EVALUATION OF BLOOD COMPONENT REQUEST AND ULTRASOUND IN MAIDUGURI NORTH EASTERN NIGERIA

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ABSTRACT

Background: Lives can be saved through blood and blood component transfusions. However, people still die or remain at risk of transfusion-transmissible infections due to poor donor recruitment and selection, use of poorly screened blood and inappropriate use of blood and blood components.

Objectives: To evaluate the pattern of blood component request and utilisation in north eastern Nigeria.

Setting: Department of Haematology and Blood Transfusion of the University of Maiduguri Teaching Hospital, Northeastern Nigeria.

Results: A total of 1097 blood component was requested for transfusion. Out of these, 1066 were used and 31 were returned and later discarded due to contamination. The commonest prescribed blood type was whole blood (81.1%) Blood used was higher for obstetrics and gynaecological cases and least for paediatric surgical cases. The number of patients transfused with only one unit of blood constitutes 49.3%. The proportion of donor category was 47.3% for directed or family replacement, 39.7% for commercial or paid donors, 12.2% for predeposit autologous donors and only 0.8% for voluntary donors.

Conclusion: This study has shown that family replacement and paid donors, which are associated with high prevalence of transfusion-transmissible infections, still provide most of the blood components used in this environment.

Keywords: Blood component requests, Northeastern Nigeria., transfusion.

INTRODUCTION

Blood component transfusion either in the form of whole blood, packed red cells, fresh frozen plasma and platelet or as cryoprecipitate can be a life-saving intervention if used appropriately. However, like all treatments, it may result in acute or delayed complications and carries the risk of transfusion-transmissible infections (TTI), such as Human immunodeficiency virus (HIV) I Hepatitis viruses as well as Human T Lymphocyte virus (HTLV) I $ II, Cytomegalovirus, Malaria and Bacterial infections About 80% of the worlds population has access to only 20% of the worlds safe blood supply[1-4]. According to the World Health Organization (WHO)Blood Transfusion Safety (BTS) team, the provision of safe and adequate blood requires: Establishment of a functional well-organized nationally coordinated blood transfusion services, collection of blood only from voluntary unpaid blood donors and testing of all donated blood for TTIs as well as production of blood component to maximize the use of donated blood, safe transfusion practice at the bed side and comprehensive quality system covering the donor recruitment and selection to the follow-up of recipients of blood transfusion. Unfortunately, not many African countries who have either fully or partially developed a national policy could boast of full implementation of above WHO guidelines. And to the based of our knowledge many Nigerian Hospitals still don't have Hospital Transfusion committees (HTC) at local level to regularly review and implement the national policy and guidelines[4-6]. In most instances the decision to transfuse was solely that of the attending clinician without a proper national guideline. In this study we set out to evaluate blood component request and usage

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in our hospital. The repo9rt of this study would serve as baseline data for future studies on modern clinical transfusion and also as audit of the current clinical blood transfusion in our hospital.

SUBJECTS AND METHODS

This is both a retrospective and prospective study carried that was out at the Department of Haematology and Blood Transfusion of the University of Maiduguri Teaching Hospital from January 1 to December 31, 2006. Blood transfusion request forms of 1097 blood transfusion recipients within the period were examined. The following were noted:age of the patients, sex and date of request as well as the indication for transfusion, type of blood or blood component requested and the requesting department. Other parameters include the number of unit requested, the source of the blood or blood component, whether autologous, commercial or from voluntary donation and whether the released blood or blood component was used for the intending patient or not. All the blood used during the study period was screened for the presence or TTIs. These include HIV I and II using Abbott Determine HIV-1/2, quantitative immunoassay (Abbott Japan, Co; Ltd, Minato-ku, Tokyo, Japan), HCV and HBV both using a rapid *in vitro* One-Step Test Strip each for hepatitis B antigen test strip and hepatitis C antibody (ACON Laboratories, Inc San Diego, CA 92121, USA) and Syphilis using VDRL Carbon Antigen, Antec Diagnostic product, UK. It is the policy of the

hospital blood bank to collect blood only from donors who test negative for the above TTIs, as recommended by WHO. The data collected were analyzed using descriptive analysis and percentages.

