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Original Research Article

Blood transfusion trends in obstetrics and gynaecology: an Uttar Pradesh government medical college-based study

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ABSTRACT

Background: Blood transfusion holds utmost importance in comprehensive obstetric care and Gynaecology. The present study has been done to evaluate the indications of blood transfusion in the Obstetrics and Gynaecology Department.
Methods: The retrospective observational study was conducted between April 2023 to April 2024 in Department of Obstetrics and Gynaecology, Government Medical College, Saharanpur.
Results: A total of 257 units of Blood was transfused between April 2023 to April 2024 in Obstetrics and Gynaecology Department. 60.6% transfusion were in age group 21-30 years. 48.26% transfusion were in hemoglobin 7-9 gm/dl. Most common blood group transfused was B positive 40.79% and 85.2% transfusion were packed red blood cell, 84.07% had single unit blood transfusion, 57.25% had transfusion for anemia in pregnancy, 36.84% transfusion were for abnormal uterine bleeding.
Conclusions: Prevalence of anemia in reproductive age group is an important reason for blood transfusion in obstetrics and gynaecology. Hence emphasis should be to treat anemia through drugs to reduce unnecessary transfusion especially single unit transfusion.

Keywords: Anemia, Blood components, Blood transfusion

INTRODUCTION

Blood transfusion plays an important role in obstetrics and gynaecology. Blood transfusion practice is an essential and important aspect of high risk pregnancy management and critical care in obstetrics. Blood transfusion services are also needed in gynaecology patients especially in abnormal uterine bleeding due to different causes with anemia.

The WHO strategy emphasizes the need to reduce unnecessary transfusion for safety of blood transfusion. Blood and its components are of limited resource and hence should be used judiciously. Moreover, blood transfusion can cause complications including allergic reactions. So, though blood transfusion is life saving but can lead to life threatening complications.[1] Hence, blood transfusion should never be ordered unless it is worth the risk.

Clinical audits are of great help to analyse the rational use of blood transfusion. Blood should be used only in those conditions when equally effective other alternatives cannot be used. The indications for blood transfusion in obstetrics can be varied as severe anemia, obstetrical hemorrhage, bleeding associated with abortion, ectopic pregnancy, coagulation disorders as thrombocytopenia etc.

The indications for blood transfusion in gynaecology are mainly abnormal uterine bleeding with moderate to severe anemia, preoperative hemoglobin build up for major surgeries like hysterectomy and laparotomy and post operative transfusions in patients with anemia.

Indian Council of Medical Research (ICMR) classification of anemia in pregnancy is defined based on maternal hemoglobin levels. Mild anemia is defined as hemoglobin level between 10 to 10.9 gm/dl. Moderate anemia is defined as hemoglobin level between 7 to 9.9 gm/dl. Severe anemia is defined as hemoglobin level between 4 to 6.9 gm/dl and very severe anemia is defined as hemoglobin levels <4 gm/dl.

According to WHO the prevalence of anemia in developing countries is around 51% and the prevalence of anemia during pregnancy in India is around 65 to 75%.[3,4]

Anemia is a preventable indication and need for blood transfusion can be reduced if anemia in pregnancy can be corrected timely.

The purpose of blood transfusion is mainly replacement or therapeutic to restore the intra vascular volume, to restore oxygen capacity of blood and to replace clotting factors and correction of anemia

Blood and blood products consumed in obstetrics and gynecology are fresh whole blood, red blood cells, fresh frozen plasma, platelets, cryoprecipitate and leucocyte depleted blood.

During the last few decades a general trend in the reduction of blood transfusion is observed in obstetrics and gynaecology. It is mainly due to risk associated with blood transfusion especially transfusion transmitted infections and improved pharmacological, surgical innovations to reduce blood loss.[2,3]

In this study we carried out an analysis of blood transfusion trends in obstetrics and gynaecology department and highlight the use of blood components instead of whole blood transfusion and to address the prevalence, indications and adverse reactions associated with blood transfusion.

This study aimed to evaluate the indications of blood transfusion in the obstetrics and gynecology department. Also, to study the use of unit of blood in obstetrics and gynecology.

METHODS

The present study was a retrospective observational study conducted in department of obstetrics and gynecology, SMMH medical college, Saharanpur. The duration of study was from April 2023 to April 2024 (13 months).

