RESPONSE RATE OF MALAYSIAN BLOOD DONORS WITH REACTIVE SCREENING TEST TO TRANSFUSION MEDICINE UNIT CALLS

TM Roshan[1], H Rosline[2], SA Ahmed[2], M Rapiaah[2] and MN Khattak[3]

[1]Lady Davis Institute for Medical Research, Montreal, Quebec, Canada; [2]Department of Haematology, School of Medical Sciences, [3]Unit of Epidemiology and Biostatistics, Department of Community Medicine, University Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

Abstract. Blood donors with reactive screening test results are requested to come in for counseling by letter and telephone call. It has been noticed many donors responded to neither the letters nor the telephone calls. We evaluated 589 cases with reactive screening test results (208 positive for hepatitis C, 209 for hepatitis B, 85 for VDRL and 87 for HIV). In the hepatitis C positive group 61 donors (29.3%) did not respond and 4.7% missed their follow-up appointment. Similarly low response rates were noted with the HBV (58.9%) and VDRL (67.1%) positive groups. Among HIV positive donors 46.0% failed to respond to multiple calls. We conclude that blood donors in Malaysia have a poor response to calls from the blood transfusion unit. A review of the effectiveness of the current deferral system and an increased public knowledge of transmissible infectious diseases may encourage blood donors to have a better response rate.

INTRODUCTION

Blood donation is a duty of every healthy member of the community and is a life saver. Blood donation saves lives if the blood is safe for the recipient. In developing countries, a major source of HCV, HBV and HIV infection is transfusion of blood and blood products from unscreened or inadequately screened blood donors. The demand for blood components is postulated to increase in the future (Wake and Cutting, 1998). With development in screening the blood the chances of transfusion transmitted diseases has decreased considerably. However, tests with greater sensitivity have an increased chance of giving false positive results, leading to unnecessary calls to donors to attend the blood bank clinic.

Under current practice in Malaysia; potential blood donors, after registration and filling out self deferral forms, are sent for counseling and a brief medical checkup. This includes checking the donor's hemoglobin, blood group and a general physical examination. During counseling, it is made sure the donor has read the information in the self deferral form and signed it. The process of blood donation, post-donation care and the outcomes of donation are explained. The outcome of the process is dependent on the understanding of the donor and his previous experiences. After blood donation is completed, samples are colleted to screen for

Correspondence: Dr Suhair Ahmed, Department of Haematology, School of Medical Sciences, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia.
Tel: +609 766 4972; Fax: +609 765 2709
E-mail: suhair@hotmail.com

transfusion transmitted diseases. Screening tests carried out are an enzyme immunoassay (EIA) for HIV, tests for hepatitis B surface antigen (HBsAg), anti-hepatitis C virus antibodies (anti-HCV) and VDRL for syphilis. If any of the screening tests are reactive, the test is either repeated or second line investigations and confirmatory tests are done on the blood. These tests include EIA, particle agglutination (PA) and Western blot (WB) for HIV, repeat screening and/or RIBA tests for HCV and repeat screening for HBV and syphilis. Currently, we are not evaluating ALT levels, as is done in other populations (Driss *et al*, 1991). The donors are then told to attend the blood bank clinic to repeat the tests and for counseling. During counseling, the donors are not informed regarding the test results. Most donors with reactive screening tests must attend the blood bank clinic at least three times before the results are revealed.

If the screening test is repeatedly reactive with a negative or indeterminate confirmatory test, then notification is made and follow-up visits become more complex resulting in loss to follow-up of donors. One of the difficulties facing the counselor is how to convey the message to the donor the test result has no significance for the donor's health but makes the donor ineligible for future donations. This reveals the importance of proper counseling.

Notification of blood donors with reactive screening tests is compulsory in the health care system of Malaysia. This notification is given once the screening and confirmatory tests are repeatedly reactive from the first sample at the time of donation and from evaluation of the donated blood. In patient with reactive HCV screening; RIBA is performed before sending out a notification letter. For HIV, a PA and WB are done before issuing a letter with the test results. However, it is policy that all confirmatory tests must be performed from a new blood specimen. In cases where donors do not respond to phone call or letter; a second letter is sent within two months of the first notification. If they do not respond to the second notification, public health authorities are notified of their national identification numbers and addresses for necessary action. This mode of notification is acceptable and practiced in other countries as well (Tynell *et al*, 2007). Sometimes donors need to return three or more times for counseling and blood testing after initial reactive or indeterminate test results. The outline of donor visits after an initially reactive test is shown in Fig 1. The donor can make these visits at their convenience. Confidentiality of donors and their anxiety is always taken into account.

