

# DONOR DEFERRAL: EVALUATION OF CAUSES ON PRE DONOR SCREENING

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## ABSTRACT

**Background:** Providing fully safe blood products is a major problem all over the world. One of the most important steps in improving the safety of blood and blood products is donor selection. This study was conducted with the objective to determine and categorize the deferral of potential blood donors. **Methods:** This study was conducted at blood bank of North West General Hospital Peshawar, from May 2009 to May 2011. All donors were screened before donation by detailed interview on a structured Performa and physical examination. The donors were classified as fit for donation or deferred donors. Those found fit were sent for pre-donation screening. The deferred donors were divided into temporary and permanent. **Results:** Total 3617 pre-donation screening interviews were conducted. Among these 3454(95.49%) donors were males and 163(4.50%) females. Out of which 3302(91.30%) donors were found fit on initial interview screening for donation and 315(8.70%) were found unfit. Majority of deferrals, 256(81.26%) were due to temporary reasons while permanent deferrals were 59(18.73%). The causes of temporary deferrals were hypotension (22.22%), anemia (13.33%), history of jaundice (9.52%), low body weight (6.03%). Donors on medication were also deferred (5.07%). Those who had donated blood in the last three months or received blood in the last six months were also deferred. Hypertensives (11.11%), donors who had undergone major surgery (4.44%), chronic infections (1.90%), epileptics and type 1 diabetes were permanently deferred. **Conclusion:** In our study 8.70% donors were found unfit on pre-donation screening by structured questionnaire and physical examination. Among these deferrals, the majority (81.26%) was for temporary reasons.

**KEY WORDS:** Blood donor, Blood transfusion, Temporary deferral, Permanent deferral.

## INTRODUCTION

Blood transfusion services are neglected in our setup. Most of our donors are directed donors. So far no serious efforts are taken to convert the directed non remunerated donors to voluntary donors, or to produce a pool of voluntary donors. Various efforts have been made for ensuring a safe blood donor selection. By the process of detailed interview, physical examination and meticulous screening, the safety of donors and recipients are improved.<sup>1</sup>

Blood banking is one of the pillars of modern medicine but simultaneously it carries the potential risk of transmitting lethal infectious diseases. Hence detailed history of blood donors with leading questions on a designed Performa is essential to ensure quality of donors and to avoid risk of transfusion transmitted diseases to the recipient and also to prevent unfit donors from going through trauma. Various efforts have been made for ensuring a safe blood donor selection through interview and education. By the process of screening donors are deferred for several reasons related to the donor as well as recipient safety. It is very essential to study and analyze the reasons for such

deferral among prospective donors in order to categorize them into temporary and permanent deferrals. The blood donor programme is vital to any transfusion service. It involves human resources that interacts with the community and relies totally on the support and good will of individual donors. The purpose of donor screening and interview based deferral programme is to minimize the possibility of transmitting infectious agents from donated blood to the recipients and to ensure the welfare of the donors as well.<sup>2</sup>

In January, 1983, the blood banking Organization of USA recommended the use of donor screening questions to detect early symptoms of AIDS or exposure to AIDS patients among donors and the Centre for Disease Control (CDC), Atlanta, Georgia, USA suggested the use of surrogate tests for certain blood borne diseases.<sup>3</sup> Transfusion of blood and blood component is the main transmission route of infectious agents such as HBV, HCV and HIV. <sup>4</sup> While rigorous screening of donated blood is one of the major factors for preventing these transfusion transmitted infections, selection of appropriate and safe donors and finding reasons for donor deferrals have not been given

much attention.<sup>5</sup> Though deferring blood donors often leaves them with negative feelings about themselves and blood donation process.<sup>6</sup> However following some criteria for deferrals and its implementation strongly influence the quality of blood supply.<sup>7</sup>

Donor deferral should neither be too restrictive nor too liberal as it is important to have adequate stock of blood and its components in the blood banks on one hand to have safety of both donors and recipients. Sometimes, donor deferral is for a short period, such as when a person is temporarily unwell or is on a course of medication. At other times, donor deferral is permanent, such as when a donor may be at risk of transmitting an infection to recipients (e.g. hepatitis B or C or HIV) or when a donor's health may be compromised by donating blood, e.g. anemia.

### MATERIAL AND METHODS

This study was conducted in blood bank of North West General Hospital and Research Center Peshawar from May 2009 to 31<sup>st</sup> May 2011, over a period of two years. In this study, causes of donor deferral were evaluated. A special form was filled out by the attending Medical Technologist questioning about past history, profession, personal habits like smoking, past history of blood donation etc. History of bleeding, previous pregnancy and lactation was asked from every married female donor. Donors were weighed and blood pressure recorded. General physical examination was performed specially for signs of anemia, jaundice and fever. Based on the history and physical examination findings, all blood donors were classified into those fit for donation or as a deferred donor. Those found fit on initial interview and physical examination were further referred on predonation screening. Records of all pre-donation deferrals over a period of two years (1<sup>st</sup> May 2009 to 31<sup>st</sup> May 2011) were analyzed to quantify the deferral rate and reasons. Temporary deferrals were done when donors were having hypotension, anemia on physical examination and confirmed on predonation Hemoglobin level, weight less than 50 kg, history of tuberculosis in the last five years, history of jaundice, recent dental extractions, active cold/flu symptoms, recent history of malaria and those who had received blood within last 6 months or donated blood in the last 3 months.

