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Original Research Article

Assessment of blood transfusion practices in antenatal women and their adherence to standard transfusion guidelines

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ABSTRACT

Background: Blood transfusion is an important component of obstetric care and is frequently required in antenatal women with severe anemia, obstetric complications, and conditions associated with increased maternal and fetal risk. Appropriate utilization of blood and blood products according to established transfusion guidelines is essential to ensure patient safety and optimal use of blood resources. To assess blood transfusion practices among antenatal women and evaluate their adherence to standard transfusion guidelines.

Methods: A hospital-based observational study was conducted among 133 antenatal women who received blood transfusions during the study period. Demographic characteristics, obstetric profile, blood group distribution, hematological parameters, and transfusion-related variables were recorded using a structured proforma. Data were obtained from patient records, laboratory reports, and blood bank registers. Statistical analysis was performed using SPSS version 25.0. Continuous variables were expressed as mean ± standard deviation, while categorical variables were presented as frequencies and percentages. Pearson correlation analysis was used to assess associations between selected variables.

Results: The mean age of the participants was 26.87±5.19 years. The majority were Muslims (67.7%) and belonged to the B positive blood group (34.6%). The most common parity status was G2P1L1 (23.3%), followed by primigravida women (21.8%). All blood transfusions (100%) were issued through the institutional blood bank. The mean hemoglobin level was 8.84±2.96 g/dl, indicating that anemia was a major indication for transfusion. Correlation analysis demonstrated a strong positive association between BD and BS parameters ($r=0.831$, $p<0.001$) and a weak positive correlation between BD and hemoglobin levels ($r=0.286$, $p=0.004$).

Conclusion: Blood transfusions in antenatal women were predominantly administered for moderate to severe anemia. Standardized blood bank services facilitated uniform transfusion practices. Regular transfusion audits, adherence to evidence-based guidelines, and early management of antenatal anemia are essential for optimizing maternal outcomes and ensuring rational utilization of blood products.

Keywords: Antenatal women, Blood transfusion, Anemia in pregnancy, Transfusion practices, Obstetric transfusion guidelines

INTRODUCTION

Blood transfusion is an essential component of modern obstetric care and plays a critical role in reducing maternal morbidity and mortality associated with severe anemia, obstetric hemorrhage, and other pregnancy-related complications. Globally, obstetric hemorrhage and maternal anemia remain among the leading causes of maternal deaths, particularly in low- and middle-income countries. The WHO estimates that anemia affects approximately 40% of pregnant women worldwide, with the highest burden observed in South Asia and sub-Saharan Africa. In India, anemia during pregnancy

continues to be a major public health problem, contributing significantly to adverse maternal and fetal outcomes including preterm birth, low birth weight, intrauterine growth restriction, and increased risk of maternal mortality.[1,2] Pregnancy is associated with physiological changes in blood volume and hematological parameters that can mask the severity of anemia until advanced stages. Iron deficiency remains the most common cause of anemia during pregnancy; however, nutritional deficiencies, hemoglobinopathies, infections, and chronic medical disorders may also contribute. Severe anemia during pregnancy can lead to cardiac failure, reduced oxygen-carrying capacity, impaired placental perfusion, and increased susceptibility to postpartum hemorrhage. In such situations, blood transfusion often becomes a lifesaving intervention aimed at restoring hemoglobin levels and improving maternal and fetal oxygenation.[3,4]

Apart from anemia, obstetric hemorrhage is another major indication for blood transfusion in antenatal and peripartum women. Conditions such as placenta previa, placental abruption, ruptured ectopic pregnancy, antepartum hemorrhage, and obstetric trauma frequently necessitate transfusion support. Although blood transfusion can be lifesaving, it is not without risks. Potential complications include acute hemolytic transfusion reactions, febrile non-hemolytic reactions, allergic reactions, transfusion-transmitted infections, transfusion-associated circulatory overload, transfusion-related acute lung injury, alloimmunization, and immunomodulatory effects. Therefore, transfusion should be administered only when clinically indicated and according to established guidelines.[5]