It has been observed in our blood bank setting that many donors with reactive screening tests do not respond to letters or telephone calls asking them to attend the blood bank clinic for follow-up investigations. Some donors with deferrable risk behaviors continue to donate blood. Most of these donors use blood donations as a means for free testing because of their high risk behavior *(test seekers)*. To our knowledge, there have been no previous studies of Malaysian donor attitudes towards calls from the blood bank. This study was carried out to assess the attitude of blood donors in responding to post-donation calls from the Transfusion Medicine Unit, Hospital Universiti Sains Malaysia.

MATERIALS AND METHODS

A cross-sectional study was carried out. Data from blood donor screening test results for HIV, HBV, HCV and VDRL and follow-up visits in reactive cases, from January 2005 to December 2006, were collected and ana-

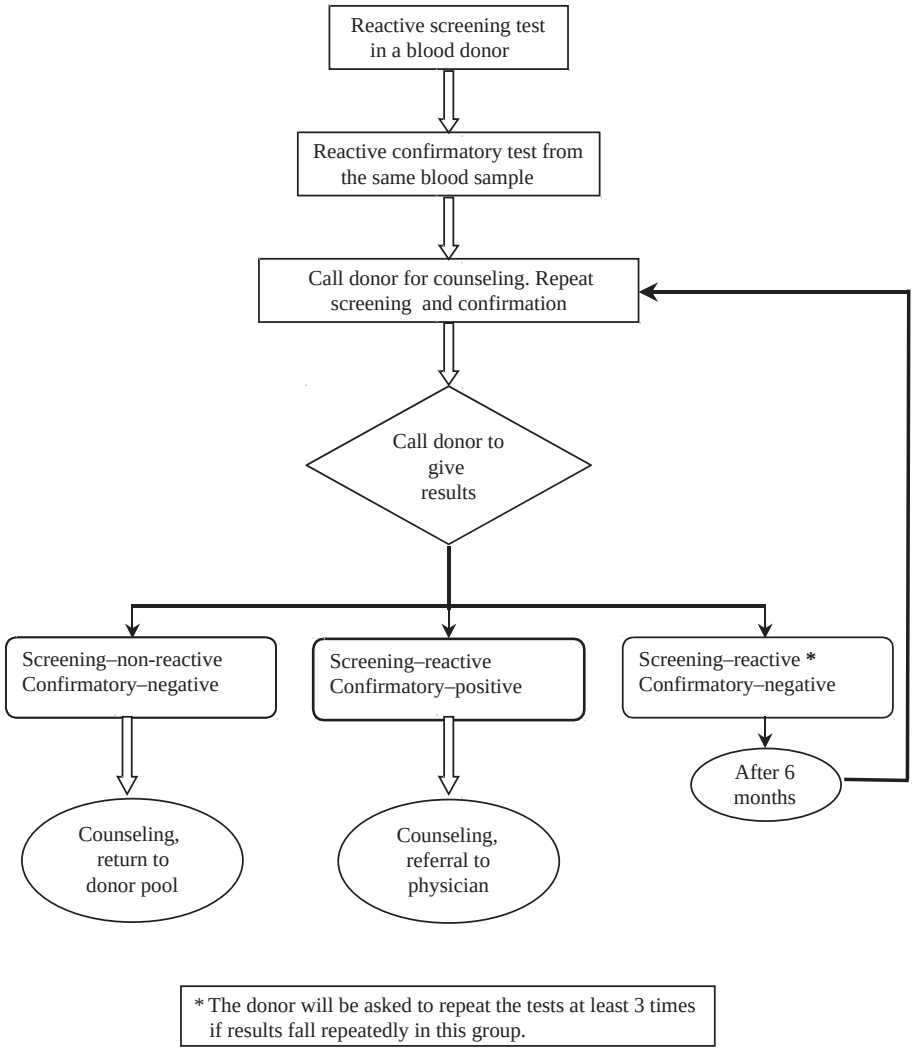

Fig 1–Outline of donor visits for initially reactive screening tests.

lyzed. Descriptive statistics were carried out on blood donors who had reactive screening tests.

Five hundred eighty-nine blood donors were identified who had reactive screening tests: 208 (35.3%) positive for HCV, 209 (35.5%) for HBV, 85 (14.4%) for VDRL, and 87 (14.8%) for HIV. All reactive cases were informed either through letters or telephone calls to attend the blood bank clinic.

