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Original Article

Blood Donor Notification and Counseling of Reactive Test Result in Blood Bank of South Gujarat: A Better Approach to Prevent Reactive Donors from Donating Blood Again

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Abstract

Background: Besides all other measures like predonation donor screening and testing for transfusion-transmitted infections (TTIs) on donated blood, another tool for preventing disease transmission by transfusion is to inform and counsel reactive donors about the status of TTIs reactivity and prevent them for donating blood in future.

Materials and Methods: The present observational study was carried out in blood bank of Department of Immunohematology and Blood Transfusion at a Tertiary Care Government Hospital in South Gujarat over a period of 3 years involving total 25,020 donors including 353 reactive donors. The reactive donors were informed by the blood bank counselor about an abnormal test result with an advice to report to the blood bank for one-to-one counseling and repeat testing, as well as for referral to the respective department/integrated counseling and testing center/sexually transmitted disease clinics of the hospital for further management. The response rate of TTIs reactive donors after notification of their abnormal test results was evaluated.

Results: Of the 353 TTIs marker-reactive donors, 320 (90.65%) reactive donors could be contacted and of which 261 (81.56%) responded positively to the notification calls and attended counseling at the blood bank and 59 (18.44%) informed donors did not respond at all.

Conclusions: In the study, due to incorrect or changed contact details, 33 (9.35%) reactive donors could not be contacted and among 59 nonresponded reactive donors, the major reasons were donor's busy schedule, out of city residence, and not willing to visit the blood bank again.

Key Words: *Blood donor counseling, donor notification, posttest counseling, transfusion-transmitted infections*

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Introduction

In many medical and surgical diseases of human beings, a blood transfusion is a vital, as well as life-saving intervention. However, blood transfusion is also having potential risk for transfusion-transmitted infections (TTIs). The risks of TTIs were estimated for HIV, 1 in 493,000; for hepatitis C virus (HCV), 1 in 103,000; and for hepatitis B virus (HBV), 1 in 63,000.[1] The risk for acquiring TTIs is even higher in multiple-transfused patients. The study conducted by Mittal *et al*. stated that 12.5% multiple-transfused patients were infected with TTIs.[2] To prevent the spread of TTIs through blood transfusion, Government of India has made mandatory to screen donated blood for HBV (since 1971), HIV (since 1989), and HCV (since 2001).[3-5] However, the risks of TTIs still persist due to blood donation by infective donors during the window period. Another tool for preventing disease transmission by transfusion is to inform and counsel donors about the status of TTIs reactivity and prevent them from donating blood in future. According to objective of the Indian Action Plan for Blood Safety, donors are counseled about TTIs prior to donation and are offered the option of knowing their infective status provided they give consent to this.[6] Blood donors with reactive screening test results are informed by telephone call, letter, or directly contacted by a peripheral multipurpose health worker and are requested to come for counseling and repeat testing either at a blood center or at an integrated counseling and testing center (ICTC). Technological advancements such as p24 antigen and Nucleic acid Amplification Test have provided more sensitive methods to detect markers of TTIs; however, the prevalence of false-positive cases has increased simultaneously. This leads to unnecessary anxiety in donors who are notified about their reactive results.

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Most blood banks discard blood that is TTI reactive but do not notify donors of their TTI status due to a lack of resources and trained counselors.[7] Most of the reactive donors who are notified of their results either do not respond at all or do not follow-up. Some reactive donors continue to donate blood despite being notified about the infectious disease test results. Therefore, this study is carried out to know the attitude of the reactive blood donors in response to postdonation notification and counseling, so that the blood banks can improve their role in providing safe blood to the needy patients by preventing reactive donors from donating blood. This will also help in spreading the importance of self-deferral.