To promote safe and rational use of blood and blood products, several national and international organizations, including the World Health Organization, Royal College of Obstetricians and Gynaecologists (RCOG), National Blood Transfusion Council (NBTC), and Ministry of Health and Family Welfare, Government of India, have developed evidence-based transfusion guidelines. These guidelines emphasize appropriate patient selection, assessment of clinical need, use of component therapy instead of whole blood whenever possible, and consideration of alternative treatment modalities such as iron therapy and erythropoietin. Adherence to transfusion guidelines helps optimize utilization of limited blood resources, minimize unnecessary transfusions, reduce complications, and improve patient outcomes.[6,7]

Despite the availability of standardized transfusion guidelines, several studies have reported considerable variation in transfusion practices among healthcare institutions and clinicians. In many settings, blood transfusions are administered based on individual clinical judgment rather than standardized protocols. Over-transfusion may expose patients to avoidable risks and increase healthcare costs, whereas under-transfusion may compromise maternal and fetal well-being. Auditing transfusion practices is therefore essential to identify deviations from recommended guidelines and to ensure quality improvement in obstetric care.[8] In developing countries, inappropriate blood transfusion practices remain a concern due to inadequate awareness of guidelines, limited availability of blood components, lack of transfusion audits, and variations in institutional policies. Pregnant women constitute a particularly vulnerable population because both maternal and fetal outcomes may be affected by transfusion decisions. Understanding current transfusion practices and evaluating their conformity with established guidelines can help identify gaps in clinical practice and support implementation of corrective measures.[9] Several studies have emphasized the importance of patient blood management strategies in obstetrics, including early detection and treatment of anemia, optimization of maternal hemoglobin levels, judicious use of blood products, and adherence to transfusion protocols. These strategies have been shown to reduce unnecessary transfusions while maintaining favorable maternal and neonatal outcomes.[10] However, limited data are available regarding the appropriateness of transfusion practices among antenatal women in many tertiary care centers in India.

Therefore, the present study was undertaken to assess blood transfusion practices in antenatal women and evaluate their adherence to standard transfusion guidelines. The findings of this study may provide valuable insights into current clinical practices, identify areas requiring improvement, and contribute to the development of evidence-based strategies for promoting rational and safe blood transfusion in obstetric care.

METHODS

Study design

The present study was conducted as a hospital-based observational descriptive study to assess blood transfusion practices among antenatal women and evaluate their adherence to standard transfusion guidelines. The study focused on analyzing demographic characteristics, obstetric profile, hematological parameters, blood transfusion indications, and transfusion-related practices among antenatal women receiving blood transfusions. Since no intervention was performed and patients were managed according to existing institutional protocols, an observational study design was considered appropriate.

Study setting

The study was conducted in the Department of Obstetrics and Gynecology in collaboration with the blood bank of a tertiary care teaching hospital over a period of 12 months. The institution serves as a referral center for high-risk pregnancies and provides comprehensive antenatal, intrapartum, and transfusion services. Blood transfusions were administered through the hospital blood bank

following standard operating procedures and institutional transfusion policies.

Inclusion criteria

Antenatal women admitted during the study period. Women who received one or more blood transfusions during pregnancy. Women aged 18 years and above. Women willing to participate in the study.

Exclusion criteria

Postpartum women receiving transfusions after delivery. Patients with incomplete medical records. Women who refused consent. Patients referred after receiving transfusion elsewhere with inadequate documentation.

Study sampling

A consecutive sampling technique was employed. All eligible antenatal women who received blood transfusions during the study period and satisfied the inclusion criteria were included until the required sample size was achieved. This method ensured inclusion of all eligible cases presenting during the study period and minimized selection bias.

Study Sample size

The study included a total of 133 antenatal women who received blood transfusions during the study period. The sample size was determined based on the number of eligible antenatal transfusion recipients available during the study duration and was considered adequate to evaluate transfusion practices and adherence to standard transfusion guidelines.

Study groups

For analytical purposes, participants were categorized based on hemoglobin levels and transfusion indications. Women were also evaluated according to parity status, blood group distribution, and hematological parameters. No experimental grouping or intervention-based classification was performed.

