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Donor notification and counseling: Experiences and challenges from a private multi-specialty hospital in South India

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Abstract:

BACKGROUND: Donor notification and counseling plays a vital role in both blood safety and comprehensive donor care. This process informs donors about their status as to transfusion-transmitted infections (TTI), modes of transmission of such infections and helps prevent secondary transmission of these infections in the community.

AIMS AND OBJECTIVES: This study was initiated to see the response rate of notified reactive donors for counseling and to propose useful recommendations that could probably improve the response rate.

MATERIALS AND METHODS: Total of 17025 donations was screened for TTIs, namely, human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and syphilis, by serology. All TTI reactive donors were retested and notified of their status by telephone and called for repeat testing followed by face-to-face counseling and referral for treatment.

RESULTS: We evaluated 183(1.07%) donors with reactive screening test results, i.e., 106(57.9%) HBV, 38(20.7%) HCV, 29(15.8%) HIV, and 11(0.6%) were syphilis reactive and all (100%) were from replacement blood donations. Only 58.4%(107) of donors could be personally communicated over telephone and only 49 (45.79%) of them returned for counseling. Three (6.1%) among the reactive donors knew their results earlier and 11(22.4%) donors had history of high-risk behavior.

CONCLUSION: In spite of strict donor screening and self-exclusion option, donors conceal their high-risk behaviors or their reactive status and continue to donate blood. It reflects the need to implement thorough predonation counseling to extract the history of high-risk factors from the donors.

Keywords:

Blood donor, counseling, notification, transfusion-transmitted infections

Introduction

Blood transfusion is a life-saving procedure but at the same time it carries the risk of transmission of several infectious agents. The WHO has recommended testing of all donated blood for Transfusion transmitted infections (TTI's) such as human immunodeficiency virus (HIV I and II), hepatitis B surface antigen (HBsAg),

hepatitis C virus (HCV), and syphilis as one of the strategy to ensure safe blood.^[1]

Blood donor screening and testing for transfusion-transmissible infections have become stringent all over the world. In developing countries, a major source of HCV, hepatitis B virus (HBV), and HIV infections is transfusion of blood and blood products from unscreened or inadequately screened blood donors. In India, as per Drugs and Cosmetics Act, 1945 amended from time to time, all blood donations are

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to be screened for HIV I and II, HBsAg, HCV, syphilis, and malaria.^[2]

Donor notification and counseling play a vital role in both blood safety and comprehensive donor care. This process informs donors about their status as to transfusion-transmissible infectious disease (TTI), modes of transmission of such infections, and helps prevent secondary transmission of these infections in the community. According to Objective 4.16 of the Indian Action Plan for Blood Safety, donors are counseled about transfusion-transmissible infections prior to donation and are offered the option of knowing their infective status provided they give consent to this. Blood donors with reactive screening test results are and are requested to come for counseling and repeat testing either at a blood center or at an integrated counseling and testing center (ICTC).^[3]

While technological advancements have led to the development of more sensitive methods to detect markers of transfusion-transmissible infections, the prevalence of false-positive cases (positive tests in people who are not really infected) has increased simultaneously. This leads to unnecessary anxiety in donors who are notified about their reactive results either by letter or telephonically. On the other hand, it has been realized that most donors who are notified of their results either do not respond at all or do not follow-up their first visit to the blood center. Noncounseled donors not only pose a risk to themselves and their family but also continue to donate blood leading to wastage or increased risk of patient blood safety if they get inadvertently transfused.^[4]

Donor education during predonation counseling and a comprehensive predonation risk assessment ensures safe blood supply. These help the donors to self-defer if they have any risk factors. The importance of being aware of a reactive test result helps them to start early treatment and take preventive measures for self and others in family.^[5]

This study was undertaken to create awareness and to determine the response of blood donors after they were notified of their reactive status. This will help in formulating strategies to inform donors about their seroreactive status and take necessary medical interventions at the earliest before considering next blood donation. This will also help in spreading the importance of self-deferral. In the long-term, this may help in creating a pool of safe repeat nonremunerated voluntary donors (VD) across the state.