RESULTS

Of 208 HCV positive donors, 147 (70.7%) responded and attended the clinic, 61 (29.3%) did not respond at all, and 7 (4.7%) missed their subsequent follow-up visit. Of the 209 donors reactive for HBV, 123 (58.9%) responded by attending the clinic but 86 (41.1%) did not respond at all, and 2 (1.6%) missed their follow-up visit. Similarly, of the

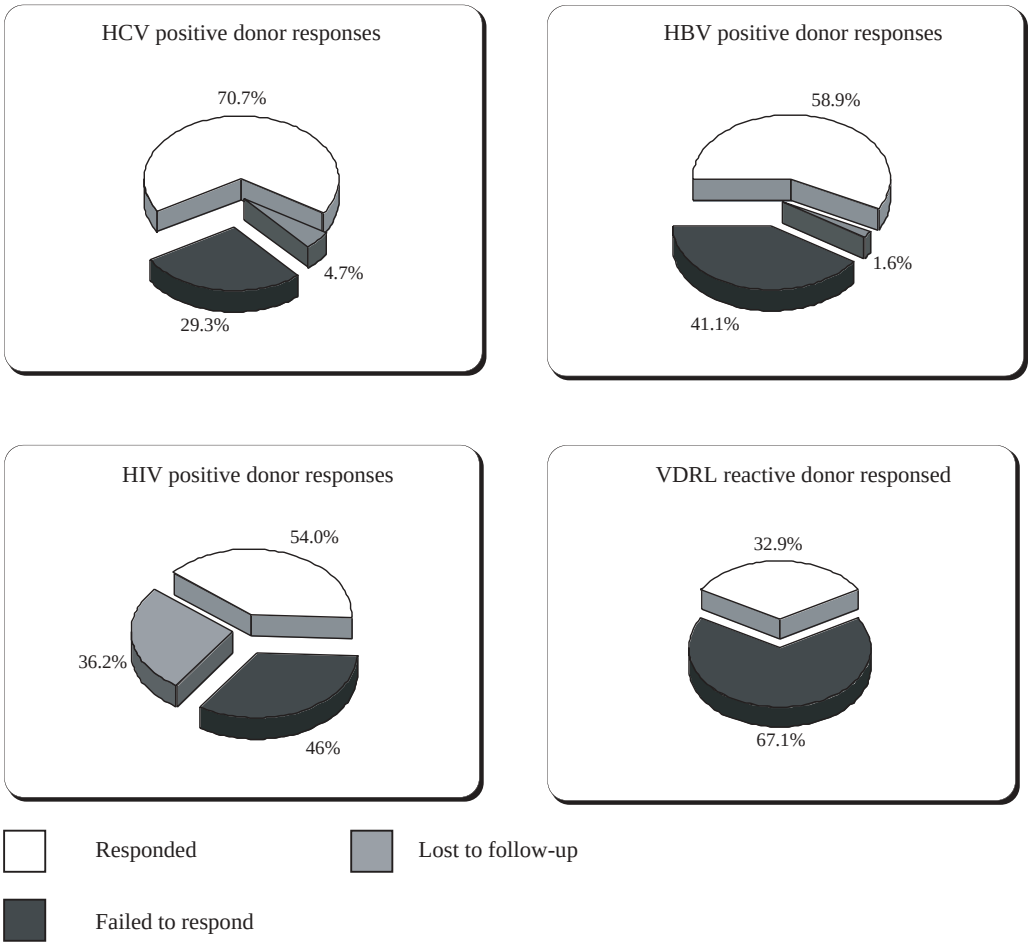

Fig 2–Donor responses after positive reactive screening test.

85 VDRL reactive donors, 57 (67.1%) responded and attended the clinic, while 28 (32.9%) did not respond at all. Out of the 87 HIV positive donors 47 (54.0%) responded to the call. Of these 47 donors 30 (63.8%) completed their investigations and 17 (36.2%) were lost to follow-up. Forty donors (46.0%) did not respond at all to any of multiple calls. Comparison of the ages of responders, non-responders and those who were lost to follow-up showed no significant differences. However there was a significant difference between responders and non responders among first time donors and regular donors. Donors, who had donated more than three times before a reactive screening test, did not miss their follow-up visit. Fig 2 shows the responses of donors with reactive screening tests.

DISCUSSION

We did not compare the prevalence of HBV, HCV, and HIV in the normal population to our results since our results represent screening tests. However, there was a lower prevalence of HBV (4.7%) (Loh, and Kew, 2006), HCV (1.5%) (Duraisamy *et al*, 1993)

and HIV (0.5%) (Tan and Koh, 2008) among the Malaysian population. In our study none of the donors used a false name or identification number (test seeker). Using a wrong identification number or name would not allow potential test seekers to discover the results of their tests because the letter would not reach the right person. We did not compare the education level between responders and non-responders.