All patients admitted in obstetrics and gynecology department receiving blood transfusion for various indications are included in the study. Patients who received blood transfusion but had comorbid conditions were excluded in this study. Patients who refused consent for transfusion were also excluded.

Data was obtained from blood bank registers and admission records of patients admitted in obstetrics and gynecology department. Data was collected by interns. Data entry was done in Microsoft office. Number, indications, type and any adverse reactions due to transfusion were recorded. Data was analyzed by using SPSS version 20 and comparison with various studies and discussed.

RESULTS

In this study during the said duration total transfusions in various departments were 1674 units and total number of transfusions in obstetrics and gynaecology department were 257 units which was 15.35% of total transfusion units in 13 months. Out of total 257 units transfused to total n=201 patient, 163 patients (81%) had transfusion for various obstetrics indications and 38 patients (18.9%) had transfusion for gynaecological indication (Table 1).

Table 1: Shows distribution of patients as per their age group receiving blood transfusion (n=201).

Age group (in year)	Number of patient	Percentage
14-20	19	9.45
21-30	122	60.69
31-40	36	17.91
41-50	20	9.96
>50	4	1.99

Table 2: Distribution of patients according to pre transfusion hemoglobin level (n=201).

Hemoglobin (gm/dl)	Number of patients	Percentage
<7	61	30.34
7-9	97	48.25
>9	43	21.39

We find the maximum numbers of patients receiving blood transfusion are in age group 21 to 30 years as this is the most common age group for child bearing. The maximum age who needed transfusion for 60 years post operative vaginal hysterectomy patient. The minimum age who needed transfusion was 14 years, a patient of puberty abnormal uterine bleeding.

We find that maximum number of patient have hemoglobin between 7-9 gm% before transfusion (Table 2).

Table 3 shows the distribution of various blood group transfused. In this study the most common blood group transfused was B positive that is about 40.78% of total transfusion, followed by O+ve in 22.88%. O- blood group was the least common transfused in 1.99% only.

Table 3: Blood group transfused.

Type	Units transfused	Percentage
O+	46	22.88
O-	4	1.99
B+	82	40.79
B-	06	2.98
A+	30	14.92
A-	07	3.48
AB+	26	12.93

Total 257 units of blood and blood products were transfused out of which packed red cells (85.21%) were the most common type of blood products used for transfusion as mentioned in table 4.

Table 4: Distribution of blood and blood products unit wise (n=257).

Blood products	Number of units	Percentage
Whole blood	36	14
Packed red blood cells	219	85.21
Fresh frozen plasma	2	0.99

Table 5: Timing of transfusion in obstetrics.

Period of gestation	Number of cases
Antenatal	
Trimester 1	3
Trimester 2	78
Trimester 3	38
Postpartum	32

Table 5 shows time of pregnancy during which the blood was transfused. In the study, it was found that second trimester had maximum transfusions. This could have been avoided by switching over to alternate pharmalogical methods. Though maximum transfusions were based on clinical and hemodynamics parameters.

Table 6: Indication of blood transfusion in obstetric in antenatal period.

Indication of blood transfusion	Number of patients	Percentage
Pregnancy with anemia	75	57.25
Antepartum hemorrhage	6	4.58
Caesarean section	38	29.00
Abortion	7	5.34
Ectopic pregnancy	5	3.18

Table 6 shows distribution of number of patients requiring blood transfusion for different indications. In our study maximum number of patients requiring blood transfusion were pregnancy with anaemia (57.25%) as evident by prevalence of anaemia in our population.

Table 7: Indication of blood transfusion in post-partum period.

Indication of blood transfusion	Number of patient	Percentage
Post vaginal delivery in post-partum hemorrhage	2	6.25
Post vaginal delivery with anemia	16	50
Post with postpartum hemorrhage	4	12.5
Post caesarean with anemia	7	21.87
Retained placenta	3	9.37

Table 7 shows various indications for blood transfusion in postpartum period. Here also, we find patients with anemia contribute to major group needing blood transfusion in postpartum period, hence it is important to prevent and treat anemia in pregnancy.

Table 8: Common causes of blood transfusion in gynaecology.