Study parameters

The study assessed demographic, obstetric, transfusion-related, and hematological variables. Demographic variables included age, religion, and blood group. Obstetric parameters included gravidity, parity, abortion history, previous obstetric outcomes, and antenatal status. Hematological parameters assessed included hemoglobin concentration, blood donor parameters (BD), blood storage parameters (BS), and transfusion-related laboratory findings. Information regarding the source of blood products, blood bank utilization, and transfusion practices was also recorded. Correlation between age, hemoglobin level, and transfusion-related variables was analyzed to assess factors influencing transfusion requirements.

Study procedure

All antenatal women admitted to the obstetrics department were evaluated clinically and haematologically according to institutional antenatal care protocols. Women requiring blood transfusion were identified by the treating obstetrician based on clinical condition, hemoglobin level, ongoing blood loss, and standard transfusion indications. Prior to transfusion, demographic details, obstetric history, clinical examination findings, blood group, and laboratory investigations were recorded. Blood units were issued from the hospital blood bank after compatibility testing and transfused according to standard transfusion guidelines. Relevant transfusion details and patient outcomes were documented for analysis.

Study data collection

Data were collected using a structured case record proforma designed specifically for the study. Information was obtained from patient interviews, antenatal records, inpatient case sheets, laboratory reports, blood bank registers, and transfusion records. Variables recorded included age, religion, blood group, parity, hemoglobin level, blood donor parameters, blood storage parameters, transfusion indication, number of units transfused, and adherence to institutional transfusion guidelines. Data completeness and accuracy were verified before entry into the study database.

Data analysis

The collected data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 25.0. Continuous variables such as age, hemoglobin level, blood donor parameters, and blood storage parameters were expressed as mean±standard deviation, minimum values, and maximum values. Categorical variables such as religion, blood group, parity, and blood bank utilization were expressed as frequencies and percentages.

Correlation analysis was performed using Pearson's correlation coefficient to evaluate the relationship between age, hemoglobin level, blood donor parameters, and blood storage parameters. The strength and direction of associations were assessed using correlation coefficients (r values). Statistical significance was determined using corresponding p values. A p value of less than 0.05 was considered statistically significant.

Ethical considerations

Prior to commencement of the study, approval was obtained from the Institutional Ethics Committee. Written informed consent was obtained from all participants before enrolment. Confidentiality and privacy of patient

information were maintained throughout the study by anonymizing patient identifiers and restricting access to study data. Participation in the study was voluntary, and refusal to participate did not affect the standard medical care provided. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and institutional research guidelines.

RESULTS

The age of the antenatal women ranged from 18 to 42 years, with a mean age of 26.87±5.19 years, indicating that most transfusion recipients were young adults in the reproductive age group. Regarding religion, Muslims constituted the majority of participants (67.7%, n=90), while Hindus accounted for 32.3% (n=43) of the study population. This reflects the demographic distribution of antenatal women receiving blood transfusions at the study center.

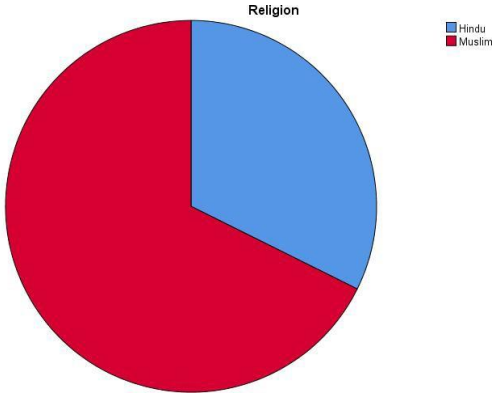

Figure 1: Demographic profile of the respondent.

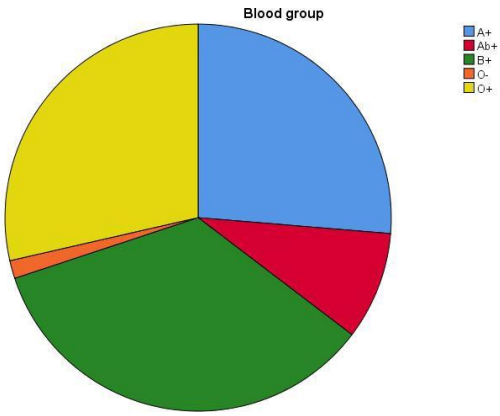

Figure 2: Blood group distribution among respondents.

