

Blood Transfusion Exposure In Gombe State, Nigeria

¹Dorcas Ezekiel, ¹Lynn Maori, ²Mohammed Bappah, ³Sani Aliyu and ¹Tanimu Umar

¹Infectious Disease Hospital Zambuk, Gombe State

²State Specialist Hospital Gombe, Gombe State

³Federal Medical Center, Gombe, Gombe State

Email: ezedorcas1@gmail.com, lynnmaori09@gmail.com, mbappah84@yahoo.com, tanimuu@gmail.com

Abstract: Patients visiting Gombe State Specialist Hospital, General Hospitals Dukku, Kaltungo and Nafada and Infectious Disease Hospital Zambuk in Gombe State were used for the study. It was shown that, females have the highest number of exposed persons to blood transfusion with 5216 (58.29%), followed by males with 2125 (23.75%). Children have 1608 (17.97%) which is the lowest.

[Dorcas Ezekiel, Lynn Maori, Mohammed Bappah, Sani Aliyu and Tanimu Umar. **Blood Transfusion Exposure In Gombe State, Nigeria.** *Rep Opinion* 2014;6(2):30-33]. (ISSN: 1553-9873). <http://www.sciencepub.net/report>. 4

Keywords: Blood transfusion, ABO, RhD antigen, Crossmatching

Introduction

Blood is the red liquid, which flows in the human body. Blood comes into contact with and actually sustains nearly every vital tissue in the human body. In short, blood sustains life. Human being will stop functioning if there is not enough of this precious fluid flowing through the circulatory system.

As blood passes through the human body, it carries with it essential life-supporting ingredients. These include oxygen, nutrients and other elements that protect the body against infections. Blood also carries away waste products such as carbon dioxide. During childbirth, following accidents, in sicknesses, during surgery and in some other ways, people have been known to lose blood. Loss of blood during these conditions could constitute fatal threat to human life if not replaced.

Blood transfusion is the process of receiving blood products into one's circulation intravenously. A blood transfusion can be a lifesaving process. It is often done to replace blood that has been lost due to severe bleeding or in some cases for the treatment of severe anaemia. Blood transfusion can also occur when the body cannot make the necessary components or the components have been lost through illness or trauma.

Epidemiology

In 2008, the most recent year for which global data are available, approximately 92million blood units were donated worldwide. An estimated 4million (4.3%) of those units were donated to in sub-Saharan Africa, which has approximately 12% of global population. At Nigeria's current level of health care delivery, it is estimated that about 1.5million units of blood per annum would be required annually.

Sources of blood for transfusion

Blood transfusions typically use two sources of blood: One's own (autologous transfusion) or someone else's (allogenic transfusion). Autologous pre-donation or pre-deposit, involves collecting some of the patient's blood few weeks before a planned operation and then giving this back to the patient during or after the operation. The allogenic transfusion is much more common than the autologous, which is the using another's blood. This must first start with donation of blood. Blood is most commonly donated as whole blood intravenously and collecting it with an anticoagulant. Before it is given, there are many steps taken to ensure quality of the blood products, compatibility and safety of the recipient.

Side effects

These are the unwanted but mostly temporary effects of a successful procedure. During a blood transfusion, one may get a slight temperature, headache or an itchy rash. If this happens, one may be given medicines such as paracetamol, to lower the temperature and antihistamine to relieve the rash. Also the rate at which the blood is being transfused may be slowed.

Complications

Since World War II, when blood transfusions were first used enmasse, they have been regarded as essential for patients undergoing surgery. But now there are concerns that, while blood transfusions have indeed save lives, they may have also claimed them. Since a person can transmit an infection during its asymptomatic phase. Transfusions can contribute to an ever-widening pool of infection in the society.

Recent studies suggest that undergoing a blood transfusion during surgery subsequently increases the patient's risk of death. Particularly from heart attacks or strokes and of serious illnesses, such as

septicaemia, pneumonia and cancer of the lymph glands. It was also revealed that, the presence of malaria parasites and microfilaria transmission among Nigerians blood donors and the infection rate can be considered as high.

