

1 "Notification Rate and Counseling for Seropositive Donors in a
2 Tertiary Care Teaching Hospital at Amritsar (Punjab), India"

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7 **Abstract**

8 Introduction: Screening for Transfusion transmitted infections (TTI's) is done to provide safe
9 blood. Very often donors are found to be seropositive for one or more of the TTI's. The
10 present study was undertaken in a blood bank of a tertiary care hospital to determine the
11 response rate of the blood donors after they were notified about their reactive status.
12 Materials and Methods: The one year observational study was done in a prospective manner from
13 January 2013 -December 2013 taking in account of all the registered donors coming to the
14 blood bank after notification.

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16 **Index terms**— donor, notification rate, seropositivity, screening, transfusion transmitted infection.

17 **1 Introduction**

18 Blood donation is life saving if the blood is safe for recipient. HIV I and HIV II , Hepatitis B(HBV) , Hepatitis
19 C (HCV), syphilis and malaria are the five major Transfusion transmitted infections (TTI's) for which screening
20 is done. 1 In present scenario it is realized that to prevent TTI's, the role of blood donor education along with
21 notification and counseling of donors about their seroreactivity is of major importance for blood safety. As per
22 objective 4.16 of the Indian action plan for blood safety, the blood donors are counseled about TTIs prior to
23 donation and are offered the option of knowing (notify) their sero -reactive status provided they give their consent.
24 2 The concept of notification and counseling is important in today's setting because as there is development of
25 more sensitive methods to detect TTI's; the prevalence of false-positive cases has increased manifold .This in
26 turn leads to unnecessary anxiety in donors who are notified about their reactive results.

27 Despite the benefits of the concept of notification, it has been noted that most donors who are notified of
28 their results either do not respond at all or do not follow up their first visit to the blood centre. Some donors
29 with deferrable risk behaviors continue to donate blood (at other blood donation centers) despite being notified
30 about the infectious disease test results on their blood samples. This study was undertaken in a blood bank of
31 a teaching hospital in north India to determine the response of voluntary blood donors after they were notified
32 of their reactive status by telephone calls or letters and to analyze the reasons regarding the non compliance of
33 defaulters.

34 **2 II.**

35 **3 Materials and Methods**

36 The one year study was conducted in a prospective observational way from January 2013 -December 2013 in a
37 blood bank of a teaching hospital catering to a rural and urban population in and around Amritsar (Punjab),
38 India. All the blood donors (voluntary and replacement) were registered to fill up the donor screening cum
39 registration card formulated as per the guidelines. 3 All the donors were taken up for pre donation counseling
40 and screened for TTI's. In all the cases a written consent was taken, procedure explained and also told about the
41 sequence of events in case an abnormal /reactive test is obtained in blood bank TTI lab. They were reassured

7 DISCUSSION

42 about the maintenance of confidentiality at each step and even encouraged to themselves enquire about their
43 screening tests results.

44 After the donation, if a donor was identified reactive for a screening test, the donor registration record was
45 retrieved and a telephone call was made and letter was posted by the counselor to the donor to revisit the
46 blood bank. If the intended donor did not respond, a second call after 10 days was repeated with a positive
47 encouragement offered to them to visit the Materials and Methods: The one year observational study was done
48 in a prospective manner from January 2013 -December 2013 taking in account of all the registered donors coming
49 to the blood bank after notification.

50 Discussion: Seroprevalence rate in the present study was comparable to the study done previously in the same
51 city and elsewhere in India.

52 The notification rate in the present study was towards the lower side (27.45 %) in comparison to various India
53 and international studies. The notification rate was maximum in donors positive for HBV followed by HCV. The
54 response rate amongst donors positive for HIV were low in contrast to the studies done elsewhere.

55 Results : Seropositivity in the present study was 3.36% with HCV being the most common TTI recorded
56 followed by HBV, syphilis HIV respectively. No case of Malaria was recorded.

57 Of the 204 seropositive cases only 181 (88.73%) could be contacted. Of these 56(27.45 %) were responders
58 with rest being non responders..

59 4 Keywords :

60 blood bank assuring them the confidentiality. Finally if the donor did not respond even on 2 nd call after another
61 10 days then he/she was considered non responder.

62 The reactive donors immunoreactive for HIV who returned back to blood bank were again tested and in event
63 of a repeat reactive result were counseled for the health status and high risk behavior of patient. They were
64 then referred to an integrated counseling and testing center (ICTC) where the testing and counseling was done
65 according to the ICTC guidelines.

66 On the other hand the donor who were reactive to VDRL were referred to sexually transmitted diseases (STD)
67 clinics for proper counseling and management of the same.

68 The donor who were reactive to HBsAg and HCV were counseled about the etiology and referred to the
69 gastroenterology unit of medicine department for confirmation of the viral status by polymerase chain reaction
70 (PCR).Subsequently, these patients also underwent viral load assays. The results of TTI prevalence and response
71 rate amongst the reactive donors were recorded and tabulated for simple statistical analysis. IV.