RESULTS

Between January and December 2006, a total of 1097 blood or blood components were requested for transfusion. Out of these, 1066 were used and 31 were returned and later discarded due to contamination. Three hundred and eighty four (36%) of the patients transfused were males and 682 (64%) were females. This gives a male to female ratio of 1.1.8. The commonest prescribed prescribed blood type was whole blood (81.1%), followed by packed cells, fresh frozen plasma and platelets (Table 1). The indications for blood transfusion varies remarkably with caesarean section accounting for 163 (15.3%) as well as haemodialysis 54 (5.1%), laparotomy 48 (4.5%), anaemia due to sickle cell anaemia 40 (3.8%), anaemia due to malaria 36 (3.4%) and anaemia due to septicaemia 36 (3.4%) amongst several other indications. obstetrics and gynaecological cases were the commonest reason for transfusion followed by adult surgical cases, adult medical cases and paediatric medical cases (Table II). The number of patients transfused with only one unit of blood or blood component constituted 526 (49.3%) of the cases studied (Table III). A directed or family replacement blood donation was the commonest blood used for transfusion (Table IV).

Table 1.   Type of blood transfused to the patient studied

Type	Number	Percentage
Whole blood	864	81.1
Packed cells	193	18.1
Fresh frozen plasma	5	0.5
Platelet concentrate	4	0.5
Total	**1066**	**100**

Table 2.   Blood components utilization by the various clinical departments

Departments	Number	Percentage
Obs/Gynae cases	437	41.0
Adult Surgical cases	314	29.5
Adult Medical cases	172	16.1
Paediatric Medical cases	89	8.3
Paeditric Surgical cases	54	5.1
Total	**1066**	**100**

Table 3.   Number of blood unit requested per individual case

Number of units requested	Number	Percentage
1 Unit	526	49.3
2 Unit	361	33.9
3 Unit	131	12.3
4 Unit	46	4.3
5 Unit	1	0.1
6 Unit	1	0.1
Total	**1066**	**100**

Table 4:   Blood donor categories used for transfusion

Donor category	Number	Percentage
Directed/Family replacement donor	504	47.3
Commercial donor	423	39.7
Predeposit autologous donor	130	12.2
Voluntary	9	0.8
Total	**1066**	**100**

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DISCUSSION

The safest blood donors are voluntary, non-remunerated blood donors from low-risk populations. This fact continues to be supported by numerous studies related to seroprevalence and risk factors in blood donor populations. Despite this, family replacement and commercial donors still provide most of the blood collected for transfusion in developing countries[2,6]. In this study, family replacement and and commercial donors provided 47.3% and 39. 7% respectively of the blood and blood product used. Similar studies from other part of Nigeria revealed that commercial blood donation accounted for 95.3%, compared to 4.7% family replacement in south-south and 98% from family replacement donors in South-Ease, respectively. The difference observed may be partly due to methods and the different geographic region. The proportion of those reported as family replacement donors in all these studies may actually be part of commercial donors. Furthermore, a national survey revealed that in a public sector 25% ad 75% 0.4%, respectively of blood donation were from commercial and family replacement donors, while voluntary non-remunerated donors were negligible[6-7]. Both commercial and directed or family replacement blood donors are associated high risk of TTIs. A recent study in this part of the country has documented prevalence ratesof 8.7%, 1.2% and 0.4% respectively for HIV, HBsAg and co-infection in directed blood donors[7-10]. Voluntary donation accounted for only 0.8% in this study. In Nigeria and many developing countries, voluntary donors are relatively scarce, a situation largely attributable to certain myths, beliers and general misconception about blood donation and transfusion. Elements and activities in promoting voluntary non-remunerated blood donations should include national blood donor programme for education, recruitment and retention of low-risk blood donors, including community-based voluntary blood donor organizations and youth programmes, Training of donor recruitment and donor carte staff in donor education, motivation, recruitment, selection and retention as well as media campaigns in workplaces, communities and educational institutions.