However, Transfusion- Transmissible Infections (TTIs) are the most commonly encountered complications in transfusion practice. Transfusion – Transmissible Infectious agents such as HBV, HIV, HCV and Syphilis are among the greatest threats to blood safety for transfusion recipients and pose a serious public health problem. According to the seroprevalence survey of HIV, HBV, HCV and Syphilis conducted on blood donors in 2010 revealed that, out of the total of 6361 consecutive blood donors, 607(9.5%) had serological evidence of infection with at least one pathogen and 50(0.8%) had multiple infections. The overall seroprevalence of HIV, HBV, HCV and Syphilis was 3.8%, 4.7%, 0.7% and 1.3% respectively. The highest prevalence occurred among commercial blood donors.

Economic Consequences

An unsafe blood transfusion is very costly from both human and economic points of view. Morbidity and mortality resulting from the transfusion of infected blood have far-reaching consequences, not only for the recipients themselves, but also for their families, their communities and the wider society.

The economic costs of the failure to control the transmission of infection include increase requirement for medical care, higher levels of dependency and loss of productive labour force, placing heavy burdens on already overstretched health and social services and on the national economy.

Materials and Methods

Study Area

This study was carried out in some of the General Hospitals in Gombe State, Nigeria including the State Specialist Hospital. Patients who required blood transfusion between January and December, 2012 in the Hospitals were used for this study.

Table 1: Blood transfusion exposure in GSSH

Characteristics	No. transfused	Percentage (%)
Male	1237	26.44
Female	3442	73.56
Total	4679	99.99

Screening of Donors Blood

Blood samples were collected from all the donors and were tested for ABO and RhD blood typing to ensure the safety and compatibility of the recipient. Crossmatch tests were also performed to assist in providing compatible red cell products and

possibly alleviating adverse reactions to transfusion. The blood samples were also screened for HIV, HBV, HCV and Syphilis as recommended by WHO.

Blood collection for transfusion

Blood for transfusion were collected from donors free from Transfusion-Transmissible-Infections. The blood was drawn from a large arm vein close to the skin, at the median cubital vein on the inside of the elbow. The skin over the blood vessels was cleaned with methylated spirit to prevent skin bacteria from contaminating the collected blood and also to prevent infections where the needle pierced the donors' skin.

While collecting the blood, the donors were asked to lie down and a tourniquet was tied on the arm above the venipuncture site. A large needle (16 gauge) was used to minimize shearing forces that may physically damage red blood cells as they flow through the needle. The blood bags were swirled intermittently to bring about mixing of blood with the anticoagulant. The donors were asked to hold an object and squeeze it repeatedly to increase the blood flow through the vein.

Table 2: Blood transfusion exposure in IDHZ

Characteristics	No. transfused	Percentage (%)
Male	438	30.89
Female	625	44.07
Children	355	25.04
Total	1418	100.00

Result

The rate of blood transfusion exposure in Gombe for the year 2012 is shown in the tables below:

Table 3: Blood transfusion exposure in GHKT

Characteristics	No. transfused	Percentage (%)
Male	233	23.73
Female	411	41.85
Children	338	34.42
Total	982	100.00

Table 4: Blood transfusion exposure in GHDK

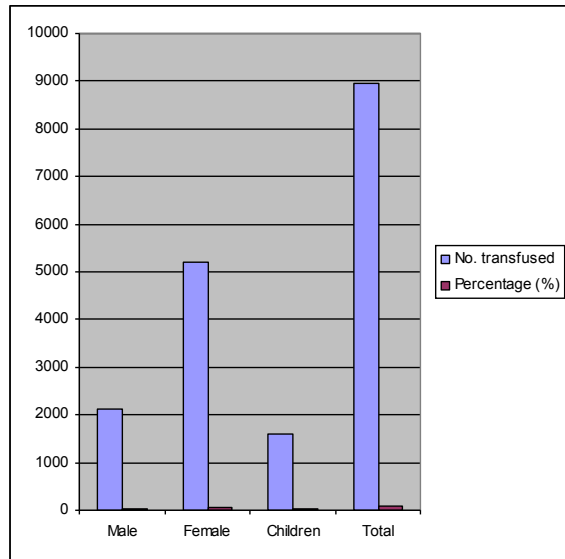
Characteristics	No. transfused	Percentage (%)
Male	177	12.70
Female	529	37.95
Children	688	49.35
Total	1394	100.00

Table 5: Blood transfusion exposure in GHNFD

Characteristics	No. transfused	Percentage (%)
Male	40	8.40
Female	209	43.91
Children	227	47.69
Total	476	100.00

Table 6: Overall blood transfusion exposure in Gombe

Characteristics	No. transfused	Percentage (%)
Male	2125	23.75
Female	5216	58.29
Children	1608	17.96
Total	8949	100.00

**Figure 1:** This shows the overall blood transfusion in Gombe state

Discussion

The findings of this study showed that, State Specialist Hospital has the highest number of exposed people to blood transfusion with 4679 (52.29%), followed by Infectious Disease Hospital Zambuk and General Hospital Dukku with 1418 (15.85%) and 1394 (15.58%) respectively. General Hospitals Kaltungo and Nafada have 982 (10.97%) and 476 (5.32%) respectively.

