

CHANGING TRENDS OF BLOOD TRANSFUSION REQUIREMENT IN OBSTETRICS AND GYNECOLOGY

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ABSTRACT

Objective: To evaluate the changing trends of indications for blood transfusion in obstetrics and gynecology. **Background:** Blood transfusion might be a lifesaving procedure but it is not risk-free. Over the last few years, there has been a trend towards a reduced use of blood transfusions in obstetrics and gynae practice. The United Nations reported that about half of women suffer from anemia during pregnancy. Maternal complications and post-partum haemorrhage is significantly associated with antenatal anemia. This study evaluates the changing trends of indications of blood transfusion in obstetrics and gynaecology. **Method:** A Cross sectional study was conducted at Gynae & Obst department at Abbasi Shaheed Hospital associated with Karachi Medical & Dental College. Sample size was calculated by Epi info calculator. For all transfusions informed written consent was taken from patients. After obtaining consent, 93 patients were taken who fulfilled the inclusion criteria. Statistical calculations were conducted on SPSS version 21. Percentages and frequencies were calculated for indications of transfusion, transfusion reactions, and mean of (HB) hemoglobin before and after transfusion. **Result:** A total of 93 patients had blood transfusions. The most common indication of blood transfusion in gynecology and obstetrics is anemia correction (73.1%). Moderate to severe anemia (hemoglobin level less than 6gm) is reported in majority of patients admitted to Abbasi Shaheed Hospital. The need for a blood transfusion for anemia correction increases as pregnancy progresses. In most patients, there was no transfusion reaction found; however, rashes were found in 4% and hypothermia in 1% of patients. **Conclusion:** This study highlights the changing trends in the need for blood transfusions. The most common blood transfusion indication in gynecology and obstetrics cases is anemia correction. Measures to reduce the need for blood transfusions should be aggressively practiced in Pakistan.

KEYWORDS: Indications, Reactions, Blood transfusion, anemia, Obstetric.

INTRODUCTION

There are several labour disorders and pregnancy complications, such as ruptured ectopic pregnancy and abortions (induced or spontaneous) that present as extra blood loss risk factors during the pregnancy phase and cause hemodynamic instability. These complications are situations requiring blood transfusions in obstetrics routine practice. Over the years, there has been a tendency to decrease the transfusion of blood in gynecology and obstetrics. This transfusion decline has occurred despite the increase in the rate of operative delivery at several hospitals. With the decline in blood transfusion rates, the obstetric results have also improved.^[1] The most common reasons for pregnancy-

related cases that need transfusion are placental abruption, first trimester bleeding, preeclampsia, anemia, and postpartum hemorrhage. During labour and pregnancy, a few unusual risk factors cause blood transfusion and these factors include disseminated intravascular coagulation (DIC); augmentation of operative delivery- abdominal or vaginal and labour; preterm labour, preeclampsia, uterine over distension (polyhydramnios, multiple gestations), and placental problems (retained placenta, accrete, abruption, and Previa). The practices of blood transfusion have been riddled with controversies like clinical judgment versus differing massive transfusion protocols, on giving varying reports and increased hemoglobin for

transfusion, component usage versus whole blood, and multiple-unit transfusions versus a single unit transfusion.^[2,6]

Gynecological and obstetric conditions related to the blood transfusion requirement leads often to mortality and morbidity. In blood transfusion, the increasingly important problems include several transfusion indications, including rising costs, the transmission of prions, potential infection, host sensitization, and transfusion incompatibility reactions. To the patients, the blood transfusion must be recommended as not to negotiate the affected female nor expose that woman to unnecessary risk. At delivery, the strategies to increase the level of hemoglobin and to decrease blood loss must also be implemented. In the UK, the Obstetric hemorrhage is the main maternal mortality cause and now is the 3rd leading reason of maternal deaths, the proportion for around ten percent of direct deaths. Moreover, this does not show a rise in mortality of women as overall deaths have decreased. The poor management endures being a vital cause of the deaths from hemorrhage. There is an estimation that there are up to four thousand severe hemorrhage cases in the UK every year.^[3] The majority of these women need a blood transfusion.^[7]

