specific indications for transfusions were obtained. As in the present study, documentation of indication and consent was lacking in this study also.

In the present study in 41.4 % of obstetric cases and 25% of gynaecology cases, measures to minimize the need of blood transfusion were practiced. In an editorial written in International Journal of Anaesthesia titled 'Blood transfusion: more is not necessarily better', authors have stressed on the use of IV iron sucrose in obstetric cases (2). Increased use of IV iron sucrose in antenatal period will further minimize the need of transfusions.

Conclusion

The indications of blood transfusion in obstetric cases are evenly distributed between three indications – anaemia complicating pregnancy, obstetric haemorrhage and postpartum correction of anaemia. Majority of the patients (53.1%) received blood transfusion for preoperative correction of anaemia in cases of abnormal uterine bleeding in gynaecology cases. There is a need to change this practice by correcting anaemia by drugs to avoid this inappropriate use of blood.

Use of blood components should be encouraged. Measures to minimize the need of blood transfusion should be practiced aggressively. Documentation of indications and consent for blood transfusion should be done. Formulation and display of Institutional blood transfusion guidelines is strongly recommended.

References:

1. Parker J, Thompson J, Stanworth S. A retrospective one-year single-centre survey of red cell transfusions. *International Journal of obstetric Anaesthesia* 2009; 18:309-313.
2. Clark V, Waters JH. Editorial - Blood transfusions: more is not necessarily better. *International Journal of Obstetric Anaesthesia* 2009; 18:299-301.
3. Sweeney JD. Can physician prescribing patterns really be influenced and are there obstacles? *International Journal of Obstetric Anaesthesia* 2009; 39(2): 139-144.
4. Royal College of Obstetricians and Gynaecologists. Blood transfusion in Obstetrics. Green-top Guideline No 47. London: RCOG; 2008.
5. Ismail S, Siddiqui S, Shafiq F, Ishaq M, Khan S. Blood transfusion in patients having caesarean section: a prospective multicenter observational study of practice in three Pakistan hospitals. *International Journal of Obstetric Anaesthesia* 2014; 23: 253-259.
6. World Health Organization Blood Transfusion Safety Geneva. The clinical use of blood Handbook.
7. Butwick AJ, Aleshi P, Fountaine M, Rieley ET, Goodnough LT. Retrospective analysis of transfusion outcomes in pregnant patients at tertiary obstetric centre. *International Journal of Obstetric Anaesthesia* 2009; 18: 302-308.