Among the 133 antenatal women, B positive blood group was the most common (34.6%, n=46), followed by O positive (28.6%, n=38) and A positive (26.3%, n=35). AB positive accounted for 9.0% (n=12), while O negative was the least common blood group (1.5%, n=2). The distribution reflects the predominance of Rh-positive blood groups in the study population. All 133 blood transfusions (100%) were issued through the CAH Blood Bank, indicating that the entire study population received transfusion support from a single institutional blood bank. This demonstrates uniformity in blood procurement and adherence to the hospital's standardized transfusion services and protocols.

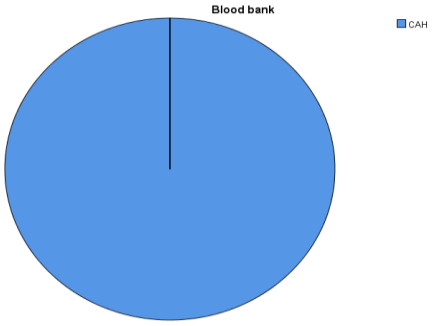

Figure 3: Blood bank.

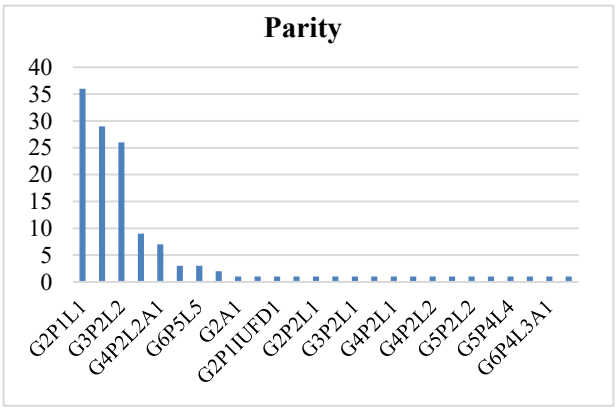

Figure 4: Parity among respondents.

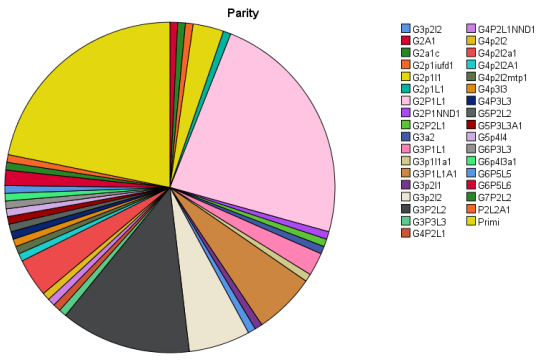

Figure 5: Parity.

The parity distribution showed that G2P1L1 (23.3%, n=31) was the most common obstetric profile, followed by primigravida women (21.8%, n=29) and G3P2L2 (12.8%, n=17). Most participants were either primigravida or multiparous women with one or two previous live births, indicating that blood transfusions were frequently required among women in their second or third pregnancy. The mean BD and BS values were 35.26±5.63 and 35.25±5.70,

respectively, indicating comparable distribution of these transfusion-related parameters among the study participants. The mean hemoglobin level was 8.84±2.96 g/dl, with values ranging from 5.5 to 36.4 g/dl, suggesting that a considerable proportion of antenatal women required blood transfusion due to moderate to severe anemia. These findings highlight anemia as a major indication for transfusion in the study population. The correlation analysis revealed that age did not show a statistically significant correlation with Bd (r =−0.003, p=0.980), Bs (r=0.066, p=0.526), or Hb (r=−0.154, p=0.118). A strong positive and statistically significant correlation was observed between Bd and Bs (r=0.831, p<0.001), indicating that an increase in Bd was strongly associated with an increase in Bs. Additionally, Bd demonstrated a weak positive but statistically significant correlation with Hb (r=0.286, p=0.004). However, the correlation between Bs and Hb was weak and statistically non-significant (r=0.083, p=0.400). Overall, Bd showed significant positive relationships with both Bs and Hb, while age was not significantly associated with the assessed hematological parameters.

