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Evaluating Blood Transfusion Protocols and Practices in Obstetric Care A Study of Iraqi Hospitals

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Abstract: Blood transfusion is an essential part of patient care in obstetrics and gynaecology. Blood transfusion procedures need to be evaluated regularly to identify opportunities for improvement. The objective of this article is to evaluate the clinical outcomes of blood transfusion protocols and practices in the context of obstetric care in Iraqi hospitals. 110 women who gave birth vaginally or caesarean over a six-month period were the subjects of a prospective study conducted at hospitals in Baghdad, Iraq. Obstetric patients during the peripartum phase and gynecological hospitalizations who had blood transfusions were included in the study's discussion of blood transfusion guidelines and practices for obstetric care. Records were kept on the patient's attributes, type of blood, pretransfusion packed cell volume (PCV), transfusion indication, blood product utilized, number of pints, and donor group. A total of 110 pregnant women who had blood transfusions were included in this study. Anemia and antepartum hemorrhage were the main reasons for transfusions in obstetrics patients. 70.91% of women with whole blood, while 29.09% with sedimented blood. Blood transfusion rates were comparatively high, with obstetric rates being higher. Blood transfusions were indicated mostly for hemorrhage in obstetrics and chronic anemia in gynecology.

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Keywords: Blood transfusion; Obstetric patients; Mode of delivery; Protocols and Practices; and complications.

1. Introduction

The safety of patients receiving blood transfusion depends equally on the safety of the blood products and the safety of the clinical transfusion process, which includes a number of interrelated steps such as prescribing and ordering blood products, patient identification, drawing and labelling patient blood samples; pre-compatibility testing and blood shipment; collection and transport of blood bags within the hospital; handling of blood bags in the clinical setting; administration of blood; patient monitoring; and management of transfusion-related adverse events. [1,2,3,4,5,6]

Each year, the largest group of reports relates to errors in the transfusion process. In 2017, 77.6% of all reports reported some type of error, according to the SHOT-UK annual

report [7,8]. Analysis of 220 incidents where the wrong blood component was transfused showed that errors in the transfusion process were often related to the request and verification at the patient's bedside. [9,10,11]

Blood transfusion is a nursing and midwifery procedure that requires a thorough knowledge of the physiological basis, careful management of patient care, and the correct application of a protocol to prevent serious complications, both immediate and late. [12,13,14,15]

Approximately 830 women die every day from preventable causes related to pregnancy and childbirth [16]. It is estimated that around 15% of all pregnant women experience a life-threatening complication that requires skilled care and, in most cases, major obstetric intervention to survive. [17]

Of these cases, up to a quarter could suffer serious and permanent consequences [18]. It is, therefore, essential to identify obstetric complications that threaten the lives of pregnant women, postpartum women, and their newborns early and in a timely manner so that immediate and appropriate action can be taken to prevent extreme morbidity and maternal and/or neonatal death. [19,20]

This update includes new topics related to near-miss surveillance, the inclusion of the code red and massive transfusion protocol in the approach to postpartum haemorrhage, and the new classification of gestational hypertensive syndrome with active surveillance of hypertensive events [21]. This protocol also establishes that the various technological tools of perinatal medicine, whether pharmacological, surgical, diagnostic, or follow-up, will be available in health units according to their level of resolution, which in turn is determined by the presence or absence of qualified obstetric and perinatal resources, as well as the supplies necessary to provide them. [22,23]

2. Materials and Methods

The obstetric and gynecological wards of hospitals in Baghdad, Iraq, served as the study's locations. In addition to antenatal care (ANC) as well as delivery facilities for pregnant women who have made appointments with the hospital, the facility offers emergency obstetric services for women who are referred from other centers. Additionally, complete gynecological consultations and procedures are offered. In the hospital, laboratory along with blood bank services are available.

All women who got blood transfusions during the obstetrics and gynecology departments of the hospitals in Baghdad and Iraq were the subjects of the cross-sectional study. Between June 2023 – June 2024, a 12-month period, the study was carried out. Study methodology: the research included all willing women who got blood transfusions and were hospitalized for obstetric and gynecological treatment during the peripartum period.

Following the decision to transfuse, 110 individuals were collected, and the recruiting process was carried out one after the other throughout the research duration. Along with the reason for the blood transfusion, the pre-transfusion packed cell volume, or PCV, and blood type were noted. Both the quantity in units of blood that were received and the group of people who got the transfusion were recorded.