Materials and Methods

This is a retrospective 4-year survey conducted by the Department of Transfusion Medicine, Yashoda Hospital,

Malakpet, Hyderabad, from January 1, 2015, to December 31, 2018. All the blood donors who registered were requested to fill up the donor screening cum registration form formulated as per national guidelines. The blood donors were from both rural and urban areas within and around the metropolitan city of Hyderabad and majority of them were literate. Only those blood donors who had given consent to be informed of their serological screening status for TTIs, during predonation screening was contacted by the department. Five mandatory TTI screening tests for anti-HIV 1 and 2, anti-HCV, HBsAg, Syphilis and malarial parasite antigen were performed on 5 mL clotted and 3 mL ethylene diamine tetra acetic acid blood collected in pilot tubes from postdonation samples. The TTI results of all the donors were maintained in the department for 5 years as per regulatory guidelines. The blood donors who were initially reactive to HIV, HBsAg, and HCV by automated chemiluminescence technology (Vitros ECiQ Immunodiagnostic assay System) were retested with Architect i2000SR Immunoassay analyzer (Abbott Diagnostic, USA). The donor samples that were reactive by both the testing methods are considered as confirmed reactive. However, the blood bags collected from the donors who were reactive to any one single method of testing were discarded.

The donor records of the confirmed reactive samples were verified by the trained counselor to contact the donors (over telephone) and confidentiality of the test records were maintained. In every case, the notifications over telephone were provided three times at an interval of 2 weeks. The donors who could be contacted over telephone were considered as notified donors. The donors who could not be contacted even after third notification was considered as nonnotified donors.

At the time of contacting the donor on phone, donor identity was re-confirmed by taking the donor demographic details namely name, age, address, date, and place of donation with the details mentioned in the donor form. After donor confirmation, they were notified that the samples tested on the day of donation were showing discrepant results and to visit blood bank for counseling. Among the notified donors, those who visit the blood bank for counseling were considered as responders and others as nonresponders.

When the donors came for counseling, their identity was verified again and confidentiality was maintained at all the steps. At the time of face-to-face counseling, it was ensured that donors understood the interpretation of test results. They were told that tests done at blood bank are screening tests and further confirmation and follow-up are required. The donors repeat history was elicited and associated risk factors were noted. At the same time, donor's emotional state of mind was also taken care of.

The HIV-reactive responders upon communication were referred to the ICTC with a referral form for counseling and confirmatory testing and syphilis reactive donors referred to a sexually transmitted disease clinic, whereas other reactive donors were referred to a physician/gastroenterologist for further management. Donors were educated about the modes of transmission and the precautions to be taken till the conclusion is made. Donors were also advised not to donate blood again. All the communication was done in the language, which the donor understands.

Results

Total 17,025 donations were surveyed from January 2015 to December 2018 at Yashoda Hospital Blood Bank, Malakpet, Hyderabad, 437 (2.57%) were from VD and 16588 (97.43%) from replacement donors (RDs). Sixteen thousand and nine hundred and thirty-nine (99.5%) were male donors and 86 (0.5%) were female donors. The distribution of both type of blood donors and their gender wise division are depicted in Figure 1 and the donor demographic characteristics are shown in Table 1.

Out of total 17,025 blood donors, 183 blood donors were reactive for one of the TTIs. There was only one female donor and rest 182 was male donors. None was reactive among voluntary blood donors. Gender-wise

distribution of reactive blood donors is represented in Figure 2.

Mean age of the seroreactive donors was 30.4 (19–59) years. Majority of the donors (61.2%) were in the age group of 18–30 years ($n = 112$). There were not many donors (3) at upper age groups (51–60 years) as donors recruited in this age group were also low. Sixteen (8.7%) donors were of the age group of 41–50 years and 52 (28.4%) were of the age group of 31–40 years. Age-wise distribution of reactive blood donors is shown in Figure 3.

Only 107 of these donors (107/183) or 58.4% could be personally communicated over telephone from the blood bank counselor are considered as notified donors. Remaining 76 of 183 reactive blood donors (41.53%) could not be communicated by telephone and are considered as nonnotified donors. Among them, 73 donors did not attend their call and 3 donors could not be contacted as their phone number was not reachable. Response to phone calls among reactive donors is depicted in Figure 4.

The counseling rate was 45.79% ($n = 49$) among the 107 notified donors. Of rest 58 donors who did not turn up, 30 (28.03%) had given an initial positive response

