



Transfusion Transmitted Infections among Blood Donors at a Tertiary Health Facility in Southwest, Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author GOD designed the study, Author QMU worked on data collection/retrieval. Authors OAA, AOO, ODA, AF, AHE and OOO provided support. All authors read and approved the final manuscript.

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ABSTRACT

It was a major breakthrough for human medicine when Landsteiner discovered the ABO blood group system. But with the discovery of ABO and Rhesus systems, this major hindrance to safe blood transfusion- and by extension surgery- was effectively put behind humanity. Centuries after

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this, humanity is faced another kind of challenge to safe blood transfusion- transfusion transmitted infections (TTIs), particularly in developing nations of the world. Though lots of infections are transmissible through transfusion, the focus of this study was HIV, HBV, HCV and syphilis. This study aimed at determining the prevalence of these TTIs (HIV, HBV, HCV and syphilis) among intending blood donors at a tertiary health facility in Ekiti State, southwest, Nigeria. The data of 150 intending blood donors at the said tertiary health facility were retrospectively retrieved and analysed. One hundred and twenty (80%) of the subjects were males, while 30 (20%) were females. The age of the subjects ranged between 18 and 55 years. Thirty-four (22.7%) of the subjects had TTIs, while 116 (77.3%) were negative to all the TTIs of interest for this study (HIV, HBV, HCV and Syphilis). Out of the 34 subjects who had TTIs, 2 (1.3%) tested positive for HIV, 18 (12%) for HBV; 10 (6.7%) for HCV and 4 (2.7%) for syphilis. Twenty-nine (85.3%) of the subjects who had TTIs were males, while 5 (14.7%) were females. An overall TTI sero-prevalence of 2.7% is rather on the high side and should serve as a wake-up call to all concerned authorities in the State to design enlightenment programme that will reduce the sero-prevalence of TTIs.

Keywords: Transfusion, TTIs, Blood Donors HIV, HBV, HCV.

1. INTRODUCTION

Every year more than 90 million units of blood are donated globally. Each transfusion carries a risk of transmitting blood-borne pathogens, especially HIV, HBV, HCV and syphilis [1]. Blood transmitted infections are the commonest cause of morbidity following blood transfusion in sub-Saharan Africa and this puts every patient receiving blood therapy at increased risk of transfusion transmitted infections (TTIs) [2]. To improve blood transfusion safety, the WHO recommends an integrated strategy including establishment of well-organized blood transfusion services, prioritization of blood donation from voluntary non-remunerated donors, screening of donated blood for at least the four major TTIs with quality-assured assays, rational use of blood and implementation of effective quality control systems [3]. Selection of blood donors with low TTI risk followed by effective laboratory screening is the critical part of the process, since it has reduced the risk of transmission to very low levels in the past 20 years [4]. Nevertheless, particularly in low-resource countries, a significant proportion of donated blood remains unsafe as it is either not screened for all the major TTIs or not in a quality-controlled manner. According to Dodd [5] Africa does not only faces the highest transfusion needs in the world, but also has the highest prevalence of blood-borne pathogens and the weakest transfusion programs. Most blood banks in Africa are small, hospital-based and rely mainly on replacement donors, unlike in the West where transfusion units are well-organised with large pools of voluntary donors [5] and where all donated units of blood are screened using nucleic acid amplification techniques (NAAT),

thus shrinking window periods for HIV and hepatitis [6,7].

In addition, recommended reference screening tests like enzyme immunoassays (EIA) or nucleic acid amplification techniques (NAAT) are technically, logistically and financially still far beyond the reach of many resource-constrained blood banks in Africa. In such settings with limited capacity and low throughput.

TTIs are major global health problems. Transfusion-transmitted infections are increasingly becoming major mode of transmission of various diseases in the high-prevalence areas in sub-Saharan Africa. This is because of the high level of occurrence of blood demanding health conditions [8]. Patients on blood transfusion therapy are at increased risk of transfusion transmitted infections. This study therefore aimed to investigate the prevalence of transfusion transmissible infections among prospective blood donated at a tertiary health facility in Ekiti State, southwest, Nigeria.