Table 1: Demographic profile of the respondent.

	Minimum	Maximum	Mean	Std. Deviation
Age (years)	18	42	26.87	5.192
Religion	**Frequency**		**%**	
Hindu	43		32.3	
Muslim	90		67.7	
Total	133		100.0	

Table 2: Blood group distribution among respondents.

Blood groups	Frequency	%
A+	35	26.3
Ab+	12	9.0
B+	46	34.6
O-	2	1.5
O+	38	28.6
Total	133	100.0

Table 3: Blood bank.

Blood bank	Frequency	%
CAH	133	100.0

Table 4: Parity among respondents.

Parity	Frequency (N)	%
G2P1L1	36	27.1
Primigravida	29	21.8
G3P2L2	26	19.5
G3P1L1A1	9	6.8
G4P2L2A1	7	5.3
G3P1L1	3	2.3
G6P5L5	3	2.3
G4P3L3	2	1.5
G2A1	1	0.8
G2A1C	1	0.8
G2P1IUFD1	1	0.8
G2P1NND1	1	0.8
G2P2L1	1	0.8
G3A2	1	0.8
G3P2L1	1	0.8
G3P3L3	1	0.8
G4P2L1	1	0.8
G4P2L1NND1	1	0.8

Continued.

Parity	Frequency (N)	%
G4P2L2	1	0.8
G4P2L2MTP1	1	0.8
G5P2L2	1	0.8
G5P3L3A1	1	0.8
G5P4L4	1	0.8
G6P3L3	1	0.8
G6P4L3A1	1	0.8
G7P2L2	1	0.8
Total	133	100.0

Table 5: Distribution of hematological parameters among antenatal women receiving blood transfusion.

	Minimum	Maximum	Mean	Std. Deviation
BD	9.1	41.1	35.257	5.6305
BS	7.5	40.1	35.251	5.6986
HB	5.5	36.4	8.844	2.9592

Table 7: Correlation between age, BD, BS, and hemoglobin levels among antenatal women receiving blood transfusion.

Correlations					
		Age	**BD**	**BS**	**HB**
Age	Correlation	1	-0.003	0.066	-0.154
	P value		0.980	0.526	0.118
	N	104	92	94	104
BD	Correlation	-0.003	1	0.831**	0.286**
	P value	0.980		0.000	0.004
	N	92	115	107	98
BS	Correlation	0.066	0.831**	1	0.083
	P value	0.526	0.000		0.400
	N	94	107	123	104
HB	Correlation	-0.154	0.286**	0.083	1
	P value	0.118	0.004	0.400	
	N	104	98	104	114

**Correlation is significant at the 0.01 level (2-tailed).

DISCUSSION

The present observational study assessed blood transfusion practices among 133 antenatal women and evaluated factors associated with transfusion requirements. The mean age of the study population was 26.87±5.19 years, with ages ranging from 18 to 42 years, indicating that blood transfusions were predominantly administered to women in the active reproductive age group. This finding is consistent with the demographic profile of pregnant women commonly encountered in obstetric transfusion studies. The majority of participants belonged to the Muslim community (67.7%, n=90), while 32.3% (n=43) were Hindus, reflecting the local population distribution served by the institution rather than any specific association between religion and transfusion requirement. Blood group distribution revealed that B positive was the most common blood group (34.6%, n=46), followed by O positive (28.6%, n=38) and A positive (26.3%, n=35). Only 1.5% (n=2) of women belonged to the O negative blood group. The predominance of Rh-positive blood groups observed in the present study is similar to the blood group distribution reported in the general Indian population and has important implications for blood bank inventory management and transfusion planning in obstetric settings. Analysis of parity demonstrated that G2P1L1 constituted the largest group (23.3%, n=31), followed by primigravida women (21.8%, n=29) and G3P2L2 women (12.8%, n=17). These findings indicate that transfusion requirements were not confined to high-parity pregnancies but were frequently encountered among women in their second and third pregnancies as well as among primigravidas. The presence of transfusion requirements across different parity groups suggests that antenatal anemia and other obstetric indications remain important concerns irrespective of obstetric history.

