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PATTERN OF DONATION AND SOME HAEMATOLOGICAL INDICES OF BLOOD DONORS IN SOKOTO, NIGERIA.

By ISAAC IZ

Introduction

Problem Statement:

- 100 million people sustain life threatening injuries, and more than 5 million die for lack of blood supply yearly.

- Only 2 million out of 80 million units are donated in Sub Saharan Africa (SSA) [WHO, 2002].

- Access to safe and adequate blood and blood product remain a mirage in SSA, thirty years after the first WHO resolution (WHA28.72) to address the issue.

Introduction cont.

Causes of allogenic blood demand

- Escalating elective surgery,

- Various safety introductions in blood transfusion.

- Accidents.

- Infections like HIV and Malaria.

- Terror attacks and PPH have all conspired to ensure that allogenic blood remains very much a vital but limited asset

Approach

- One hundred and thirty -six consecutively recruited whole blood donors engaged in the study.

- Donors were recruited having given informed consent after counseling

- Donors were grouped according types.

- Haematological parameters; packed cell volume, total white cell count and platelet count were assessed using standard techniques

Study area

- Sokoto State is located in the extreme North Western part of Nigeria near to the confluence of the Sokoto River and the Rima River.

- Sokoto is, on the whole, a very hot area. maximum daytime temperatures 40 °C (104.0 °F). The warmest months are February to April when daytime temperatures can exceed 45 °C (113.0 °F).

- Report from the 2007 National Population Commission indicated that the state had a population of 3.6 million.

Methods

- Three milliliters of blood sample collected into (K2EDTA) anticoagulated blood containers.

- The determination of PCV was by using a microhaematocrit centrifuge (Hawksley, UK).

- Platelet count and Total White Cell count was determined using standard methods.

Statistics

- Statistical analyses were conducted using SPSS (version 11) software.

- Comparisons between populations were made using the Student's t-test for parametric data and the Mann-Whitney test for non-parametric data.

- An alpha value of < 0.05 denoted a statistically significant difference.

- Correlation was compared using a version of linear regression analysis.
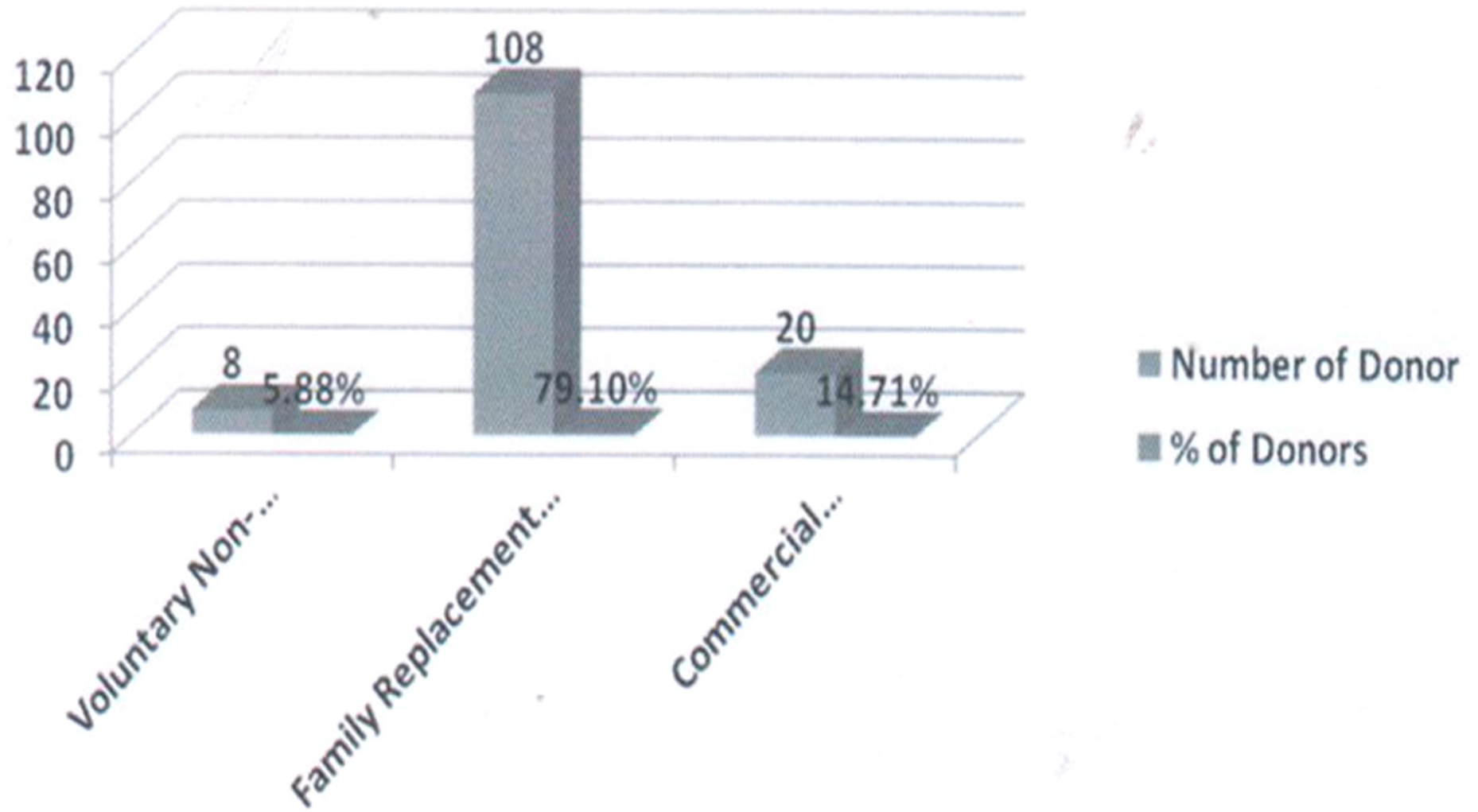
Figure 1: Distribution of Blood Donors