The commonest prescribed blood type was whole blood and patients transfused with only a unit of blood or blood products constitute a large majority of the cases as seen in this study. Although routine fractionation is not practiced in our hospital due to shortage of double bags, effective clinical transfusion practice requires that whole blood be separated into its various components so that the proper component is available for the particular patient. The inappropriate use of blood and blood products, couple with the transfusion of improperly screened units can increase the risk of TTIs. Thus, it is important to reduce unnecessary transfusion through appropriate clinical use of blood, avoiding the needs for transfusion and use of alternatives to transfusion. The National Blood Transfusion policy and guidelines system should include the establishment of hospital transfusion committees and haemovigilance system to monitor the appropriate use of blood and blood products[6-10]. The proportion of blood units used in managing obstetrics and Gynaecological cases is also highest as seen in this study. Poor practices and procedures during transfusion of blood to the patients at the bedside were responsible for contamination of the blood discarded in this study. Analysis of the WHO Global Database on Blood Safety (GDBS) shows that 55% of countries have a policy on the clinical use of blood and only 17% reported a system for monitoring and evaluation of clinical practice[10-15]. Professional education on transfusion medicine must be provided through all phases of medical training and in the form of continuing medical education programs. There is a need to evaluate blood-transfusion practices and blood-banking services in all Nigeria hospitals in accordance with the National Blood Transfusion Policy[12-17].

REFERENCES

1. The Clinical Use of Blood: Handbook. WHO/BTS/99.3.2001; Pp4.
2. Bekker L Wood R. Blood Safety at what cost? JAMA 2006; 295:557-558.
3. The Clinical Use of Blood: Handbook. WHO/BTI/99.3.2001;PP5.
4. World Health Organization. Regional

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strategy for blood safety 51 session Brazaville, 2001.

5. World Health Organization. Consensus Statement on Screening of Blood.

6. Van der poel CL, Seifried E, Schaasberg WP. Paying for blood donations; still a risk? Vox Sanguinis 2002; 83 : 285-93.

7. Enosolease ME, Imarengiaye CO and Awodu. Donor Blood Procurement and utilisation at the University of Benin Teaching Hospital, Benin City. African Journal of Reproductive Health, 2004; 8: 59-62.

8. Emeribe AO, Ejele AO, Attai EE, Usanga EA. Blood donation and pattern of use in southern Nigerian. Transfusion 1993; 33: 330-2.

9. The Nigerian National Blood Policy. NBTS,Federal Ministry of Health Abuja, May, 2006; pp.1-3

10. Kagu MB, Kawuwa MB, Ayilara AO, Ali BZ. Seroprevalence of HIV and Hepatitis Viruses in Directed Blood Donor: A Preliminary Report. Highland Medical Research Journal 2005;3:43-45.

11. Lackritz EM, Ruebush TK 2, Zucker JR, Adungosi JE, Were JB, Campbell CC. Blood transfusion practices and blood banking services in a Kenyan hospital. AIDS. 1993:995-9.

12. Ukaejiofo EO, Blood Transfusion and Management. In: Blood Transfusion in the Tropics (ed. Ukeajiofo, E.O), 1 ed, 1996; Salem Media, Ibadan, 101-21.

13. Gibbs WN, Corcoran P. Blood safety in developing countries. Vox Sang. 1994:377-81.

14. Thomas JM. Non-blood management in obstrics and gynaecology. J Soc Obset Gynaecol Can 1997:475-8

15. Thomas JM. The worldwide need for education in Non blood management in obstrics and gynaecology. J Soc Obset Gynaecol Can 1994; 16:1483-7.

16. Thomas JM Treatment of obstetric haemorrhage in women who refuse blood transfusion. Br J Obset Gynaecol 1998; 105: 127-8

17. Global Database on Blood Safety: A Summary R eport 1999-1998. Geneva, World Health Organization, 2001.

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