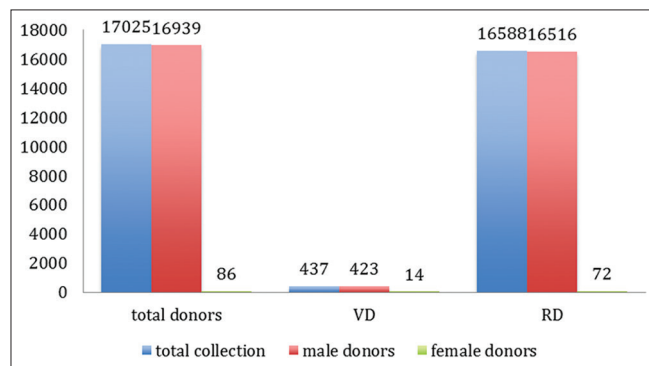


Figure 1: Depicts the distribution of blood donors

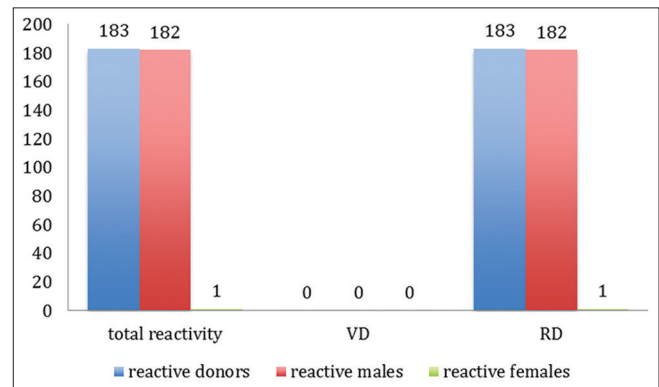


Figure 2: Gender wise distribution of reactive donors

Table 1: Donor demographic characteristics

Donor characteristics	HBV, n (%)	HCV, n (%)	HIV, n (%)	Syphilis, n (%)	Malaria, n (%)	Total, n (%)
Seroreactive donors	106 (57.9)	38 (20.7)	29 (15.8)	10 (5.4)	0 (0)	183 (100)
Notified donors	65 (61.3)	13 (34.2)	21 (72.4)	8 (80)	0 (0)	107 (58.4)
Total responders	30 (28.3)	6 (15.7)	11 (37.9)	2 (20)	0 (0)	49 (26.7)
Age group (years)						
18-30	64 (60.3)	24 (63.1)	18 (62)	6 (60)	0 (0)	112 (61.2)
31-40	31 (29.2)	9 (23.6)	9 (31)	3 (30)	0 (0)	52 (28.4)
41-50	9 (8.4)	4 (10.5)	2 (6.8)	1 (10)	0 (0)	16 (8.7)
51-60	2 (1.8)	1 (2.6)	0 (0)	0 (0)	0 (0)	3 (1.6)
Gender						
Male	105 (99)	38 (100)	29 (100)	10 (100)	0 (0)	182 (99.4)
Female	1 (0.9)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0.5)

HCV=Hepatitis C virus, HBV=Hepatitis B virus, HIV=Human immunodeficiency virus

for postdonation counseling but could not attend due to their busy schedule and 24 (22.4%) had replied that they would contact their preferred doctors. The rest 4 (3.73%) donors simply refused to return back either due to personal reasons or expressing their unwillingness. Figure 5 shows the response of notified donors on phone and Figure 6 shows the flow chart of the study process and the results.