72 5 III.

73 6 Results

74 7 Discussion

75 The notification of blood donors represents a setting in which asymptomatic individuals are informed of abnormal
76 test results .Despite pre donation counseling by counselor, screening and examination by blood bank staff; 204
77 donors (3.36 %)out of all donations were found positive for one of the TTI's. This rate is comparable to the
78 studies done previously from the same city 6 and elsewhere in India. 7,8 A 3.36 % seropositive rate may be
79 attributed to the socio economic and socio cultural background of donors especially the prevalence of intravenous
80 drug abuse amongst the young Punjabi population. 6 Of all the TTI's hepatitis group (Hepatitis B & Hepatitis
81 C) form the most common infectious agent against which seropositivity rate was 3.36%. This is in concordance
82 with other major studies done in different regions of India (Table-1). However the prevalence of Hepatitis C if
83 taken separately, it was more than Hepatitis B in difference to other studies conducted in India where reverse
84 is true. 1,4, ?? Out of 6065 donors , who came to the blood bank during the one year period of the study .
85 204 donors were found to be seropositive for either one or more than one TTI's. In the present study HCV(79;
86 38.72%) was the commonest TTI recorded followed by HBV (58; 28.43%). No case of malarial parasite was
87 recorded in the present study (Table -1).

88 Of the 204 seroreactive only 181 (88.75%) could be contacted over phone or by means of letter from the office
89 of blood bank through blood bank counselor. Amongst these; while 56 (27.45%) donors returned back to blood
90 bank for post donation counseling (hence categorized as responders), 125 (61.27%) of the same donors did not
91 turn up despite The principle of repeated notification is also necessary as many researchers such as Kleinman et
92 al 11 , have reported that upto 10% of donors either did not open or read the letter or did not understand the
93 content and even refused to receive the primary contact letter. Advent of telecommunication has led to negation
94 of all the above stated facts provided that the correct phone number are provided by the donors on their donor
95 registration form which is often not the case as many phone numbers provided are either factitious or found not
96 in existence when tried.

97 A study by Sharma et al 13 found an unusual behavioral pattern of many donors (who did not know about the
98 window period) indulging in high risk behavior and continued to donate blood as they knew that the donated
99 blood would be tested for the infectious agents anyway and would be discarded if found sero positive. .

100 Another study by Roshan et al 5 also suggest that test seekers who use blood donation as the testing also
101 contribute to such a pool of donors .

102 Disease wise categorization showed that the response rate amongst donors positive for HIV I & II was the
103 lowest 18.81% (2/11) which points towards social taboo, self denial and possibility of being a social outcast which
104 is associated with AIDS as a possible explanation. This is in contrast with studies done elsewhere where the rate
105 of response is a little higher on notification. 1, ?? In the present study response rate in Hepatitis B were slightly
106 more than Hepatitis C although Hepatitis C per se was a more prevalent TTI than Hepatitis B. Comparison with
107 other studies have been done in (Table ??2) with a glaring finding of a very low average response rate of 27.45%
108 in contrast to other studies.

109 Notification of the abnormal results is important as although the demand for blood & blood components is
110 showing an exponential growth pattern in today' s hi tech medical world but the availability of safe blood as
111 a basic therapeutic tool for patients remain a distant dream especially in developing and recourse challenged
112 countries of the third world. Many ultra sensitive tests (such as universal NAT screening) are not economical
113 feasible in such countries. Donors who come for counseling are benefitted in various ways over those who do not
114 turn up after notification. During counseling donors are encouraged to ask questions about their status and their
115 myths and anxieties are taken care of. The responsibilities of these donors towards society and their partners and
116 the various treatment options available for the disease in question are also discussed in detail. In comparison,
117 donors who do not seek counseling continue to be a threat to the public , their families and blood transfusion
118 services.

119 A higher response rate is beneficial as a lower response rate has a definite impact on transmission and prevalence
120 of infection in the community.

121 Research suggests that the it should be mandatory for all blood banks to follow up greater risk to community
122 reactive donors as these "asymptomatic donors" pose greater risk to community at large. Also it has been
123 suggested that the process of notification , disclosure of results should be standardized with mandatory submission
124 of identity proof with some unique identification number at the time of donation as this can help to search the
125 non responder afterwards. The reactive respondent donor should be referred with a referral slip mentioning the
126 TTI test result as well as detailed address of the concerned physician to get better response out of notification.

127 Sustained efforts of a trained counselor as well as close communication with treating physician/ dermatologist
128 in for all reactive cases along with better community health education programs can bring a lot of change in
129 donor notification which is great social concern of today time. In the present study, only 56 donors out of 204
130 reactive donors (27.45%) responded and were counseled during the study period and 125/204 (72.54%) donors
131 did not turn up at blood bank despite initial willingness of them to report for counseling. Low response rate
132 in the present study was attributed to poor health care knowledge and poor understanding of screening results
133 of the population under study. While low response rates (21% -67%)have also been reported outside India by
134 Moyer et al 9 , Sanchez et al 10 and Kleinman et al 11 , but most western studies show a higher response rate.
135 12 On comparing the result of the study conducted with the response rate response rate in other Indian studies
136 by Patel et al 1 , Aggarwal 4 and Battacharaya et al 5 (60.36%, 68.4 % and 34 %) the response rate were found
137 to be on a lower side.

