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RESEARCH PAPER

A PRELIMINARY STUDY OF BLOOD GROUPS AMONG STUDENTS IN BAYELSA STATE

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ABSTRACT

Ensuring the availability of safe blood products is an essential public health responsibility. However, myths/fear associated with blood donation in Nigeria has been an uphill task for the health sector in developing reliable and standard blood banks. The aim of the study is to seek for methods to improve recruitment and retention of adequate, voluntary, non-remunerated safe blood donors within the Niger Delta region. This is a prospective study in which the ABO and Rhesus blood group systems were determined for a cross section of students in the Niger Delta University, Amassoma, Bayelsa state. A total of 72 (47.2% males and 52.8% females) students were analyzed. Results showed that 52.8%, 2.8%, 20.8%, 3.8%, 4.2% and 5.6% had blood group O⁺, O⁻, A⁻, B⁺, B⁻ and AB⁺ respectively. None had the AB⁻ blood group. 93.1% subjects were Rhesus positive and 6.9% were Rhesus negative. The findings were similar to findings in other parts of Africa, but different from Caucasian values. The predominant O⁺ blood group showed that the student population could be a good source and that the health system could harness it to ensure a readily available supply of blood for blood banks in the Niger Delta region.

Key words Voluntary Blood donation, predominant Blood group, education, Niger Delta region.

INTRODUCTION

Ensuring the availability of safe blood and blood products is an essential public health responsibility as it saves the lives of millions of patients such as accident victims, patients with cancers or blood dyscrasias (Erhabor, 2012). The number of available and functional blood banks in Nigeria's health facilities is grossly inadequate; even the existing ones are also inefficient Nwauche and Ejele (2003; 2004). The efficiency of blood banks is directly related to the availability of willing donors. The myths/fear often associated with blood donation has been a major drawback for the health sector in developing reliable and standard blood banks (Erhabor, 2012). It is therefore pertinent to identify a population that can be educated easily and so act as a readily available voluntary donor population in the Niger delta region. The student population of the Niger Delta University, though dynamic, could serve as one of such population.

MATERIALS AND METHODS

Study area: The study was carried out in the Niger Delta University located at Wilberforce island of Bayelsa State, Nigeria.

Study population: The Niger Delta University has a student population of about 10,000 students, 200 of which were randomly selected but only 72 participated.

Ethical consideration: An informed consent was sought and obtained from each subject who was equally educated on the importance of the research. Strict and high ethical standards were adhered to during the period of the study.

Study design: Subjects were selected by random sampling technique. Of the 200 students selected only 72 participated. This distribution was as follows: 34 males and 38 females. The inclusion criteria were: Studentship, and apparently healthy, male or female. The exclusion criterion was ill health.

Sample collection and analysis: 2mls of whole blood was collected from an antecubital vein into a well labelled EDTA bottle and stored at 4°C until analyzed. The blood samples were delivered to the Haematology Laboratory of the Niger Delta University Teaching Hospital, Okolobibi. They were analyzed for ABO and Rhesus D antigens using standard commercial antisera based on the tile technique as described in Dacie and Lewis Practical Haematology (Dacie and Lewis, 1995).

A drop of anti-sera, anti A and anti B was placed on glass slides. A drop of blood from each subject was mixed with each anti-serum individually with the help of separate glass rods. Blood groups were determined on the basis of agglutination.

Statistical analysis: The data generated was analyzed using Microsoft excel software.

RESULTS

A total of 72 students took part in the study, 34 (47.2%) were males and 38 (52.7%) were females. Overall, 55.6% of the total students were O blood group type while 20.8%, 18.0% and 5.6% were blood group A, B and AB types respectively (table 1). In terms of Rhesus status, 4 of the males were Rhesus negative and 30 were Rhesus positive. 1 of the females was Rhesus negative and 37 Rhesus positive. The various blood groups and their distribution among the student population are as shown in table 1 and figure 1. Equally, the distribution of the Rhesus status among the student population is displayed in figure 2.