It also showed that female has the highest number of blood transfusion exposure with 5216 (58.29%), followed by male with 2125 (23.75%) and children 1608 (17.97%). This is in agreement with a similar study conducted in Danish with females having higher percentage of blood transfusion exposure than males.

Conclusion

This study on the Blood Transfusion Exposure in Gombe has shown that females are more exposed to blood transfusion.

Acknowledgement

I wish to appreciate the staff of the Heamatology unit of the Laboratory Department Gombe State Specialist Hospital, the laboratory staff of General Hospitals Dukku, Kaltungo, Nafada and Infectious Disease Hospital Zambuk, for their contribution and support to the success of this work.

Reference

- Alli J.A., Okonko I.O., Abraham O.A., Kolade A.F., Ogunjobi P.N., Salako A.O., Ojezele M.O., Nwanze yI.C. (2010). A Serosurvey of Blood Parasites (Plasmodium, Microfilaria, HIV, HBsAG, HCV Antibodies) in Prospective Nigerian Blood donors. *Research Journal of Medical Sciences* 4(4): 255-275.
- Bruce D.S., Faha H., Linda S.L., Mark S.S., David M.C., Elliott B.G., Steven E.H., Simon B. (2007). *Annals Thoracic Surgery*. ats.ctsnetjournals.org. 83: 527-586.
- Bupa's Health Information Team. (2010). Blood transfusion information.
- Emechebe G.O., Emodi I.J., Ikefuna A.N., Ikechukwu G.C., Igwe W.C., Ejiofor O.S., Ikechukwu C.A. (2009). Hepatitis B Virus infection in Nigeria – A review. *Niger Med Journal*. 50: 18-22.
- Feldman B.F., Sink C.A.(2008). *Practical Transfusion Medicine, Clinical Considerations in Transfusion Practice*. www.ivis.org.
- Hagan p. (2010). They are supposed to save lives, but could a blood transfusion give you a heart attack? Mail Online. www.dailymail.co.uk.
- Igbida F., Abidemi M.M., Awortu Z. J.(2011). Sero- epidemiology of transmissible infectious diseases among blood donors in Osogbo, southwest Nigeria. *Acta Myologica*. 30(2).
- Jerry A.H., Sridhar B., Christie R., Bakary D., Michael Q. (2011). *Progress Towards Strengthening National Blood Transfusion Services- 14 Countries*.
- Martina M.(2010). What are the causes of needing a blood Transfusion? *Livestrong.com*.
- National Blood Transfusion Service. (2011). Give life, Give hope, Give blood Today. www.nbts.gov.ng.
- NHS Choices. (2011). Your health, your choices. Information navigation.
- Ochei J., Kolbatkar A., *Medical Laboratory Science Theory and Practice*. Tata McGraw- Hill publishing Comapany Limited. New Delhi.
- Patrick J.O., Ernest E.M., Walter L. B., Jeffrey L.J., Christopher C.S. (2002). Increased Rate of Infection Associated with Transfusion of old

- Blood after Severe Injury. ARCH SURG. 137: 711-717.
14. Royal College of Obstetricians and Gynaecologists. (2009). Blood transfusion, pregnancy and birth- information for you. www.rcog.org.uk
 15. Tessema B., Gizachew Y., Afework K., Anteneh A., Amdargachew M., Frank E., Ulrich S.(2010). Seroprevalence of HIV, HBV, HCV and Syphilis infections among blood donors at Gondar University Teaching Hospital, Northwest Ethiopia: declining trends over a period of five years. BMC infectious Disease. 10(111): 1186/1471-2334.
 16. The Foundation for America's Blood Centers. (2012). Knowing your Options: America's Blood Centers. www.americasblood.org.
 17. WHO. (2012). Safe and rational clinical use of blood. www.who.int
 18. Wikipedia. Blood transfusion intervention. The free encyclopedia.

2/13/2014