2. METHODOLOGY

2.1 Study Area

The study was carried out at the transfusion unit of the Department of Haematology of the tertiary health facility in Ekiti State, southwest, Nigeria

2.2 Study Design

The research was a retrospective study of the data of 150 prospective blood donors at the said tertiary health facility over a period of three months. The intending blood donors were screened using rapid immunochromatographic

test kits for HIV, HBV, HCV and syphilis. Enzyme Immuno Assay (EIA) was also used to re-screen all samples that tested negative to rapid test for HIV.

2.3 Data Retrieval and Inclusion Criteria

Three months data on 150 subjects whose ages were between 18 and 55 years and who met the facility's policy on blood donation (must not be a pregnant, lactating or menstruating woman, nor younger than 18 or older than 55 years and must not be on a fast) were consecutively retrieved .

3. RESULTS

One hundred and twenty (80%) of the prospective blood donors were males, while 30 (20%) were females (Table 1). The age of the subjects ranged between 18 and 55 years. Thirty-four (22.7%) of the subjects had TTIs, while 116 (77.3%) were negative to all the TTIs of interest for this study (HIV, HBV, HCV and Syphilis)(Table 2). Out of the 34 subjects who had TTIs, 2 (1.3%) tested positive for HIV, 18 (12%) for HBV; 10 (6.7%) for HCV and 4 (2.7%) for syphilis (Table 3). Twenty-nine (85.3%) of the subjects who had TTIs were males, while 5 (14.7%) were females (Table 4).

Table 1. Distribution of gender

Sex	Frequency	Percentage
Male	120	80
Females	30	20
Total	150	100

Table 2. Outcome

Outcome	Frequency	Percentage
Negative	34	22.7
Positive	116	77.3
Total	150	100

Table 3. Frequency of TTIs of interest

TTI'S	Frequency	Percentage %
HIV	2	1.3
HBsAg	18	12
HCV	10	6.7
VDRL	4	2.7
Total	34	22.7

4. DISCUSSION

Apart from transfusion reactions, transfusion transmitted infections (TTIs) continue to be a

major risk in the transfusion of blood and blood products in sub-Sahara Africa. Though over the past two decades or so, there has been a decline in the number of cases of TTIs in Nigeria, yet still constitute major threats to the transfusion of safe and affordable blood in the country. In this study, the overall sero-prevalence of TTIs among prospective blood donors was discovered to be 22.7%. that is 1.3%, 12%, 6.7% and 2.7% respectively for HIV, HBsAg, HCV and syphilis, thus making hepatitis B the most prevalent TTI in Ekiti. Negalo et al. [9] in Burkina Faso also reported in their study that hepatitis B was the most prevalent TTI in their country. Adegoke et al. [10], Babatunde et al. [11] and Fasola et al. [12] respectively reported HBV sero-prevalence of 7.5%, 10% and 10.6% among intending blood donors in different parts of the country. In a similar study in Sudan, 1% HBV sero-prevalence was reported [13].

Table 4. Sex distribution of those who had TTIs

Sex	Frequency	Percentage %
Male	29	85.3
Female	5	14.7
Total	34	100

A study in Tanzania obtained a sero-prevalence of 8% for HCV among intending donors. This is fairly comparable with the 6.7% HCV prevalence obtained in this study. These however contrast markedly with the findings of Salawu et al. [14] who reported 0.86% prevalence for HCV among prospective blood donors.

This present study recorded HIV sero-prevalence of 1.3% among the intending blood donors in Ekiti State- this is quite comparable with national and Ekiti sero-prevalence [14]. However, in their own findings, Buseri et al. [15] and Salawu et al. [14] respectively discovered HIV sero-prevalence of 4.7% and 0.97. Furthermore, the findings of this study reveals syphilis sero-prevalence of 2.7% among the prospective blood donors. This is comparable with the study of Chikwen et al [16] in the northern part of Nigeria, where they reported a syphilis sero-prevalence of 3.6%.

Quite understandably, an overwhelming majority of the prospective donors who had TTIs were males. This could naturally be expected to be so for some reasons. Majority of those who offer to donate blood (either as voluntarily or commercially) are males, because certain peculiar factors excluded some categories of

women from donating- pregnant or nursing women or women on their menstrual periods.

5. CONCLUSION AND SUGGESTION

An overall TTI sero-prevalence of 2.7% is rather on the high side and should serve as a wake-up call to all concerned authorities in the State to design enlightenment Programme that will reduce the sero-prevalence of TTIs.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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