24 to 48 hours following the last transfusion, the PCV was measured and noted. Since there is no institutional policy in blood transfusion, the managing team of doctors made the choice to transfuse blood. In our center, those with $PCV \leq 18$ and those with $PCV \leq 21$ that have hemodynamic instability were the most common triggers for transfusions. Regardless of the PCV at presentation, patients with severe hemorrhage who come in shock typically get transfusions.

The sociodemographic details of the receivers, their blood type and group, the reason for the blood transfusion, the number of units of blood transfused, and their

pretransfusion, as well as posttransfusion PCV levels, were all retrieved from the case notes using a standardized pro forma sheet.

For statistical analysis, data were imported into a spreadsheet using Excel and exported to SPSS software version 22.0. Descriptive statistical techniques were used to examine the data. Numbers and percentages were used for categorical data, the average and standard deviation for numerical measurements, and Student's t-test, analysis of variance, Fisher's exact test, or Chi-square test, as applicable, were used to examine group differences. A significance level of $P < 0.05$ was established.

3. Results

TABLE 1. Baseline Of Features For Women Received Blood Transfusion In Obstetric.

<i>Features</i>	No. of women, 110	Percentage, %
<i>Maternal ages</i>		
20 – 25	46	41.82%
26 – 30	60	54.55%
> 30	4	3.64%
<i>Gestational age, week</i>		
37 – 40	68	61.82%
> 40	42	38.18%
<i>Comorbidities</i>		
<i>Hypertension</i>	12	10.91%
<i>Anemia</i>	6	5.45%
<i>Diabetes</i>	7	6.36%
<i>Others</i>	10	9.09%
<i>Smoking status</i>		
<i>Yes</i>	28	25.45%
<i>No</i>	82	74.55%
<i>Previous surgeries</i>		
<i>Yes</i>	16	14.55%
<i>No</i>	94	85.45%
<i>Parity</i>		
0	44	40.0%
1 – 3	54	49.09%
> 3	12	10.91%
<i>Educational status</i>		
<i>Illiterate</i>	6	5.45%
<i>Primary</i>	24	21.82%
<i>Secondary</i>	50	45.45%
<i>Higher</i>	30	27.27%

<i>Income status of parents, \$</i>		
< 700	27	24.55%
700 - 1000	46	41.82%
> 1000	37	33.64%

TABLE 2. Identify Indications For Blood Transfusion In Pregnant Women

Indicators	No. of pregnant women, 110	Percentage, %
Antepartum haemorrhage	50	45.45%
Anemia	24	21.82%
Sepsis	18	16.36%
Postpartum haemorrhage	18	16.36%

TABLE 3. Causes Of Blood Transfusions For Pregnant Women.

Causes	No. of pregnant women	Percentage, %
Operation	89	80.91%
Atony	0	0%
Laceration	11	10%
Ruptured uterus	1	0.91%
Puerperal infection	1	0.91%
Abruptio placenta	2	1.82%
Intrauterine fetal death	5	4.55%
Obstructed labor	0	0%
Retained placenta	1	0.91%
Total	110	100%

TABLE 4. Blood Components For Transfusions In Pregnant Women.

Variables	Blood components	
	Whole blood	Sedimented blood
Antepartum haemorrhage	30 [27.27%]	12 [10.91%]
Anemia	21 [19.09%]	6 [5.45%]
Sepsis	17 [15.45%]	4 [3.64%]
Postpartum haemorrhage	10 [9.09%]	10 [9.09%]
Total	78 [70.91%]	32 [29.09%]

