

Surgeons' Disposition on the Use of Autologous Blood Transfusion in Tertiary Hospitals in Enugu, Nigeria

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Abstract

Background: The need for autologous blood transfusion in our tertiary hospitals to restore patients' hemodynamics with little or no complications cannot be overemphasized. **Aims:** This study is aimed at assessing surgeons' challenges and patients' readiness to accept autologous blood transfusion. **Materials and Methods:** It was a cross-sectional study conducted at Enugu State University Teaching Hospital, University of Nigeria Teaching Hospital, Enugu, and National Orthopaedic Hospital, Enugu, from September to December 2020. A convenient sampling method was adopted in the distribution of questionnaires, and a total of 67 surgeons were enrolled in the study. Collated data were analyzed using SPSS software 21. **Results:** The study revealed that 60% of the respondents claimed that commercial donors were observed to be the major source of allogenic blood donation. Consequently, 34.3% and 80.6% of the respondents admitted that blood-borne transmissible infections and blood transfusion reactions, respectively, were still a challenge in their practice. The outcome from this study also showed that 59% of the respondents claimed that their patients are not knowledgeable enough to make informed decision on the use of autologous blood transfusion while 52.4% of the respondents admitted that they do not have the facility for processing autologous blood transfusion. For the surgical specialties, all were willing to prescribe autologous blood transfusion for their patients, though no statistical difference ($P < 0.05$) exists among the specialties. **Conclusion:** Autologous blood transfusion has remained the mainstay as effective and safest means of blood transfusion in overall patient care; hence, surgeons should incorporate this concept into their practice to enable patients make an informed decision.

Keywords: Autologous blood transfusion, surgeons, tertiary hospitals

INTRODUCTION

Autologous blood transfusion is the collection and reinfusion of the patients' own blood.^[1] Any transfusion with allogeneic blood products is associated with a variety of infectious and noninfectious risk.^[2] The rate of infection in sub-Saharan Africa is estimated at 1 case per 1000 transfusions for HIV and 2.5 cases per 1000 transfusion for HCV.^[3]

Autologous blood transfusion could be delivered in three different forms, which include cell salvage technique, preoperative autologous donation, and acute normovolemic hemodilution. Autologous blood transfusion offers numerous benefits and can avoid serious harm caused by allogeneic blood transfusion, alleviate blood shortage, and save blood resources, while lightening the burden of patients.^[4-9]

In Nigeria, allogenic blood for transfusion is sourced mainly from voluntary donors, family donors, and commercial or paid donors.^[10-12]

Following the advancement in blood transfusion science, clinicians now have a viable and safe alternative. Hence, this study aims to ascertain surgeon's disposition and patient's readiness in accepting autologous blood transfusion in tertiary hospitals in Enugu, Nigeria.

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MATERIALS AND METHODS

Study design

It was a cross-sectional study conducted across tertiary hospitals in Southeast Nigeria teaching hospitals from July to September 2020. A convenient sample method was used, and a sample size of 55 was calculated considering 5% precision and 95% confidence interval. A total of 67 surgeons were enrolled in the study.

Ethical approval

The ethical approval was sought and gotten from research education and training committee of Enugu State University Teaching Hospital, Nigeria; National Orthopaedic Hospital, Enugu; and University of Nigeria Teaching Hospital, Enugu. The study was conducted in accordance with the World Medical Declaration of Helsinki Ethical Principles of Medical Research involving human subjects.^[13]

Study population

Doctors including surgical consultants in various specialties, surgical residents, and medical officers practicing in tertiary health institutions in Enugu, Nigeria, were the study population.

Data management

The analysis was conducted using SPSS software version 21, Chicago USA. Descriptive statistics such as percentages, frequency, and bivariate analysis were used in this study.

RESULTS

The total source of blood for surgeries both for elective and emergency cases is shown in Figure 1; commercial donor being the major source of blood donation (60%) while voluntary donors contributing the least (15%).

Surgeon's response to patients' awareness of autologous blood transfusion in making informed decision is shown in Figure 2. In this study, 59% of the respondents claimed that their patients were not aware of autologous blood transfusion, while 35.9% of the respondents claimed that their patients were aware. However, 5.10% of the respondents remained neutral as they did not respond to the question.

The challenges of blood-borne transmissible infection and blood transfusion reaction are shown in Figure 3. 34.3% and 80.6% of the respondents, respectively, admitted that it is still a challenge to their practice.