The results of this study show a low response rate to blood bank calls to donors with reactive screening tests. These results suggest donors may have poor health care knowledge and a poor understanding regarding the screening tests. Perceptions regarding screening tests are different among donors. This may be attributed to socio-economic and socio-cultural beliefs. Sharma *et al* (2001) found that many donors did not know about the window period in test results and felt it was fine to donate blood even if they engaged in high risk behavior since the blood they donated would be tested for infectious agents anyway and would be discarded if infected. Some donors being *potential test seekers*, in a high risk group, would not like to be followed up. These *potential test seekers* were aware a notification from the blood bank clinic would most likely be due to a reactive screening test result. Donors not declaring their high risk status can be devastating in view of the window period in infectious diseases in which detection is not possible by screening tests. Another study carried out at our center (Yousuf *et al*, 2007) showed the prevalence of hepatitis B seropositivity was less in regular blood donors compared to first time donors. This implies the need for proper pre-donation counseling of the latter group.

Notification of abnormal screening tests is critical; asymptomatic donors are informed about a possible infectious agent being present in their body. The process of notification should be standardized and public health authorities should work in close relation with blood banks. This should reduce the chances of transferring infectious agents to healthy members in the community.

In Sweden, prospective blood donors first register with the blood bank before donation. At that time they are provided with necessary information and a relevant history is obtained to rule out any medical problems. This also gives a chance to take blood samples to screen for infectious agents before actually donating blood. They are told about the donation procedure and are prepared mentally before donating their first unit of blood (Tynell *et al*, 2007). In our setting, these screening tests are performed once the actual blood donation has been made. Tynell *et al* (2007) also reported a response rate of 88% in contacted donors; this high rate reflects the importance of this issue for donors and their concern for helping others. Other studies have also shown higher response rates of blood donors compared to ours (Nilsson Sojka and Sojka, 2003). Lower response rates were also reported (21-67%) in some studies (Moyer *et al*, 1992; Sanchez *et al*, 2001; Kleinman *et al*, 2004). In view of the low response rate among reactive blood donors there it is important to consider the policy of pre-donation donor screening.

During pre-donation counseling, donors should be informed of the tests which will be carried out on their blood samples and the importance of these tests. Another important goal is to ensure that once a donor is notified of abnormal results by letter or telephone call from the blood bank, a follow-up appointment should be made as soon as possible. Repeated notification is also necessary since Kleinman *et al* (2004) reported that 10% of donors did not open or read the letter, did not understand the content or refused to receive the first letter.

In a study done by Sharma *et al* (2001) it was found that approximately 23% of donors responded that it was fine to donate blood for the purpose of being tested for HIV virus. A higher proportion of such responses came from young people, those with less education and first time donors. This suggests that donors from these groups should be targeted for proper counseling. It is a general assumption that more education improves general knowledge of health in the population and a lower level of education may result in poorer health knowledge. With this in mind, donors with lower education levels should be educated regarding the procedures for blood donation in a manner they understand so they will not be lost to follow-up. The results of our study support the need for new methods and approaches to contact reactive donors in order to reduce dropouts rates. Potential test seekers should be notified of the consequences of providing wrong information at the time of registration. Currently we are relying on the good will of blood donors to disclose their information but this has been shown to not be a very effective in one study (Lau *et al*, 2002). The current practice does not involve one reactive donor being counseled by the same counselor at each visit. This results in multiple health care workers coming in contact with the same reactive donor. This can create lack of confidence on part of the donor regarding confidentiality.

In summary, the response rate among Malaysian blood donors with reactive screening tests is low compared to other studied. HIV reactive donors had the poorest response with 46.0% non-respondents and 36.2% dropouts. There is a need to review the effectiveness of the present deferral system, which is based currently on the goodwill of the donor to disclose personal health risk factors. Increased knowledge regarding the transmission of infectious diseases may results in self-deferral in blood donors belonging to a high-risk group. A standard approach in screening blood donors in order to minimize false reactive screening results can lead to a decrease in the loss to follow-up of reactive blood donors. Loss to follow-up can also be minimized by proper pre-donation counseling or a change in policy by adopting pre-donation screening. Public health authorities should make it mandatory that every blood donor with a positive/reactive test should contact a health worker at a blood bank clinic of a hospital for further investigation. One contact person in the blood bank should be appointed to each reactive case. This will result in better compliance and protect the confidentiality of donors.

We recommend further studies regarding the donors' understanding of the screening process, satisfaction levels and factors contributing to various responses to calls from the blood bank.

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