Table 1: Distribution of ABO blood groups

Blood types	Frequency	Percentage
O	40	55.6%
A	15	20.8%
B	13	18%
AB	4	5.6%
Total	72	100.0

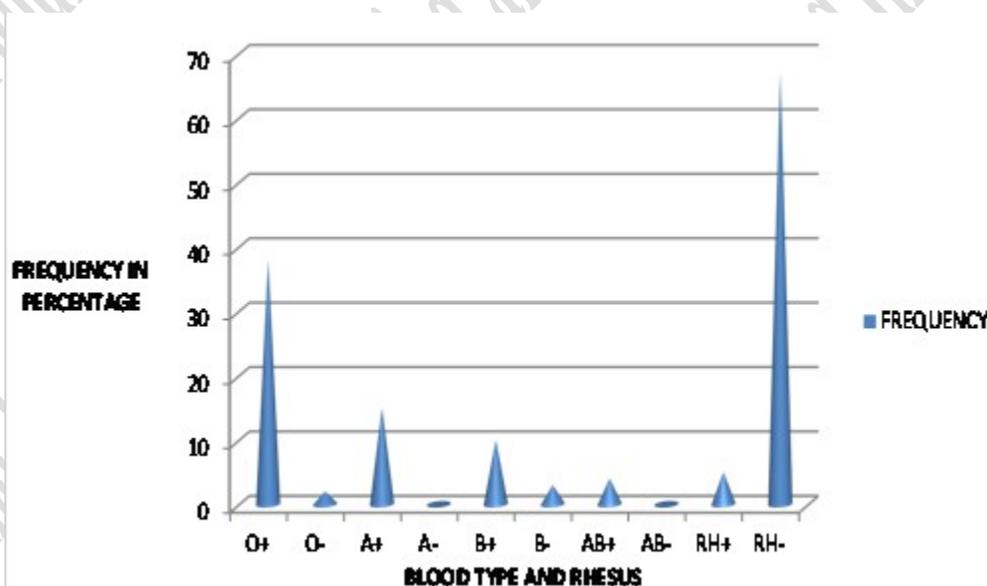


Figure 1. A graphical representation of blood group data

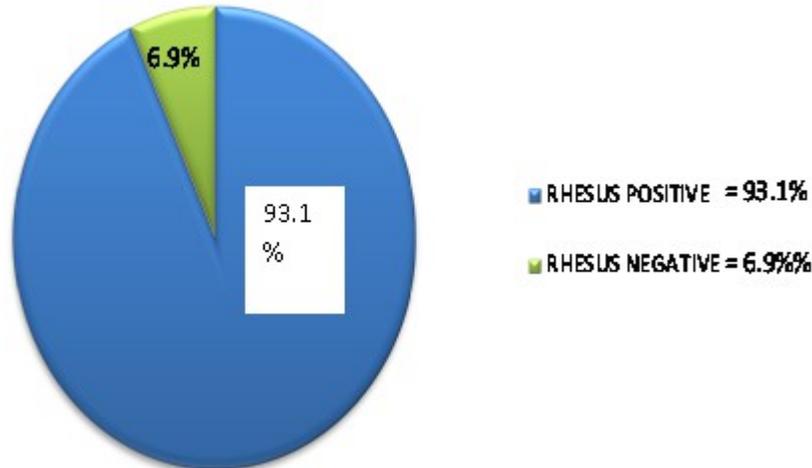


Figure 2. Graphical representation of rhesus status

DISCUSSION

About 21 human blood group systems are recognized and the best known are the ABO and the Rhesus blood group systems (Ahmed and Obi, 1998). The blood group O is the commonest throughout the world, reaching a frequency of almost 100% in south and Central Americans. Type A is associated with high frequencies in Europe although its highest frequencies occur in some Australian Aborigines. Type B has its highest frequencies in India and Central Asia. The AB blood group is the least common (Daniels, 2002).