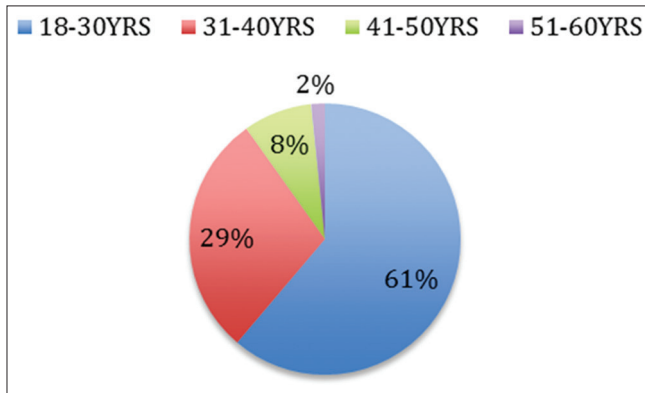


Figure 3: Age wise distribution of reactive donors

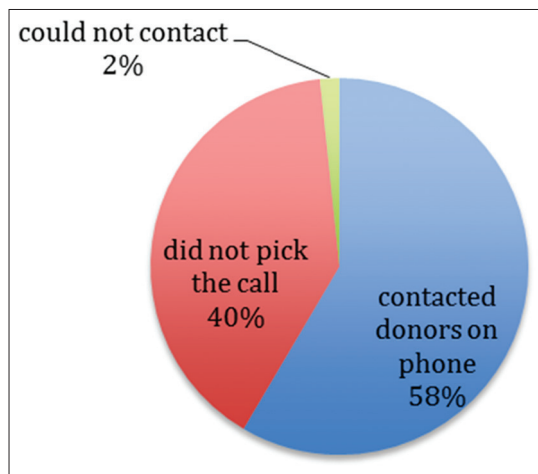


Figure 4: Response to phone calls among reactive donors

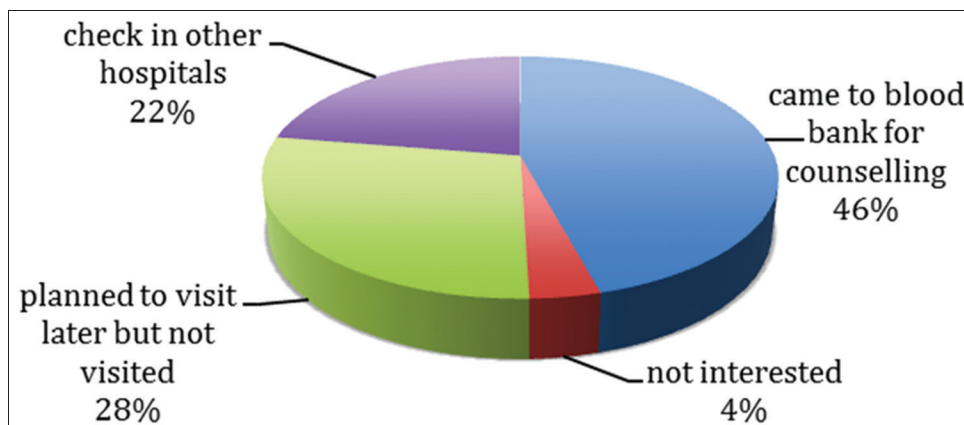


Figure 5: Response of notified donors on phone

Among reactive 183 donors, 15.8% ($n = 29$) were reactive for HIV, 57.9% ($n = 106$) for HBsAg, 20.7% ($n = 38$) for anti HCV, 5.4% ($n = 10$) for syphilis and none for malaria. One donor was reactive both for HCV and syphilis. Among 58.4% (107/183) initially contacted reactive donors, 60.7% (65/107) were reactive for HBsAg, 19.6% (21/107) for HIV, 12.1% (13/107) for HCV, and 7.4% (8/107) for syphilis.

Out of the 49 donors who returned for counseling, the response rate for HIV was 72.4% (21/29), HBV was 28.3% (30/106), HCV was 15.7% (6/38), and syphilis was 20% (2/10). Three among the reactive donors knew their results earlier and 11 donors had history of high-risk behavior. The distribution of reactive donors in relation to HIV, HCV, HBV, and Syphilis is shown in Figure 7.

Discussion

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 considering blood donation again.^[1] According to the Drugs and Cosmetics Act of India, it is mandatory to test every unit of blood for anti-HIV 1 and 2, anti-HCV, HBsAg, syphilis, and malaria. Testing, notification, and counseling together form a vital link between the donor and safe blood.^[2]

Majority of the 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.^[3,5]

During the study, the rate of all five mandatory TTIs markers was 1.07%. The other studies in India by

Table 2: Comparison of donors counseling among various studies

Authors	Study period	Total donations	Donors with TTI positive (%)	Donors notified (%)	Donors counseled (%)
Present study	2015-2018	17,025	183 (1.07)	107 (58.4)	49 (45.7)
Agarwal <i>et al.</i>	2010-2011	48,386	416 (0.85)	249 (59.8)	182 (73.09)
AK.Tiwari <i>et al.</i>	2015-2016	52,427	481 (0.91)	351 (72.9)	145 (41.3)
Patel SG <i>et al.</i>	2012-2014	25,020	353 (1.41)	320 (90.6)	261 (81.5)
Chaurasia <i>et al.</i>	2011 and 2013	113,014	2838 (2.51)	2838 (100)	662 (23.3)
Kumari <i>et al.</i>	2014-2015	4281	116 (2.70)	116 (100)	41 (35.3)
Kotwal <i>et al.</i>	2012	15,322	464 (3.02)	229 (49.3)	225 (98.2)
Kaur <i>et al.</i>	2011-2012	15,844	172 (1.08)	154 (89.5)	60 (38.9)