Materials and Methods

The present work was an observational study in the form of data analysis performed in blood bank of Department of Immunohematology and Blood Transfusion at a Tertiary Care Government Hospital in South Gujarat over a period of 3 years (2012–2014). The blood bank at our hospital provides blood for the patients after mandatory TTI testing. The TTI reactive donors were not contacted until his or her TTI testing were done with the third generation ELISA for HIV, HBV, and HCV on pilot tubes samples, as well as samples from the bag. The additional test for HIV was the fourth generation ELISA. The tests for syphilis were either of three – rapid plasma reagin, *Treponema pallidum* hemagglutination assay strip test, or ELISA and the tests for Malaria were either peripheral smear or rapid test. In case of a reactive donor for any marker, the blood bank counselor informs the donor telephonically about an abnormal test result with an advice to report to the blood bank for one-to-one counseling and repeat sampling, as well as for referral to the respective department of the hospital for further management. In this study, we evaluated the response rate of TTIs reactive donors after notification of their abnormal test results. The response rate of these donors was evaluated at the time of notification and at various follow-up visits at the blood bank, ICTC (for HIV), or physician of choice for other infections. They were also referred to their physicians if they were unaware of the infections. The case was closed only if the donor did not respond to any of the three telephone calls. In case of HIV before labeling as nonresponder, the donor's details were shared with ICTC for contact to be done by the network of peripheral social workers.

Results

Total 25,020 blood donors (>99% donors were voluntary) had donated during the study period. Of these, 353 (1.41%) blood donors were found to be TTI marker reactive. The gender-wise distribution was as follows: there were 336 males and 17 females donors. As per the age-wise distribution, 45 donors were in 18–20 years age group, 186 were in 21–30 years age group, 78 in 31–40 years age group, 33 in 41–50 years age group, 10 in 51–60 years age group, and 1 donor was of above 60 years. Among these 353 TTI reactive cases, 23 (6.51%) cases were HIV 1 and 2 reactive, 238 (67.42%) donors were reactive for hepatitis B surface antigen (HBsAg), 20 (5.66%) donors were HCV reactive, 63 (17.84%) were reactive for syphilis, 5 (1.42%) were malaria positive, and 4 (1.13%) donors shows co-infection for HIV and HBsAg. For the purpose of avoiding the complexity of data in further statistics, the authors have considered donor with co-infection as a donor with a single marker of TTI tests. The HIV reactive responders were referred to the ICTC for counseling and confirmatory testing while the HBV, HCV, and malaria reactive were referred to a physician for further management.

Of the 353 reactive donors, 320 (90.65%) reactive donors could be contacted. Of these 320 reactive donors (20 HIV, 215 HBsAg, 17 HCV, 63 syphilis and 5 malaria reactive donors), 261 (81.56%, HIV: HBsAg: HCV: Syphilis: Malaria – 18:183:16:40:04) responded positively to the notification calls and attended counseling at the blood bank and attached government hospital [Figure 1]. Due to incorrect or changed contact details, 33 (9.35%) reactive donors could not be contacted. Among 59 (18.44%) reactive donors who did not respond to the notification, the major reasons were donor's busy schedule, out of city residence, and not willing to visit the blood bank again.

Discussion

Although the blood transfusion plays a vital role in the management of many diseases, it always carries a risk of TTI and many other adverse reactions. Blood transfusion is a highly avoidable treatment ever prescribed.

During the study period, the rate of all five mandatory TTIs markers was 1.41%. The other studies in India by Agarwal and Leena and Shafee (0.87% and 1.35%, respectively) also found similar to lower TTI rates, while studies done by Kumari *et al*., Kotwal *et al*., and Kumar *et al*. (2.81%, 3.02%, and 4.57%, respectively) showed higher rates.[8-12] The reason behind lower rate of TTIs markers in the present study might be because of >99% of blood collection was from voluntary donors, and predonation deferral rate was 10.37%.

Donor notification for abnormal TTI test result is one of the important tools in reducing the spread of TTI through blood transfusion by preventing asymptomatic donors from

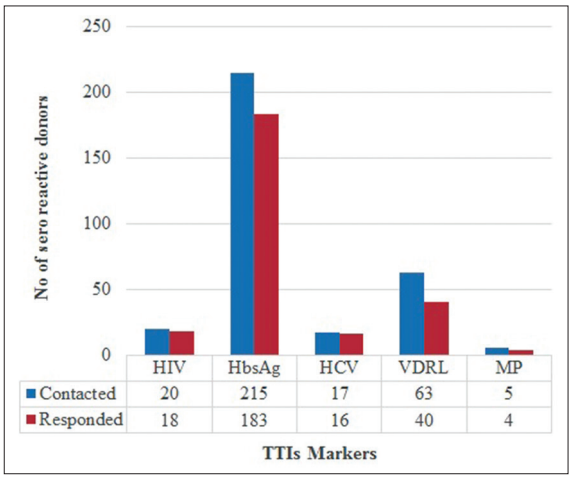

Figure 1: Response and transfusion-transmitted infections marker-wise distribution of contacted transfusion-transmitted infections reactive donors