An important observation in the present study was that all blood products (100%, n=133) were issued through the CAH blood bank, demonstrating centralized blood procurement and standardized transfusion services. Centralized blood banking ensures uniform screening,

compatibility testing, and component availability, thereby improving transfusion safety. Similar emphasis on adherence to institutional transfusion protocols has been highlighted by Kandasamy et al who demonstrated that audit and educational interventions significantly improved the appropriateness of blood component utilization and reduced inappropriate transfusion practices in obstetric patients.[11] The hematological profile of the study population revealed a mean hemoglobin level of 8.84±2.96 g/dl, with values ranging from 5.5 g/dl to 36.4 g/dl. The relatively low mean hemoglobin concentration indicates that anemia was a major factor contributing to transfusion requirements among antenatal women. Severe anemia during pregnancy remains a significant challenge in developing countries and is associated with adverse maternal and fetal outcomes.

The findings of the present study are comparable to those reported by Wøhlk-Hansen et al who observed that the most common indication for red blood cell transfusion in obstetric patients was a combination of low hemoglobin levels and clinical symptoms of anemia (37%).[15] Their study further reported that 20.3% of transfusions were prescribed solely based on low hemoglobin levels, emphasizing the importance of careful clinical assessment before transfusion decisions are made.

The mean BD and BS values in the present study were 35.26±5.63 and 35.25±5.70, respectively, demonstrating comparable distributions of these transfusion-related parameters among study participants. Correlation analysis showed no statistically significant relationship between age and BD (r=-0.003, p=0.980), age and BS (r=0.066, p=0.526), or age and hemoglobin levels (r=-0.154, p=0.118). These findings suggest that transfusion requirements and hematological status were not significantly influenced by maternal age in this cohort. A strong positive correlation was observed between BD and BS (r=0.831, p<0.001), indicating a close relationship between these transfusion-related variables. Additionally, BD demonstrated a weak but statistically significant positive correlation with hemoglobin levels (r=0.286, p=0.004). However, BS did not show a significant association with hemoglobin concentration (r=0.083, p=0.400). These findings suggest that certain transfusion-related parameters may reflect hematological status, although their clinical significance requires further evaluation in larger studies.

The present findings reinforce the importance of evidence-based transfusion practices in obstetrics. Kandasamy et al reported that inappropriate utilization of packed red blood cells decreased from 29.7% to 13.1%, while inappropriate fresh frozen plasma usage declined from 45.1% to 22.5% following educational interventions.[11] Their findings highlight the value of transfusion audits and guideline adherence in optimizing blood utilization.

Similarly, Wøhlk-Hansen et al demonstrated that the majority of obstetric transfusions were performed in accordance with national guidelines, although a small proportion (6%) remained inconsistent with recommended practices.[15] Guideline-directed transfusion practice has also been emphasized by Chou et al who developed evidence-based recommendations regarding transfusion indications, administration strategies, and prevention of transfusion-related complications.[12] Although their work focused on sickle cell disease, the principles of rational transfusion and careful patient selection remain highly relevant to obstetric populations. Oakley et al further highlighted the need for structured transfusion protocols and systematic monitoring of maternal and fetal outcomes when transfusion support is required during pregnancy.[14] Kohli et al reviewed transfusion guidelines across sub-Saharan Africa and reported considerable variation in recommendations regarding whole blood and packed red cell transfusions.[16] The authors emphasized the lack of robust evidence supporting several existing transfusion policies and advocated for strengthening evidence-based decision-making. The present study similarly underscores the importance of adherence to standardized transfusion guidelines in antenatal women to avoid unnecessary transfusions while ensuring adequate maternal care.

Overall, the present study demonstrated that blood transfusions in antenatal women were predominantly administered to young reproductive-age women with moderate to severe anemia, with a mean hemoglobin level of 8.84 g/dl. Centralized blood bank services ensured standardized transfusion practices, while correlation analysis identified significant relationships among selected transfusion parameters. These findings support the need for continuous transfusion audits, adherence to established guidelines, and optimization of anemia management strategies to improve maternal outcomes and ensure judicious utilization of blood resources in obstetric practice.