In Pakistan about 1.2-1.5 million units of blood are being transfused annually. As per the WHO criteria 6-16 units of blood are required per hospital bed.^[8] There has been a general trend over the last thirty years for reduced blood transfusion use in gynecological and obstetric practice. The reason for this being transfusion risk, specifically disease of blood borne and better mechanical, surgical and pharmacological innovations to decrease iron supplementation and blood for high-risk patients.^[9] Obstetrical hemorrhage due to placenta previa was believed to be the largest blood transfusion risk factor apart from instrumental delivery and operative delivery.^[10] This study examines the changing trends of blood transfusion indications in Abbasi Shaheed Hospital in gynecology and obstetrics.

MATERIALS AND METHODS

A cross-sectional study was conducted over a six month period from August 2020 to January 2021 at Gynae & Obst unit at Abbasi Shaheed Hospital associated with Karachi Medical & Dental College. Study was done according to Helsinki Declaration. A total of 93 women that had blood transfusions were taken as a sample over a six month period. The sample size was calculated by Epi info calculator using the study of Singh.^[7] The blood transfusion decision was taken by the researcher team in all cases. For all transfusions, informed written consent was taken from patients. After obtaining consent, 93 patients who fulfilled the inclusion criteria were taken.

We included patients undergoing the blood transfusion for Hb less than 6gm/dl, symptomatic anemia, acute

hemorrhage, heavy menstrual bleeding, Massive intra-operative blood loss, and post-operative transfusion. Anemia due to haemoglobinopathies, renal disease, and coagulation disorders are excluded from study. The encountered transfusion reactions were treated according to the anaphylactic reaction procedure and a similar was recorded. The pre-transfusion HB and post-transfusion HB were taken along with the hemodynamic parameters, for example, blood pressure and pulse.

For each patient, the blood group transfused and the number of blood units required was noted. On 24 hours after the last transfusion occurred hemoglobin was checked and was recorded. Furthermore, the incidence of blood transfusions in gynecology and obstetrics along with various indications and transfusion reactions has been studied. Statistical calculations were conducted on SPSS version 21. Percentages and frequencies were calculated for indications of transfusion, transfusion reactions, and the mean of HB before and after transfusion.

RESULTS

In the total of 93 women that had blood transfusions, 86 (92.4 7%) were obstetrical patients and 7 (7.52%) cases were gynae patients. The most common indication of blood transfusion in obstetrics population was Anemia correction. 73.1% of women were diagnosed with microcytic hypochromic anemia during antenatal period with HB level less than 6 g/dl as shown in Table 1. The other indications were antepartum hemorrhage APH (11%), postpartum hemorrhage PPH (7%), and gynecological conditions as shown in Table 1. In the majority of patients there was no transfusion reaction. However, mild blood transfusion reactions were noted but no serious adverse event was reported as shown in Table 2. The mean of pre-transfusion HB in patients was found to be 5.9 and mean of post-transfusion HB was found to be 8.4.

Table 1: Indications of blood transfusion.

S. no.	Indications of Transfusion	Frequency n	Percentages %
1	Anemia correction	68	73.1%
2	APH	11	11.8%
3	PPH	07	7.5%
4	Abnormal uterine bleeding	02	2.2%
5	Vaginal hysterectomy	02	2.2%
6	Miscarriage	02	2.2%
7	Abdominal hysterectomy	01	1.1%
8	Total	93	100%

Table 2: Transfusion reactions.

S. no.	Transfusion reactions	Frequency (n)	Percentages %
1	Hypothermia	1	1.1%
2	Rashes	4	4.3%
3	None	88	94.6%
4	Total	93	100%

Table 3: Comparison of Mean Hemoglobin before transfusion and after transfusion.

