

UTILISATION OF BLOOD TRANSFUSION SERVICE IN NORTH EASTERN NIGERIA.

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ABSTRACT

Background: Life 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 utilisation in northeastern Nigeria

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

Methods: Both retrospective and prospective evaluation of records of the blood transfusion unit of the hospital from January 1, 2006 to December 31, 2006. Data were collected on the number of unit requested, the source of the blood, whether from autologous, commercial or voluntary donation as well as family replacement or directed donations etc.

Results: A total of 1066 blood component was requested for transfusion. 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 1 unit of blood constituted 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: The results of this study suggest that there is inappropriate utilisation of blood component in the Hospital. There is a need to evaluate blood- transfusion practices and

blood- banking services in all Nigerian hospitals in accordance with the National Blood Transfusion Policy.

Keywords: Blood component utilisation, Northeastern Nigeria.

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), Hepatitis viruses as well as Human T Lymphocyte virus (HTLV) I & II, Cytomegalovirus, Malaria and Bacterial infections¹. About 80 % of the world's population has access to only 20 % of the world's safe blood supply². 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 transfusion³. Unfortunately, not many African countries who have either fully or

partially developed a national policy could boast of full implementation of above WHO guidelines⁴. 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. 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 utilisation in our hospital. The report 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 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 1066 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. Others 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 of TTIs. These include HIV I & II using Abbott Determine HIV-1/2, quantitative immunoassay (ABBOTT JAPAN, CO; LTD, Minato-ku, Tokyo, Japan), HCV & 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, 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 tested negative for the above TTIs as recommended by WHO⁵.

The data collected was analyzed using descriptive analysis and percentages in tabular form.

RESULTS

Between January and December 2006, a total of 1066 blood or blood component was requested for transfusion. 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 blood type was whole blood (81.1%), followed by packed cells, fresh frozen plasma and platelets (Table I). The indications for blood transfusion were mainly in caesarian section accounting for 163 (15.3%) cases, anaemia in pregnancy 82 (7.7%) and anaemia due to HIV/AIDS 61 (5.7%) 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 1 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 I: Type of blood transfused to the patients 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 II: blood components utilisation by the various Departments.

DEPARTMENTS	NUMBER USED	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
Paediatric Surgical cases	54	5.1
TOTAL	1066	100

Table III: 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 IV: Blood donor categories used for transfusion.

DONOR CATEGORIES	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

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 populations⁶. Despite this, family replacement and commercial donors still provides most of the blood collected for transfusion in developing countries. In this study, family replacement and commercial donors provided 47.3% and 39.7% respectively of the blood and blood product used. Similar studies from South-South & South-East Nigeria revealed that commercial blood donation accounted for 95.3%, compared to 4.7% from family replacement in South-South and 98% from family replacement donors in South-East respectively^{7,8}. Furthermore, a National survey revealed that in a public sector 25% and 75% respectively of blood donation were from commercial and family replacement donors,

whilst voluntary non-remunerated donors were negligible⁹. Both commercial and directed or family replacement blood donors are associated with high risk of TTIs. Recent study in this part of the country has documented prevalence of 8.7%, 1.2% and 0.4% respectively for HIV, HBsAg and Co-infection in directed blood donors¹⁰. Voluntary donation accounted for only 0.8% in this study. This is also similar to findings from other parts of the country^{7,8}. In Nigeria and many developing countries, voluntary donors are relatively scarce, a situation largely attributable to certain myths, beliefs and general misconception about blood donation and transfusion^{11,12,13}. 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 care staff in donor education, motivation, recruitment, selection and retention as well as media campaigns in workplaces, communities and educational institutions⁹.

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 right component is available for the right 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 necessary to reduce unnecessary transfusion through appropriate clinical use of blood, avoiding the needs for transfusion and use of alternatives to transfusion¹⁴⁻¹⁶. The National Blood Transfusion policy and guidelines should include the establishment of hospital transfusion committees and haemovigilance system to monitor the appropriate use of blood and blood products. 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 practice¹⁷. 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 Nigerian hospitals in accordance with the National Blood Transfusion Policy.

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