In this study, it was noted that the frequencies of the different blood group were similar to that recorded on previous African studies (Worlledge *et al.*, 1974; Falusi *et al.*, 2000; Adeyemo and Soboyejo, 2006; Enosolease and Bazuaye, 2008; Akinnuga *et al.*, 2011), but the results were however slightly different from that recorded for Caucasian studies (Daniels, 2002). The slight variations observed might be due to the relatively small sample size in this pilot study.

The study also noted that there were more Rhesus negative subjects as there were three Rhesus negative subjects recorded, and more were associated with the blood group B. Rhesus negativity was only recorded in the B and O blood groups while no Rhesus negative subjects of the blood group A and AB were recorded. These findings suggest that there were very few individuals with Rhesus negative blood groups. Thus, Rhesus negative individuals should be encouraged to make more donations, since in emergency transfusions they are more difficult to find.

Despite the limitations of a small sample size, the above findings have shown that the well-known blood group O was the most prevalent in the sample population and individuals with blood group O are classified as general donors. Therefore, the student population though a very dynamic pool can serve as a good source of healthy willing donors that can be harnessed to sustain a reliable blood bank policy in the Niger Delta region.

Based on the findings of this study, it is recommendation that enlightenment campaigns on the life saving importance of blood donation should be carried out on campuses to encourage free blood donations.

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REFERENCES

Adeyemo, O.A. and Soboyejo, O.B. (2006). Frequency distribution of ABO, RH blood groups and blood genotypes among the cell biology and genetics students of University of Lagos, Nigeria. *Afr. J. Biotechnol.*; 5:2062-2065.

Ahmed, S.G. and Obi, S.O. (1998).The incidence of ABO and Rhesus blood groups in North Eastern Nigeria. *Nig. Med. J.*; 7: 68-71.

Akinnuga, A.M., Bamidele,O., Amosu, A.M. and Ugwah, G.U. (2011). Distribution of ABO and Rh Blood Groups among Major Ethnic Groups of Medical Students of Madonna University Teaching Hospital, Elele, Nigeria. *Asian J. Med. Sci.*; 3:106-109.

Dacie and Lewis. (1995).Practical Hematology 8thEdn.Churchill Livingstone, London, 481-487.

Daniels, G. (2002). Human Blood Groups, 2ndEdn.Blackwell Science.

Enosolease, M.E. and Bazuaye, G.N. (2008). Distribution of ABO and Rh-D blood groups in the Benin area of Niger-Delta: Implication for regional blood transfusion. *Asian J. Transfusion Sci.*; 2: 3-5.

Erhabor, O. (2012). Blood transfusion services in Sub-Saharan Africa. 1stEdn. AuthorHouse.

Falusi, A.G., Ademowo, O.G., Latunji, C.A., Okeke, A.C., Olatunji, P.O., Onyekwere, T.O., Jimmy, E.O., Raji, Y., Hedo, C.C., Otukonyong, E.E. and Itata, E.O. (2000). Distribution of ABO and RH genes in Nigeria. *Afr. J. Med. Sci.*; 29: 23-26.

Nwauche, C.A. and Ejele, O.A. (2003).Red cell antigens and the practice of transfusion medicine in Nigeria- a review. *Nig. J. Orthop. Trauma*; 2:68-77.

Nwauche, C.A., and Ejele, O. A. (2004). ABO and Rhesus antigens in a cosmopolitan Nigerian population. *Nig. J. Med.*; 13: 263-266.

Worlledge, S., Ogiemudia, S.E., Thomas, C.O., NjokuB, N. and Luzzato, L. (1974). Blood group antigens and antibodies.*Nig. Ann. Trop. Med. Parasitol.*; 3: 249- 264.

AUTHOR(S) CONTRIBUTIONS

All three authors (Pughikumo D.T., Onyebuagu P.C., Pughikumo O.C.) actively participated in this study.Pughikumo D.T was responsible for the experimental design and processes. Onyebuagu P.C. and Pughikumo O.C assisted in the analysis, interpretation and discussion aspects of the study.