considering blood donation again. Majority of blood banks are focusing more and more on using the latest technology for screening of donated blood for markers and neglecting the value of donor notification for abnormal results of TTI tests which is also a sound tool for removing reactive donors from donation pool. Besides, donor notification is crucial to protect the health of the donor and his/her family and helps the donor to seek early treatment.

In the present study, 33 (9.35%) reactive donors could not be contacted and informed about abnormal test results for their treatment and removing them from donation pool. Incomplete or incorrect demographic details provided by donors were the main reason behind it. The marker-wise distribution for this 33 reactive donors was HIV: HBsAg: HCV: Syphilis: Malaria– 7:23:03:0:0. The number of reactive donors who could not be contacted in the present study were small as compared to large numbers of the studies done by Kotwal *et al*. and Moyer *et al*. (49.4% and 65.52%, respectively).[11,13] In a study conducted by Kaur *et al*., about 10.5% of the donors could not be contacted due to an invalid address and mobile phones switched off at day time communications.[14]

Of the 320 contacted reactive donors, 261 (81.56%) donors responded to counselor notification and majority of them visited blood bank for counseling, retesting, and referring to ICTC or physicians. The HIV-reactive responders were referred to the ICTC for counseling and confirmatory testing and syphilis reactive donors referred to a sexually transmitted disease STD clinic, whereas other reactive donors were referred to a physician/gastroenterologist for further management. Few of responded donors (who were reactive for markers other than HIV) had consulted their own physician directly after getting proper guidance from the blood bank. The TTIs reactivity pattern of responded reactive donors was HIV: HBsAg: HCV: syphilis: Malaria-18:183:16:40:04. Seroreactivity pattern of 59 (18.44%) nonresponded reactive donors was HIV: HBsAg: HCV: Syphilis: Malaria - 02:32:01:23:01. Table 1 has shown the response rate of contacted reactive donors in different studies.[8,11,14-16] According to Kotwal *et al*., the higher response rate was due to donors better concern for knowing their test result status and according to Kaur *et al*., the low response rate in their donors may be attributed to poor health-care knowledge and poor understanding of the screening results.[11,14]

In addition, donor notification of abnormal test results leads to psychological disturbances to donors and their family members. During the study, various type of reactions were observed in donors such as sudden shock, unacceptability of result informed as donor was asymptomatic on most occasions, denial, repeated health checkup by many physicians, and repeated laboratory tests by laboratory of his or her own choice for confirmation, anger, panic attack, sometimes very calm and controlled reaction, sometimes nervous breakdown, repeated follow-up by family members, questions regarding the need for screening of spouse, and other emotional reactions. The trained and efficient counselor is required to deal all these emotional reactions. The blood bank must take help of effective information, Education and Communication (IEC) materials in a language understandable by the donor for the abnormal test concerned for each donor along with the offering of competent physician reference if donor asks besides counseling him or her.

Table 1: Percentage of responded reactive blood donors in different studies

Study name	Percentage of responded reactive donors
Agarwal *et al*.	59.80
Kotwal *et al*.	98.20
Kaur *et al*.	38.90
Kleinman *et al*.	42.00
Tynell *et al*.	88.00
Present study	81.56

Conclusions

The response of reactive donors to notification of abnormal test results depends largely on the donors' understanding about the TTI and the results of screening tests that are done on donated blood. In a study by Sharma *et al*., it was found that about 24% donors were aware of HIV transmission through blood transfusion.[17]

To achieve 100% response rate for contacted reactive donors, it is required to educate the donors at the time of donation about the various TTI, screening tests done, and the importance of informing them the test results. It is also of equal weightage to make donor understand that correct and complete demographic data are crucial for blood bank for informing them test results besides calling them in case of nonavailability of blood inventory.

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Conflicts of interest

There are no conflicts of interest.

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