Permanent deferrals were done when the donors were having hypertension, had undergone major surgeries like nephrectomy, splenectomy, hip surgery, thyroid surgery or if the donors were suffering from insulin dependent diabetes, epilepsy and disease which required steroid therapy and chronic infections like Tuberculosis and chronic

osteomyelitis. Those who were on medications for some acute illness like antibiotics, on long term ansaids, blood thinners etc were also deferred. Deferred donors were counseled as to the cause of deferral. Those deferred temporarily were counseled to return after specific time and removal of the cause. Those who were deferred permanently were also counseled.

### RESULTS

In this study, total 3617 pre-donation screening interviews were conducted over the period of two years. Among these 3554(98.25%) donors were males and 63 females (1.74%). In total 3302(91.30%) donors were found fit on initial interview screening for donation. Total 315 (8.70%) donors were found unfit for various reasons and were deferred. Among the deferred donors, 270 (85.71%) were males and 45 (14.28%) were females. Majority of deferral was due to temporary reasons (n=256, 81.26%). 59 (18.73%) donor were permanently deferred. Table 1 and 2 gives the detail of causes for deferrals on the basis of which they were placed in temporary and permanent groups.

Table 1: Causes of temporary deferrals.

Serial No.	Causes of temporary deferral	No.	Percentage
1	Hypotension	70	22.22
2	Anemia	42	13.33
3	Low weight	19	6.03
4	Tuberculosis	14	6.03
5	History of Jaundice/ Hepatitis	30	9.52
6	Medications	16	5.07
7	Fever/cold/dyspnoea	12	3.38
8	Blood donation in the last 3 months	26	8.25
9	History of malaria in the last 6 months	5	1.58
10	Received Blood	8	2.53
11	Vaccination in the last one month	7	2.22
12	Lactation	4	1.26
13	Pregnancy	3	0.95
	Total	25	7.07

**Table 2: Causes of permanent deferrals.**

Serial No.	Causes of permanent deferral	No.	Percentage
1	Hypertension	35	11.11
2	Surgery	14	4.44
3	Chronic Infections	06	1.90
4	Type 1 diabetes	2	0.63
5	Epilepsy	2	0.63
	Total	59	1.63

## DISCUSSION

One of the most important steps in improving the safety of blood and blood products is donor selection. Insight into the reasons of donor deferral is very important to avoid the permanent loss of the donor, as blood donation programme is the life force of any blood bank and hospital.

The voluntary non-remunerated blood donor is the universally accepted blood donors. The donor comes with the sole purpose of helping a fellow human being and therefore gives true information, and is not driven by any other motive. Many countries in the world have achieved this goal. Pakistan uses more than 0.5 million units of blood every year. The majority of the blood is donated by the family and is categorized as directed donation. However the young students are also willing to donate blood in emergencies.<sup>2</sup>

Most of the donors in our study were males 98.25% and females accounted for only 1.74% of donors. The donor deferral rate in our study was 8.70% and 5.75% were deferred for more than one reasons. In a tertiary teaching hospital in India, a study was conducted on 3388 donors over a period of two years, to assess the rate and reason for donor deferral, so that temporary deferred donors with corrective reasons can be identified and counseled, 10.4% were deferred, among which 83% were temporary deferrals and 17% were permanently deferred. The most common reason being low hemoglobin.<sup>1</sup> Zou *et al*<sup>8</sup> have reported high deferral rate of 12.8% while Arslan *et al* found a slight higher deferral rate of 14.6% in their study.<sup>9</sup> Lim *et al*<sup>3</sup> reported a 14.4% deferral rate.<sup>10</sup> and Custer *et al* reported a deferral rate of 13.6%.<sup>11</sup> In a European study conducted by Lawson-Ayayi *et al* 10.8% of donors were deferred.<sup>12</sup> Such varied differences in donor deferral rate could be due to different donor selection criteria. Zou *et al* observed a potential donor loss after deferral.<sup>8</sup>

The most common cause for deferral in our study was hypotension 22.22%, followed by anemia 13.33%, hypertension 11% and history of jaundice 9.52%. Arsalan *et al*, reported anemia as the most common reason of deferral in their study (20.7%).<sup>9</sup> The hypertensive donors in our study were males. This is in concordance with a similar study done in Malaysia.<sup>13</sup> This can be explained by the fact that the male population has factors predisposing to high blood pressure.<sup>14,15</sup> Moreover the females who had hypertension and other illness are usually not inclined to donate blood.

In study conducted by Gulen *et al*, showed that he most commonly defined causes were recent exposure in high risk activity, recent ingestion of medicines, low hemoglobin, abnormal blood pressure and being underweight.<sup>16</sup> 4.44% donors were deferred due to past history of tuberculosis this percentage is higher than reported in other studies reflecting higher prevalence of this infection in our population.<sup>17</sup>

## CONCLUSION

Selection of healthy donors by detailed pre donation screening interview and physical examination will help in selecting healthy donors. It also saves cost of blood bags, more expensive screening procedures and hazards and expense of disposal of larger amount of materials. Health authorities should also implement policies for the preventive measures to decrease the incidences of common deferral causes as this reflects the health status of the society.

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