S. no.	Variables	Mean Hb (g/dl)	S.D	P value
1	Hb before transfusion	5.939	0.162	0.000
2	Hb after transfusion	8.480	0.147	

DISCUSSION

Some obstetrical and gynecological conditions associated with maternal morbidity and mortality require blood transfusions. Blood bank facilities form the backbone of hospitals in Pakistan and specifically of the gynecology and Obstetrics departments.^[11] As shown by research findings, moderate to severe anemia is reported in the majority of patients getting admitted to Abbasi Shaheed Hospital in the Gynae and Obstetric department. This anemia is the most general mortality and morbidity risk factor in these women. The need for Blood transfusion for anemia correction keeps on increasing as pregnancy reaches near term.^[11,12] According to the "Royal College of Obstetrics and Gynecology guidelines" blood transfusion is rarely recommended in obstetric cases where the level of hemoglobin (HB) is greater than 10.5gm% and also the patient is stable; however, it is always required if HB level is less than 6 gm%.^[12] In present study, the majority of the patients have an HB level less than 6gm% at the time of hospitalization. In the same research conducted in Pakistan on the practice of blood transfusion in women undergoing C-section, the blood transfusion indication in the majority of women was low hemoglobin followed by ongoing blood loss.^[13] Also in this study, the anemia correction was the most common indication(73.1%) of blood transfusion, while other studies showed anemia in 35% of cases.^[14] There are no firm criteria for starting red cell transfusion.^[15] The blood components preparation, according to WHO, enables a single donation of blood to give treatment for 2 to 3 patients and also avoids the transfusion of whole blood elements that the patient might not need.^[13] In these cases "Packed Red Cell transfusions" are

preferred.^[16] The second most common indication of blood transfusion is antepartum hemorrhage (11.8%). Our findings are different from other studies showing APH in 2% and 4.6% respectively.^[14,7] Proper antenatal care in high risk females done at a tertiary care hospital can lower the need for blood transfusion. About 2.2% of patients in our study were transfused blood due to excessive blood loss after miscarriage while other studies showed higher transfusion rates in about 17.24% of cases as compared to our findings .This result suggests that proper medical advice after miscarriage is beneficial to reduce the need for a blood transfusion after medical treatment.^[7] Minimal blood transfusion was required in gynae patients in our study .Pre-operative anemia correction is the common blood transfusion indication in other studies among abnormal uterine bleeding cases (AUB) 8.6% and 7.75% respectively.^[17,18] For AUB with anemia, the standard treatment is medical therapy such as progestogen therapy and iron supplementation followed by surgery.^[16] Blood, according to WHO, is unnecessarily given to raise the hemoglobin level of the patient often before the operation or to enable earlier discharge from the hospitals. For transfusion, these are rarely valid causes. In a UK based study titled "Retrospective analysis of transfusion outcomes in pregnant patients at the tertiary obstetric center", similar findings were made. 74 women received blood transfusions in this retrospective research over a study period of one year.^[19] The mean value of pre-transfusion hemoglobin was 5.93% \pm 0.16 g/dl in our study while the other showed 7.6 \pm 2.11 g/dl.^[15,19] Authors in an editorial published in the international Anesthesia journal titled "Blood transfusion: more is not necessarily better" have stressed IV iron sucrose use in obstetric cases. In the

antenatal period, increased IV iron sucrose use would minimize further need for transfusions.^[20] The blood transfusion is not risk free. It can cause adverse reactions including minor reactions, febrile illness, allergies, delayed hemolysis, acute lung injury, blood borne infections and anaphylactic reactions. Immediate blood transfusion reactions were seen in 5 cases, out of which 4 had skin rash and one had hypothermia like other studies which showed same findings.^[14,18] In the hospitals of Pakistan, there is a need to audit blood transfusions. There is a limitation of this research, such as this study's sample size has been limited. To reaffirm findings a greater sample size is required.

CONCLUSIONS

The most common blood transfusion indication in Gynecology and obstetrics cases is anemia correction. There is a dire need to change this practice by correcting anemia through drugs in order to avoid this inappropriate blood use. Blood component use must be encouraged. Measures to reduce the need for blood transfusions should be aggressively practiced. Moreover, the display and formulation of institutional guidelines for blood transfusion are strongly recommended.

Disclosure of Conflicts of Interest

No conflict of interest was reported by the authors.

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