Knowledge, Attitude and Practice of Voluntary Blood Donation among Physicians in a Tertiary Health Facility of a Developing Country

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Abstract

Introduction: There is shortage of active blood donors to meet the increased demand. Precisely aimed promotion and information, targeted motivation and selection of non-remunerated healthy volunteer donors are needed for an adequate and safe blood and blood products supply.

Objectives: The objectives of this study are to assess the knowledge, attitude and practice of voluntary blood donation among physician, to identify and recruit potential voluntary blood donors amongst them and to determine the association between blood donation and gender, duration of practice and sub-specialty of the physicians.

Methodology: This was a cross sectional qualitative study conducted at the University of Benin Teaching Hospital, Benin City. A pre tested questionnaires was administered to 140 physicians in the tertiary health facility.

Statistical analysis: The responses were collated and analyzed with the Statistical Package for Social Sciences (SPSS) 16. The results are presented in frequency tables. The association between blood donation practice and gender of respondents, duration of practice and specialty of the responding physicians were tested using Chi-square and Fisher’s test where appropriate. P-values < 0.05 were considered significant.

Results: Only 58 (41.4%) physicians have donated with 33 (56.9%) donating less than once a year, 18 (31%) between 1-3 times a year and 5 (8.6%) more than thrice a year. Most (53.4%) donated voluntarily, 39.7% for a friend or relative, 3.4% for remuneration and 5.2% to know their screening status.

Conclusion: Physicians have good knowledge of voluntary donation and have a positive attitude towards donation but there is a disparity in their practice of blood donation.

Keywords: Blood donation; Physicians; Developing country

Introduction

Blood is scarce; its demand far outweighs the supply. There is shortage of active blood donors to meet the increased demands of blood [1], in addition to limited supply, the issue of safety especially with regard to the risk of transfusion transmissible infection is also an issue of utmost concern especially in the developing countries. Donor blood procurement from voluntary non remunerated donor has been adjudged the safest source of blood. Hence the World Health Organization (WHO) has adopted a policy aimed at 100% voluntary non-remunerated donor blood procurement by the year 2020 [2].

Precisely aimed promotion and information, targeted motivation and selection of non-remunerated, healthy volunteer repeat donors form the foundation of safe blood products supply in highly developed countries [3]. In most developing and transitional countries, by contrast, family replacement and paid blood donors are still a significant source of blood components for transfusion [4].

The constant concern in the efforts to meet the demands for blood is the fact that only a small percentage of the eligible population actually chooses to donate blood on a regular basis and that a significant percentage of eligible donors are deferred temporarily or permanently because of strict deferral criteria being continuously added in the name of blood safety [5]. At the same time, the demand for blood and blood products in most countries continues to increase because of the rise in human life expectancy and the implementation of new and aggressive surgical and therapeutic methods requiring large quantities of blood and blood products [6].

Physicians by virtue of their training and medical practices are expected to be highly informed on the processes of donor blood procurement and the challenges of supply as well as the potential hazards of transfusion. They also constitute a potential pool of eligible but yet unexplored donors. The objectives of this study are to assess the knowledge, attitude and practice of voluntary blood donation among physician, to identify and recruit potential voluntary blood donors amongst them and to determine the association between blood donation and gender, duration of practice and sub specialty of the physicians.

Methodology

This is a cross sectional qualitative study conducted at the University of Benin Teaching Hospital (UBTH) as part of the 2011 World Blood Donor Day Programme. The hospital is a major referral, training center for both undergraduate and postgraduate doctors in...
various specialties and a research institute in south south Nigeria. It has over 600 physicians, a bulk of which comprise of house officers and resident doctors undergoing postgraduate training. The center operates a hospital-based blood banking system which is highly dependent on blood procurement from vendors who operate paid donor outlets. Their supply is augmented by supply from National Blood Transfusion Service (NBTS), family replacement and very few voluntary donors. Pretested questionnaire were self administered to 140 physicians from various clinical sub specialties. An informed written consent was obtained from all participants.

1. Age Range (median age) 25 -52 (32) yrs
2. Gender
   - Males 102 72.9
   - Females 33 23.6
   - No Response 5 3.6
3. Marital Status
   - Single 56 40.0
   - Married 82 58.6
   - No Response 2 1.4
4. Professional Status
   - House Officers 18 12.9
   - Residents 115 82.1
   - Medical Officers 4 2.9
   - No Response 3 2.1
5. Duration of Practice in the facility
   - < 1 year 27 19.3
   - 1– 5 years 85 60.7
   - >5 years 26 18.6
   - No response 2 1.4
6. Specialty
   - Dentistry 15 10.7
   - Surgery 10 7.1
   - Internal Medicine 21 15
   - Obstetrics and Gynaecology 14 10
   - Family Medicine 9 6.4
   - Anaesthesia 25 17.9
   - Psychiatry 4 2.9
   - Paediatrics 5 3.6
   - Community Medicine 2 1.4
   - Pathology 15 10.7
   - Accident and Emergency 6 4.3
   - No Response 14 10.0
7. Religion
   - Christianity 131 93.6
   - Moslem 1 0.7
   - Traditionalist 1 0.7
   - No Response 7 5.0
   - Total 140 100