A total of 67 doctors from various surgical specialties participated in the study. The specialties are shown in Table 1 with general surgery contributing to the highest percentage of 21 (31.3%), followed by 14 (20.9%) from obstetrics and gynecology and the least 1 (1.5%) being from cardiothoracic surgery.

The surgeon's response on centers with facilities for processing autologous blood transfusion is illustrated in Figure 4. 52.4% claimed that they do not have facility for processing autologous blood for transfusion.

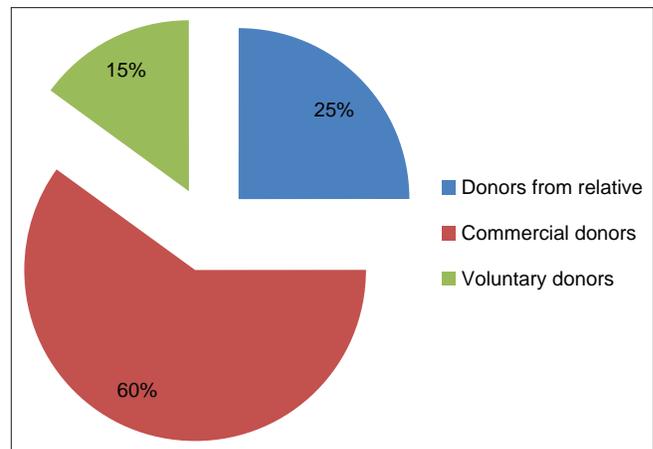


Figure 1: Sources of blood donors

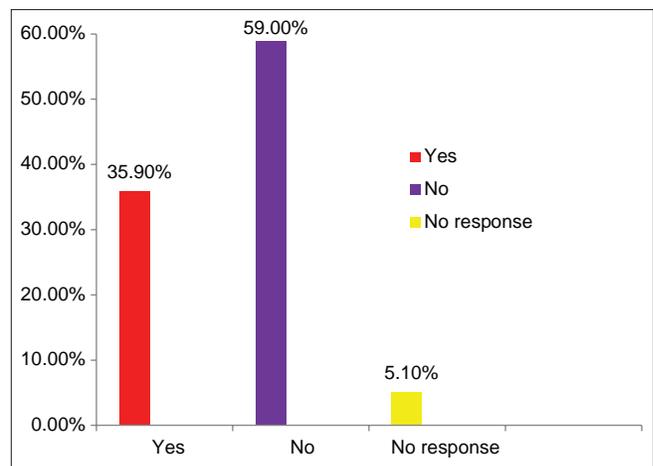


Figure 2: Surgeons' response to patients' awareness of autologous blood transfusion in making an informed decision

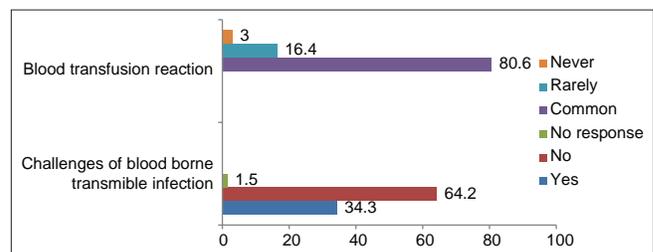


Figure 3: The challenges of blood-borne transmissible infection and blood transfusion reaction

DISCUSSION

Blood transfusion has taking a lead role over the years in addressing hematological parameters and restoring the hemodynamics in surgical patients both in emergency and electives cases. Autologous blood transfusion science has been grossly under practiced in this region of the world despite its reliability and effectiveness which is more safer for the patients and clinicians.

In this study [Figure 1], the major source of blood for both elective and emergency cases is from commercial blood donors as 60% of the patients' blood needs are being provided