Table 1: Haematological values among the donor groups

Haematological Parameters	Donor Class			t-value	p-value
	Voluntary Non-Remunerated	Family Replacement	Commercial Remunerated Donors		
PCV (%)	40.25± 4.46	41.02± 4.46	28.10±4.15		0.001
TWBC (x 10^9/L)	9.38±2.00	6.37±2.79	5.39±3.44		0.20
PLC (x 10^9/L)	390.23±64.70	271.44±109.10	132.50±40.30		0.0001

Key:

PCV = Packed Cell Volume

TWBC = Total White Cell Count

PLC = Platelet Count

Table 2: Comparison of Haematological values of Voluntary and Commercial remunerated donors

Haematological Parameters	Voluntary Non-Remunerated	Commercial Remunerated Donors	t-value	p-value
PCV (%)	40.25± 4.46	28.10±4.15	5.28	0.0001
TWBC (x 10^9/L)	9.38±2.00	5.39±3.44	2.89	0.11
PLC (x 10^9/L)	390.23±64.70	132.50±40.30	10.37	0.0001

Key:
PCV = Packed Cell Volume
TWBC = Total White Cell Count
PLC = Platelet Count

Table 3: Comparison of Haematological values of Family Replacement and Commercial remunerated donors

Haematological Parameters	Family Replacement	Commercial Remunerated Donors	t-value	p-value
PCV (%)	41.02± 4.46	28.10±4.15	8.82	0.0001
TWBC (x 10^9/L)	6.37±2.79	5.39±3.44	1.27	0.20
PLC (x 10^9/L)	271.44±109.10	132.50±40.30	3.99	0.0001

Key:

PCV = Packed Cell Volume

TWBC = Total White Cell Count

PLC = Platelet Count

Discussion

- Commercially remunerated blood donors makes up (14.71%).

- They are often associated with the following problems

- High Prevalence of TTIs [Ejele OA et al 2005].

- They may be poor in health and undernourished;

- They are more likely to give blood more often than recommended,

- They have high risk behaviors.

Discussion

- Voluntary non remunareted donors make up 5.88% in this study.

- Family replacement donors constituted a significant number of blood donors (79.41%).

- The disadvantages of this method of blood donation include;

- Patients or their relatives are under intense strain and providing blood puts additional responsibility and stress on them.

Discussion

- Undue pressure may cause members of the family to give blood, even when they know that donating blood may affect their own health.

- Or even at risk of transmission of TTIs.

- It is difficult for a country's transfusion needs to be met solely relying on family replacement donations [Bates I and Hassall O, 2010].

- Also, there is potentially at risk of producing antibodies to clinically significant antigen/s by spouse

Discussion

□ The trend of PCV and platelet count follows the pattern; commercial remunerated donors < family replacement donors < voluntary non-remunerated donors.

□ A positive and significant correlation between commercial remunerated blood donation and low PCV and platelet count [Jeremiah ZA, et al. 2010] .

Hindrances of accessing safe and adequate blood

- National blood transfusion services and policies are often lacking.

- Lacking of appropriate infrastructure

- Inadequate trained personnel

- Financial resources are often inadequate.

- Predominance of family replacement and

- Presence of commercially remunerated blood donors,

Challenges of safe and effective blood transfusion

- High incidence of TTIs.

- Reliance on commercial and family-replacement donors.

- Inadequate knowledge.

- Cultural hindrances –related challenges.

- Transfusion of whole blood.

- Lack of effective stewardship.

- Absence of red cell alloimmunization testing services.

- Sub optimal usage of alternatives to allogenic blood.

Challenges of safe and effective blood transfusion continue

- ☐ Absence of indication coding tool to facilitate effective use of blood products.

- ☐ Absence of evidence- based approaches to the management of major haemorrhages.

- ☐ Absence of uninterrupted power supply and challenge of cold chain management of blood product and

- ☐ Absence of regular stock of Emergency group O Negative blood for emergency use.

Conclusion

- Family and commercial remunerated donation still predominate in this study.

- The findings from this study indicates that the PCV and platelet count is significantly lower among commercial remunerated donors.

- And it re-emphasize the need to formulate policies on ways to seriously and innovatively attract and retain voluntary non-remunerated blood donors.

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