<table>
<thead>
<tr>
<th>Blood Group</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>21 (22.8)</td>
</tr>
<tr>
<td>B</td>
<td>13 (14.1)</td>
</tr>
<tr>
<td>AB</td>
<td>5 (5.4)</td>
</tr>
<tr>
<td>O</td>
<td>53 (57.6)</td>
</tr>
<tr>
<td>Rhesus D Positive</td>
<td>84 (91.3)</td>
</tr>
<tr>
<td>Rhesus Negative</td>
<td>8 (8.7)</td>
</tr>
</tbody>
</table>

Table 1: Sociodemographic Parameters of Respondents.

<table>
<thead>
<tr>
<th>Blood Group</th>
<th>Who should donate blood?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>138 (98.6%) Men 136 (97.1%)</td>
</tr>
<tr>
<td>No</td>
<td>1 (0.7%) Women 125 (89.3%)</td>
</tr>
<tr>
<td>No Response</td>
<td>1 (0.7%) Young (&lt; 18yrs) 8 (5.7%)</td>
</tr>
</tbody>
</table>

Table 2: Summary of Blood Group of Respondent.

<table>
<thead>
<tr>
<th>Blood group</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Negative</td>
<td>2 (1.4%) Religious belief 11 (7.9%)</td>
</tr>
<tr>
<td>A Positive</td>
<td>19 (13.6%) Men 6 (4.3%)</td>
</tr>
<tr>
<td>AB Positive</td>
<td>5 (3.6%) Woman 8 (5.7%)</td>
</tr>
<tr>
<td>B Negative</td>
<td>1 (0.7%) Young (&lt; 18yrs) 61 (43.6%)</td>
</tr>
<tr>
<td>B Positive</td>
<td>12 (8.6%) Old (&gt; 60yrs) 92 (65.7%)</td>
</tr>
<tr>
<td>O Negative</td>
<td>5 (3.8%) Vulnerable group 106 (75.7%)</td>
</tr>
<tr>
<td>O Positive</td>
<td>48 (34.3%) Healthy 4 (2.9%)</td>
</tr>
<tr>
<td>Invalid</td>
<td>2 (1.4%) Diseased 97 (69.3%)</td>
</tr>
<tr>
<td>No Response</td>
<td>46 (32.9%) Culture belief 5 (3.6%)</td>
</tr>
</tbody>
</table>

Table 3: Knowledge on blood donation.

**Statistical Analysis**

The responses were collated and analyzed with the Statistical Package for Social Sciences (SPSS) 16. The results are presented in frequency tables. The association between blood donation practice and gender of respondents, duration of practice and specialty of the responding physicians were tested using Chi-square and Fisher's test where appropriate. P-values < 0.05 were considered significant.

**Results**

There were 140 respondents in the age range of 25-52 years (median...
Most of the respondents were Christians accounting for 93.6%. Table 1 of physicians from 11 departments including dentistry (10.7%), surgery (7.1%), internal medicine (15%), obstetrics and gynaecology (10%), family medicine (6.4%), anaesthesia (17.9%), psychiatry (2.9%), paediatrics (3.6%), community medicine (1.4%), pathology (10.7%) and accident and emergency (4.3%) responded. Most of the respondents were Christians accounting for 93.6%. Table 1 shows details of the demographics of respondent.

On knowledge, the respondents expressed a good knowledge of the common blood group types and of their own blood group. The blood group of respondent are A Rhesus(Rh) negative (1.4%), A Rh positive (13.6%), AB Rh positive (3.6%), B Rh negative (0.7%), O Rh negative (3.8%) and O Rh positive (34.3%). Forty six (32.9%) did not respond to question on knowledge of their blood group (Table 2).

Most respondent (95.7%) are aware of the risk of transmission of infection by transfusion. The risk of transmission of HIV, HBV, HCV and Syphilis was affirmed by 99.3%, 97.9%, 73.6% and 42.9% while 19.3% and 2.9% affirmed those of malaria and CMV respectively. Thirty five percent stated that the minimum donation frequency was 6 months, 35.7% tri-monthly, 11.4% monthly while 9.3% had no knowledge of this. About 8% and 3.6% stated that people should not donate for religious and cultural beliefs respectively. On knowledge of volume of blood collected in each process 60.7% stated less than 500 mls, 34.3% ticked 500-1000 mls while 21.4% express no knowledge of it. Table 3 shows the details of the knowledge of blood donation expressed by respondents.

A hundred and twenty five (89.3%) respondents said blood donation is good. Voluntary donation was accepted as the best source of donor blood by 80.7%, replacement donors by 7.1%, remunerated by 0.7% and self donation by 2.1%. One hundred and seventeen (83.6%) said something can happen to a donor, 11.1%, 92.3% and 7.6% stated that a donor might contract infection, become temporary weak and suffer loss of health respectively.