TTI=Transfusion transmitted infections

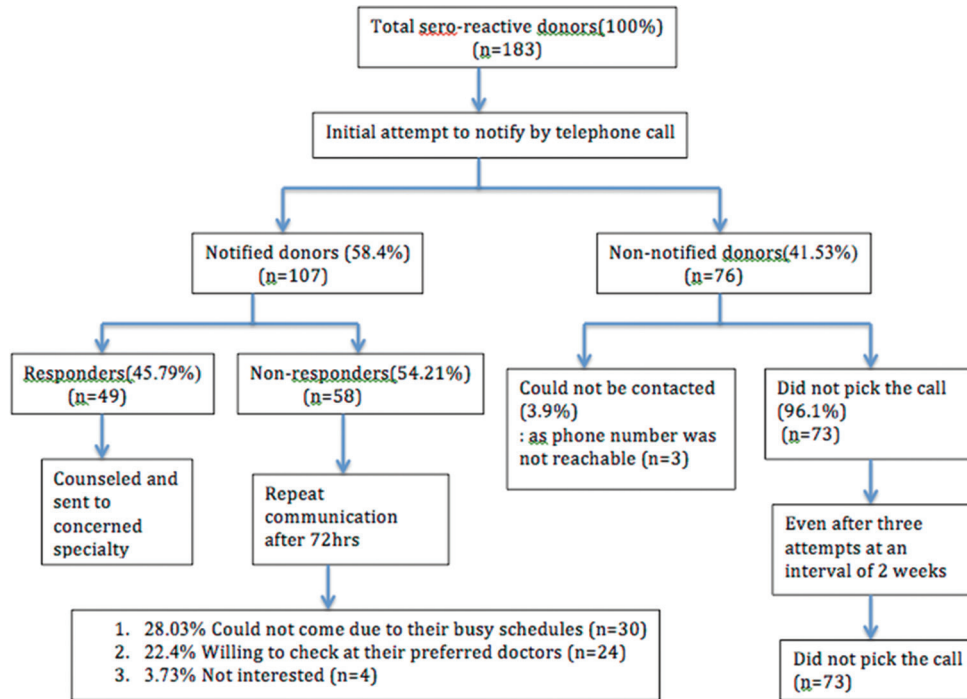


Figure 6: Flow chart of the study process and results

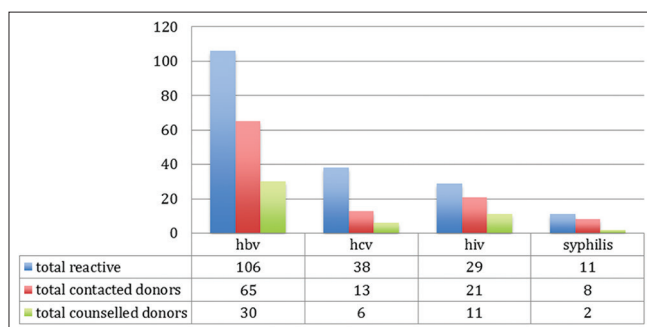


Figure 7: Distribution of reactive donors in relation to human immunodeficiency virus, hepatitis C virus, hepatitis B virus and Syphilis

Agarwal, Tiwari *et al.*, Patel *et al.*, and Leena and Shafee (0.87%, 0.91%, 1.41%, and 1.35%, respectively) also found similar to lower TTI rates, while studies done by Chaurasia *et al.*, Kumari, Kotwal *et al.*, and Kumar *et al.* (2.81%, 3.02%, and 4.57%, respectively) showed higher rates.^[6-13]

In the present study, the response rates of donors who came for counseling was moderate 45.79% (n = 49), which was similar to the study done by Raturi *et al.* (58%).^[14] In the study by Raturi *et al.*, moderate response was noted and the author attributed this to a relatively lesser knowledge and understanding among donors about various infectious markers and/or screening test results.

Table 2 shows the response rate of contacted reactive donors in different studies. According to Kotwal *et al.*, the higher response rate (98.2%) was due to donors better concern for knowing their test result status and according to Kaur *et al.*, the low response rate (38.9%) in their donors may be attributed to poor health-care knowledge and poor understanding of the screening results.

In view of the moderate response rates among the reactive blood donors, it is important to consider the policy of predonation policy screening.^[11] In the present study,

76 (41.53%) reactive donors could not be contacted and informed about abnormal test results for their treatment.

Incomplete or wrong mobile numbers provided by donors were the main reason behind it. 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.^[15] The marker-wise distribution for this 76 reactive donors was HBsAg: HCV: HIV: Syphilis: Malaria – 41:25:8:3:0. The number of reactive donors who could not be contacted in the present study were large as compared to the studies done by Patel *et al.* and Kaur *et al.* (9.35% and 10.5%, respectively) and less as compared to the studies done by Kotwal *et al.* and Moyer *et al.* (49.4% and 65.52%, respectively).^[16]

Conclusion

The response of reactive donors to the 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. 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. Proper predonation counseling is still a challenge and even bigger challenge is postdonation counseling for TTIs among the RDs. Notification and counseling of donors with positive tests for TTI markers are important steps in the activity of blood centers, essential to the safety of the blood supply, but also affecting the health of the community.

Limitations

The follow-up of the donor after counseling was not done in the present study.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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