7 DISCUSSION

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		Number of Reactive donors		
TTI's Present study	Aggarwal 4		Roshan et al 5	Patel et al 1
HIV	11(5.39%)	17(4.08%)	87(14.8%)	15(15.09%)
HBsAg	58(28.43%)	225(54.08%)	209(35.5%)	176(45.01%)
HCV	79(38.72%)	76(18.26%)	208(35.5%)	28(7.16%)
Syphilis	6(27.45%)	98(23.55%)	85(14.4%)	128(32.74%)
Malaria	00	00	00	00
Total	204(100%)	416(100%)	589(100%)	391(100%)

giving 2 more reminder calls (hence categorized as non responders). The commonest reason for not coming back to blood bank was expressed unwillingness and personal reasons. Later on of these 56 seropositive patients who responded to blood bank were retested. The most common response rate was noted in reactive HBV donors followed by HCV reactive donors. (Table -2)

Figure 1: Table 1 :

2

	Present study	Roshan et al 5	Patel et al 1
HIV	18.18%	54%	52.54%
HBsAg	32.75%	58.9%	19%
HCV	25.31%	70.7%	20%
VDRL	26.7%	32.9%	15%
Malaria	00	00	00
Average	27.45%	63.5%	60.36%

[Note: TTINo of Responders]

Figure 2: Table 2 :

138 [Moyer et al. ()] 'A survey of hepatitis B surface antigenpositive blood donors: degree of understanding and
139 action taken after notification'. L A Moyer , C N Shapiro , G Shulman , P D Brugliera , M J Alter .
140 *Transfusion* 1992. 32 p. .

141 [An Action Plan for Blood Safety. National AIDS Control Organisation , Ministry of Health and Family Welfare , Government of
142 *An Action Plan for Blood Safety. National AIDS Control Organisation , Ministry of Health and Family*
143 *Welfare , Government of India*, 2007. New Delhi. p. .

144 [Patel et al. ()] 'Evaluation of response to Donor Notification of Reactive Transfusion transmitted infections
145 Result'. P Patel , S Patel , J Bhatt , N Bhatnagar , M Gajjar , M Shah . *NJIRM* 2012. 3 (2) p. .

146 [Sharma et al. ()] 'Knowledge of HIV/AIDS transmission and screening in United States blood donors'. U K
147 Sharma , G B Schreiber , S A Glynn , C C Nass , M J Higgins , Y Tu . *Transfusion* 2001. 41 p. .

148 [Pahuja et al. ()] 'Prevalence and trends of markers of hepatitis C virus, hepatitis B virus and human
149 immunodeficiency virus in Delhi blood donors: a hospital based study'. S Pahuja , M Sharma , B Baitha , M
150 Jain . *Jpn J Infect Dis* 2007. 60 p. .

151 [Agarwal (2012)] 'Response rate of blood donors in the Uttrakhand region of India after notification of reactive
152 test results on their blood samples'. N Agarwal . *Blood Transfus* 2012. Dec. 5 p. .

153 [Kaur et al. ()] 'Seroprevalence of Blood borne infection in Blood donors -Our 11 year (2001-2011) experience in
154 a tertiary caring teaching hospital at Amritsar (Punjab)'. H Kaur , R Mannan , M Manjari . *Int J Adv Res*
155 2014. 2 (6) p. .

156 [Bhattacharya et al. ()] 'Significant increase in HBV, HCV, HIV & Syphilis Infections among Blood Donors in
157 West Bengal, Eastern India'. P Bhattacharya , P K Chandra , S Datta , A Banerjee , S Chakraborty , K
158 Rajendran . *Exploratory Screening Reveals High Frequency of Occult HBV infection*, 2004-2005. July 2007.
159 13 p. .

160 [Sojka and Sojka ()] 'The blood-donation experience: perceived physical, psychological and social impact of
161 blood donation on the donor'. Nilsson Sojka , B Sojka , P . *Vox Sang* 2003. 84 p. .

162 [Kleinman et al. ()] 'The donor notification process from the donor's perspective'. S Kleinman , B Wang , Y Wu
163 , S A Glynn , A Williams , C Nass . *Transfusion* 2004. 44 p. .

164 [Sanchez et al. ()] 'The potential impact of incentives on future blood donation behaviour'. A M Sanchez , D I
165 Ameti , G B Schreiber , R A Thomson , A Lo , J Bethel . *Transfusion* 2001. 41 p. .

166 [Schreiber et al. ()] 'The risk of transfusion transmitted viral infections. The retrovirus epidemiology donor
167 study'. G B Schreiber , M P Busch , S H Kleinman , J J Korelitz . *N Engl J Med* 1996. 334 p. .