Only 58 (41.4%) physicians have donated with 33 (56.9%) donating less than once a year, 18 (31%) between 1-3 times a year and 5 (8.6%) more than thrice a year. Most (53.4%) donated voluntarily, 39.7% for a friend or relative, 3.4% for remuneration and 5.2% to know their screening status. Eighty (57.1%) accepted to be reminded or called upon to donate but only 40% of them left their contacts.

Eighty two (58.6%) had never donated. Reasons for non donation included 26 (31.7%) not approached to donate, 18 (22%) need to donate for friends or relatives in the future, 14 (17.1%) not fit to donate, 10 (12.2%) fear of needles, 4 (2.9%) blood may be sold by the blood bank, 2 (2.4%) fear of knowing their status. One hundred and twenty seven (90.7%) thought that patient relatives should be encouraged to donate and (126) 90% actually encouraged relatives to donate. Table 4 Section D show details of blood donation practices among physicians.

There was no significant association between donation practices and gender, duration of practice in the facility and specialty of physicians as P values were 0.227, 0.613 and 0.844 respectively (Table 5 and 6).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Donors</th>
<th>Non-donors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>43</td>
<td>59</td>
<td>102</td>
</tr>
<tr>
<td>Females</td>
<td>10</td>
<td>23</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>82</td>
<td>135</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duration of Practice</th>
<th>Donors</th>
<th>Non-donors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 years</td>
<td>10</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>1 – 5 years</td>
<td>35</td>
<td>50</td>
<td>85</td>
</tr>
<tr>
<td>&gt; 5 years</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>80</td>
<td>138</td>
</tr>
</tbody>
</table>

X² = 0.114, P =0.227
Discussion

There are limited studies on voluntary blood donation practices among physicians. By training they have been taught and are continually exposed to current articles on transfusion practices. They are the ones who request, utilize and manage problems arising from use of blood and blood products. The extent these knowledge influence their practice of blood donation is yet to be fully ascertained. All respondents were within the eligible age group for blood donation hence they constitute a pool of potential donors [7]. The blood group ABO and Rhesus phenotypic patterns of respondent were similar to reports of previous work done in the geographic location [8]. Blood group O was the commonest (57.6%) while AB was the least (5.4%). The frequency of Rh D negative phenotype was 8.7% similar to the findings by Enosolease and Bazuaye [8]. As expected the respondent displayed a high knowledge with regard to common blood group, common transfusion transmissible infections though less than average recognized syphilis, CMV and other rare infectious agent transmissible by blood. This may be attributed to a decline in the screening for syphilis by the local blood bank and non inclusion of malaria and CMV screening for donors. Effect of culture and religion was recognized as a limitation to donation. Some Christian sects still object strongly to blood and blood product usage despite the absence of a perfect substitute. There was limited knowledge on frequency of donation and duration of a donation process. This may be due to the fact that less than 50% have donated blood.

Physicians usually request for blood and blood components for their patients and it is expected that they should be conversant with the challenges of blood procurement. Hence it is surprising therefore that “not been approached for blood donation” is the commonest reason for non-donation.

A study from the Blood Centre of Umea University Hospital in Sweden showed that among motives for donating blood, healthcare occupation represented only 7.7% of the donors [9]. Misje et al. [10] from the Blood Bank of Oslo, Norway, found that 12.4% of their donors worked in health and social sciences, a percentage smaller than that of the total work force (17.6%). These authors expressed surprise that healthcare professionals were under-represented.

In a similar study conducted in an academic based hospital in Virginia USA, of 687 survey respondents, only 21 (3.1%) were physicians [11]. The returning physician donors (16) came back a median of 12 months after a prior donation, a lapse 9 months longer than for all returning donors (median 3 months). One-third (33.3%) of physician donors presented as walk-in donors, two times that of the total survey respondents (16.2%) in the Virginia study.

Gilani et al. [12] in a comparative study on blood donation by medical and paramedical workers reported 49.2% of doctors as donors and only 3.4% of these regular donors.

In this study, we recorded 41.4% blood donation by physicians, 39.6% were regular donors and 53.4% of these were voluntary. Eighty (57.1%) accepted to be recruited and reminded to donate only 40% of them wrote their contacts. This was a far cry from the knowledge and attitude indicated by the questionnaire. Voluntary blood donation among physicians though low generally, doctors in this study performed higher than their colleagues in the developed countries as documented in the studies by Gilani et al. [12] and Kanner et al. [11]. There is need to properly harness this potential pool of donors if the drive for 100% voluntary donor targeted by the WHO will be achieved.

For a sustainable blood banking system aimed at providing adequate and safe blood to all in need, a proper sensitization, and massive donor recruitment from all potential donors must be implemented.

Conclusion

Physicians in the study centre have good knowledge of voluntary donation and have a positive attitude towards donation but there is a disparity in their practice of blood donation.

References

5. http://www.wpro.who.int/mediacentre/factsheets/fs20040610.htm