Table 1: Association between specialties and willingness to prescribe autologous blood transfusion

| Surgeons' specialty (%) | Willingness to prescribe autologous blood transfusion | | | Fisher's exact value | P |
|---|---|-----------|-----------------|----------------------|-------|
| | Yes (%) | No (%) | No response (%) | | |
| General surgery - 21 (31.3) | 14 (66.7) | 7 (33.3) | 0 | 17.594 | 0.081 |
| Orthopedic surgery - 5 (7.5) | 3 (60.0) | 2 (40) | 0 | | |
| Neurosurgery - 8 (11.9) | 6 (75) | 2 (25) | 0 | | |
| Plastic surgery - 6 (9.0) | 4 (66.7) | 2 (33.3) | 0 | | |
| Cardiothoracic surgery - 1 (1.5) | 1 (100) | 0 | 0 | | |
| Obstetrics and gynecology surgeon - 14 (20.9) | 11 (78.6) | 3 (21.4) | 0 | | |
| Urologist - 8 (11.9) | 3 (37.5) | 5 (62.5) | 0 | | |
| Anesthesiologist - 4 (6.0) | 3 (75.0) | 0 | 1 (25.0) | | |
| Total - 67 (100) | 45 (67.2) | 21 (31.3) | 1 (1.5) | | |

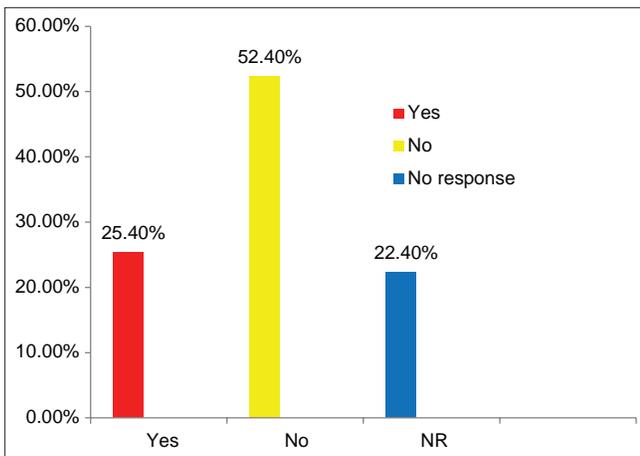


Figure 4: Centers with facilities for processing autologous blood transfusion

by commercial or paid donors which concurs with earlier studies done in Germany and Lithuania which elucidated that 86.1% and 71.9% of the respondents, respectively, were against stopping remuneration for blood donation.^[14,15] In addition, as viewed by Osaro and Charles,^[11] blood donation has not yet been fully integrated into African culture. However, strong motivating factor for blood donation is when the donors are fully compensated.^[16]

Surgeons' response on patients' awareness of making informed decision is shown in Figure 2. 59% affirmed that patients do not have enough information on the availability and relevance of autologous blood transfusion. This concurs with the studies done by Olaitan *et al.*,^[17] which revealed that only few patients had good knowledge of autologous blood transfusion, 29 (87.9%) though most, 102 (87.9%), of the respondents had heard about blood transfusion in general. This entails that most surgeons are yet to educate their patients on the inherent benefits of autologous blood transfusion and as a viable option available for them to make an informed decision.

Considering the attending side effects of allogenic blood transfusions in Figure 3 of this study, 34.3% and 80.6% of the respondents attributed blood-borne transmissible infections and

blood transfusion reaction, respectively, as a major challenge in their practice. This concurs with the findings of Brown *et al.*^[18]

Surgeons' specialties in association with willingness to prescribe autologous blood transfusion to their patients are shown in Table 1. Among the various surgical specialties, most are willing to prescribe autologous blood transfusion to their patients though no statistically significant difference exists ($P < 0.05$).

However, despite the readiness of the surgeons to adopt autologous blood transfusion as a viable option in maximizing patient safety and eliminating the hazardous effect of allogenic blood transfusion, about 52.4% do not have the facilities to process autologous blood in their centers as shown in Figure 4 in this study. Reasons stipulated ranging from lack of trained personnel, misappropriations of funds, not seen as a priority, and lack of political will to incorporate it into national blood transfusion program as an acceptable alternative to patients. Earlier studies by Amucheazi *et al.*^[12] using intraoperative cell salvage technique, especially in blunt abdominal trauma and ectopic pregnancy, reported a low usage rate due to lack of facilities. In other study conducted at Zaria, North-Central Nigeria, the rate of autologous blood transfusion was equally low (0.58%).^[19]

CONCLUSION

Autologous blood transfusion has remained the mainstay in effective and safest blood transfusion in overall patient care. It should be well developed in our hospitals with written guidelines and incorporated into our national blood transfusion program despite surgeons' challenges in ensuring patients make an informed decision.

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Conflicts of interest

There are no conflicts of interest.

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