CONCLUSION

The present study evaluated blood transfusion practices among 133 antenatal women and demonstrated that blood transfusions were predominantly administered to young women in the reproductive age group, with a mean age of 26.87±5.19 years. The majority of transfused women had moderate to severe anemia, as reflected by the mean hemoglobin level of 8.84±2.96 g/dl, highlighting anemia as a major indication for transfusion during pregnancy. B positive was the most common blood group, and most women were either primigravida or in their second pregnancy.

All transfusions were provided through a centralized institutional blood bank, ensuring standardized transfusion services and safety. Correlation analysis revealed a significant positive association between BD and BS parameters and a weak positive correlation between BD

and hemoglobin levels. Overall, the findings emphasize the importance of early detection and management of antenatal anemia, rational use of blood products, regular transfusion audits, and strict adherence to standard transfusion guidelines to optimize maternal outcomes and ensure appropriate utilization of blood resources.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. World Health Organization. Anaemia in women and children. Geneva: WHO. 2023.
2. World Health Organization. Global anaemia estimates, 2021 edition. Geneva. WHO. 2021.
3. Pavord S, Daru J, Prasannan N, Robinson S, Stanworth S, Girling J. UK guidelines on the management of iron deficiency in pregnancy. Br J Haematol. 2020;188(6):819-30.
4. Breymann C. Iron deficiency anemia in pregnancy. Semin Hematol. 2015;52(4):339-47.
5. Goodnough LT, Shah N. The next chapter in patient blood management: real-time clinical decision support. Am J Clin Pathol. 2014;142(6):741-7.
6. World Health Organization. Blood transfusion safety and clinical use of blood. Geneva: WHO. 2022.
7. No GT. Blood transfusion in obstetrics. Obst Gyn J. 2015;5:6-11.
8. Shander A, Javidroozi M, Ozawa S, Hare GMT. What is really dangerous: anaemia or transfusion. Br J Anaesth. 2011;107(1):41-59.
9. Mammen JJ, Asirvatham ES, Sarman CJ, Ranjan V, Charles B. A review of legal, regulatory, and policy aspects of blood transfusion services in India: Issues, challenges, and opportunities. Asian J Transf Sci. 2021;15(2):204-11.
10. Muñoz M, Acheson AG, Auerbach M, Besser M, Habler O, Kehlet H, et al. International consensus statement on the peri-operative management of anaemia and iron deficiency. Anaesthesia. 2017;72(2):233-47.
11. Kandasamy D, Kumar Selvarajan A, Jeyakumar JD. Outcome of audit and education on blood transfusion practice in obstetrics setting. Hematol, Transf Cell Ther. 2022;44:151-5.
12. Chou ST, Alsawas M, Fasano RM, Field JJ. American Society of Hematology 2020 guidelines for sickle cell disease: transfusion support. Blood Adv. 2020;4(2):327-55.
13. Green L, Daru J, Gonzalez Carreras FJ, Lanz D, Pardo MC. Early cryoprecipitate transfusion versus standard care in severe postpartum haemorrhage: a pilot cluster-randomised trial. Anaesthesia. 2022;77(2):175-84.
14. Oakley LL, Awogbade M, Brien S, Briley A. Serial prophylactic exchange blood transfusion in pregnant women with sickle cell disease (TAPS-2): study protocol for a randomised controlled feasibility trial. Trials. 2020;21(1):347.
15. Wøhlk-Hansen IM, Bergholt T, Ekelund K. Adherence to guidelines on red blood cell transfusions in women having post-partum haemorrhage. Dan Med J. 2020;67(5):90569.
16. Kohli N, Bhaumik S, Jagadesh S, Sales RK, Bates I. Packed red cells versus whole blood transfusion for severe paediatric anaemia, pregnancy-related anaemia and obstetric bleeding: an analysis of clinical practice guidelines from sub-Saharan Africa and evidence underpinning recommendations. Trop Med Int Heal. 2019;24(1):11-22.

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