Cause	Number of patients	Percentage
Abnormal uterine bleeding	14	36.84
Fibroid	10	26.31
Vaginal hysterectomy	6	15.78
Trans abdominal hysterectomy	7	18.42
Ovarian cyst	1	2.63

Table 8 shows various indications for transfusion in gynaecology patients. Out of total 201 patients, 38 patients had transfusion for gyanec indications. In this study abnormal uterine bleeding was found to be commonest reason for transfusion in gynaecology patient (36.8%) followed by fibroid patients. 18.42% patient had transfusion in post-operative case of abdominal hysterectomy and 15.78% patient had transfusion in post operative state of vaginal hysterectomy.

Table 9: Number of blood transfusion required by individual.

Number of blood transfusion	Number of patients	Percentage
1	169	84.07
2	27	13.45
3	5	2.48

As seen in table 9, maximum patients 169 (84.07%) required single unit of blood transfusion. Though one unit blood transfusion is generally not recommended, but it has been seen in our clinical practice that with advent of newer parenteral iron, patient with severe anaemia (4-7 mg%) can be transfused one unit to stabilize the patient followed by parenteral iron therapy. Due to advent of safe parenteral iron therapy, the need for multiple blood transfusion has tremendously decreased.

DISCUSSION

In this retrospective observational study, blood transfusion trends in obstetrics and gynaecology department SMMH Government Medical College, Saharanpur were assessed.

In our study maximum transfusions (60.69%) were in age group 21-30 years. In a similar study on transfusion practice in obstetric haemorrhage in a tertiary care center, maximum number of patients were in age group of 21-20 years. This is the child bearing age group.[5] In another study in India conducted by Chawla et al and Fazal et al also reported that blood transfusion was done majority in 21-30 years and 20-29 years respectively.[6,7]

In this study, Hb% between 7-9 gm% (47.26%) had maximum transfusions. In another study which was also for the period of 01 year, 74 patients received blood transfusions and mean haemoglobin of patients receiving transfusion was 7.6gm%.[8] Packed red blood cells (85.21%) was the most common blood product transfused in the present study followed by whole blood (14%). These findings were consistent with the study done by Fazal and Poornima. They reported that 87.2% received packed red blood cells.[7]

In our study anaemia in pregnancy was the main indication for transfusion in obstetrics patients (57.25%), ante partum haemorrhage (4.58%), abortion (5.34%), caesarean section (29%), ectopic pregnancy (3.18%). In a similar study on pattern of utilization of blood and blood components in obstetrics at a tertiary care hospital, the common indications were found to be anaemia (36.55 %), accidental haemorrhage (20.9%), placenta previa (5.03%), caesarean section (10.33%).[9]

In obstetrics emergency severe anaemia, and obstetric haemorrhage were the most common indications of blood transfusion in study done by Chabra et al.[10]

In our study 84.07% had single unit blood transfusion followed by 13.4% which had 2 units transfusion. This is in contradiction to study by Green et al in which 65% cases had two or more units of blood transfusion.[9] In another study by Agrawal et al 42.3% requires two units of transfusion.[11] Though in study by Hamn et al only 18.2% of women who had single unit transfusion need additional transfusions.[12]

Transfusion need or however, individualized, and there is no accurate method to predict blood loss or intra-operative variations. Haemoglobin threshold should not be considered as sole criteria for deciding need of transfusion. Assessment of physiological and pathological status of patient should also be considered to determine need of transfusion.

Here lies the importance of standardized guidelines for blood transfusion in obstetrics and gynaecology, but despite the clearly recommended blood transfusion guidelines, there is still lack of knowledge related to the judicious use of blood or blood components.[13,14]

This study has few limitations. Single unit transfusion has no significant therapeutic benefit. In our study transfusions were based mainly on clinical presentation and need for hour, though we emphasize that blood should be used only in those conditions when equally effective other alternatives cannot be used.

CONCLUSION

Blood transfusion should never be ordered unless it is worth the risk. Anemia in pregnancy is an important cause of blood transfusion in antepartum and postpartum period so it is important to emphasize the need of antenatal care and utilization of available antenatal services to diagnose early and treat cases of anemia during antenatal period itself to reduce blood transfusion in pregnancy. For gynecology patient's new pharmacological methods and surgical techniques should be used to avoid blood transfusion. Further research and newer strategies are needed to minimize unnecessary single unit transfusion.

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