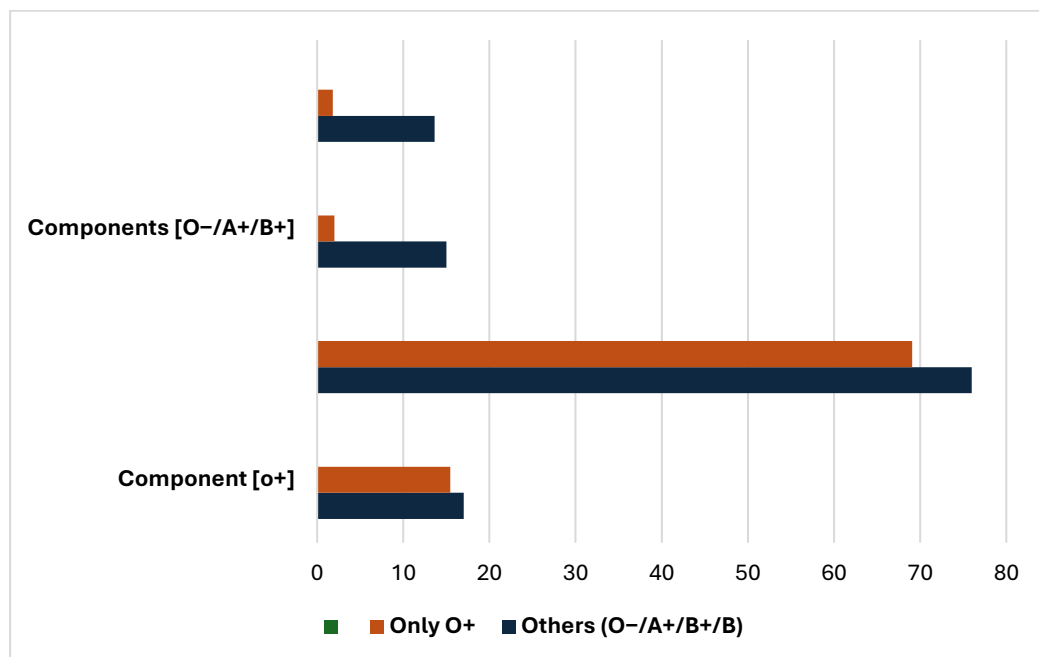


Figure 1. Determining Statistics Relation Of Women Who Receive Blood With Women Who Donate Blood.

4. Discussion

To guarantee the proper use for blood and blood products, obstetrics and gynecology blood transfusion procedures must be reviewed on a regular basis. Blood transfusion rates in obstetrics have been reported to range from 0.2% to 3.2% in high-resource nations, while an Indian study found a prevalence of 2.2% [24]. Overall, 8.4% of obstetric and gynecological patients in this research had a blood transfusion, which is less than the 12.1% rate among Nigerian obstetric patients and the 9.23% rate among Bangladeshi obstetric and gynecological patients.

The transfusion rate for obstetrics was 7.4%, greater than the 4.6% recorded in a Japanese obstetric center and the 2.52% observed between obstetric patients in Turkey [25,26]. The Egypt study [27], which revealed a transfusion rate of 6.02% for their obstetric patients as well as 23.37% in their gynecological patients, confirmed that the transfusion rate of 13% among gynecological patients was greater compared to the rate for obstetric patients. Better pharmaceutical approaches for treating obstetric hemorrhage may account for the lower incidence in obstetrics compared to gynecology.

In obstetrics, antepartum haemorrhage was the most frequent reason for blood transfusion, affecting 45.45 percent of patients. Operation (80.91%) as well as birth lacerations (10%) were the two main causes in our study. These findings may indicate inadequate uterotonic anticipation and application in uterine atony instances, as well as potentially inadequate treatment for the second phase of labor that results in birth trauma.

Better measures are required to reduce the demand for blood transfusions. 34.4% of the patients had an obstetric operation that required a blood transfusion, primarily a caesarean section. Contrary to various other studies, cesarean sections are the most common reasons for blood transfusions in obstetrics. The 68.8% discovered in an Indian study was comparable to the 63.92% recorded in an American study [28].

According to certain studies [29,30,31], ectopic pregnancy and miscarriage accounted for almost 50% of the transfusions given to gynecology patients. In hysterectomy instances, they also recorded a transfusion incidence of 14.49%. In instances of bleeding from the uterus, a German study [32] found a blood transfusion rate of 17.2%, which was comparable to the 17.05% Germany study found.

5. Conclusion

Our environment had a comparatively high blood transfusion rate, with obstetric transfusion levels being higher. In obstetrics, blood transfusions were mostly used to treat acute hemorrhage, whereas in gynecology, they were primarily used to treat chronic compensated anemia. Blood transfusions could not have been suitable in every situation, particularly when just one pint of blood being required. Additionally, whole blood is the predominant blood component identified in this study, indicating a need for reform in our healthcare system and a needless waste of blood.

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