



## Original Research Article

## Voluntary blood donation camp- A challenge during COVID-19 pandemic

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## ARTICLE INFO

## Article history:

Received 19-08-2023

Accepted 11-09-2023

Available online 27-09-2023

## Keywords:

Blood donation camp

COVID-19 pandemic

Donor deferral

Donor screening

safety measures

## ABSTRACT

**Background:** Voluntary blood donors are the mainstay of any blood donation camp, whether in a hospital or in a blood bank. Selection of such donors becomes an important element in any blood donation program. However, the spread of COVID-19 worldwide had a crippling impact on blood donations/ blood safety and had posed a huge challenge. Hence, an insight into conduction of a blood donation camp during the pandemic and analysis of reasons for donor deferral becomes highly important.

**Materials and Methods:** This is an observational study about a voluntary blood donation camp held for general public during the second wave of COVID-19 in a school at Kottur, Karnataka. Donor details were taken with the help of questionnaires. Procedures and safety protocols put in place during donation was noted and reasons for deferral obtained from donor questionnaires and by examination of donors was analyzed.

**Results:** The blood donation camp was conducted with proper COVID-19 guidelines. A total of 105 individuals came for donation of which 37 were deferred. 6 deferrals were due to COVID-related cause, 31 deferrals were non-COVID related and overall the most common cause of deferral was hypertension.

**Conclusion:** With the help of proper safety measures, blood donation camps can be successfully conducted during pandemic like COVID-19. And the crisis for blood and its products can be met by adopting appropriate guidelines.

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## 1. Introduction

Blood donation is a noble act which saves life of many patients.<sup>1</sup> Voluntary blood donors are the mainstay of any blood donation setup, whether in a hospital or a blood bank. It is a vital cog in the wheel of safe blood transfusion services. However, some individuals get disqualified from blood donation if they fail to meet the selection criteria put in place to safeguard the health of both the donor and the recipient. Such individuals are called as “deferred donors”. The various reasons for deferral can be temporary or permanent.<sup>2</sup>

The spread of COVID-19 disease which is a highly contagious disease caused by SARS-CoV-2 virus had been declared a pandemic. The pandemic had a crippling impact on blood donations, blood supply and blood safety and had posed a huge challenge to the entire healthcare system.<sup>3</sup> Hence, this study was undertaken to gain insight into conduction of a blood donation camp during the pandemic and to analyse various reasons for donor deferral in such a camp.<sup>4</sup>

## 2. Aims and Objectives

1. To evaluate safety protocols put in place during a voluntary blood donation camp during COVID-19

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pandemic.

2. To analyse reasons for deferral of donors.

### 3. Material and Methods

This is an observational study done in a voluntary blood donation camp conducted for general public during the second wave of COVID-19 pandemic in a school at Kottur, Karnataka. As the camp was organised during the pandemic, appropriate COVID-19 protocols were followed and proper precautions were taken. The local government authorities had arranged for Rapid Antigen Testing (RAT) for COVID-19 screening of donors and those who were negative for COVID-19 were sent for further evaluation before blood donation.

A total of 6 doctors were involved in screening of donors. Screening was done with the help of donor questionnaires and general physical examination. The individuals who came forward for donation were given the donor questionnaire form and were requested to write relevant information and history collected according to the questionnaire and then taken up for general physical examination. Parameters like weight, Hb, blood pressure, temperature, pulse, pallor along with systemic examination were done and noted down. Haemoglobin level was determined with the help of copper sulphate (gravimetric) method. Copper sulphate solution having a specific gravity of 1.053 was used (corresponding to haemoglobin level of 12.5 g/dL).

All the guidelines for a regular blood donation screening was followed along with few COVID-19 specific guidelines which included 14 days deferral for COVID-19 vaccinated individuals and 28 days deferral for COVID-19 infected patients following recovery. Those who fulfilled all the criteria were taken up for donation under all aseptic precautions. Post donation, they were asked to rest for 15 minutes, given refreshments and sent with post-donation counselling. The samples collected were sent to blood bank immediately under proper preservation. In blood bank they were screened for transfusion transmitted infection (T.T.I.) and component separation done.

### 4. Results

The camp was conducted with proper COVID-19 safety protocols in place. A total of 105 individuals came forward for blood donation of which 74 (70%) units of blood was collected from eligible donors. Of the total donors, 100 were males and 5 were females. The deferral rate was 35.24%, (37 individuals - 33 males and 4 females being deferred). There were various reasons for deferral which included both COVID-related and non-COVID-related causes.

On screening 6 units were HbsAg positive (16.2%). So total 68 units were suitable for issue of transfusion.

The gender distribution of donors and number of donors deferred are given in Table 1. The various reasons for deferral are enlisted in Table 2. The donor questionnaire is given in Figure 1.

**Table 1:** Gender distribution of donors

Gender	No. of voluntary donors	No. of donors deferred
Male	100	33 (33%)
Female	5	4 (80%)

**Table 2:** Reasons for donor deferral

Reason of deferral	No. of deferred donors
Hypertension	16 (43.3%)
HbsAg positive (T.T.D.)	6 (16.2%)
Recently vaccinated (COVID vaccine)	5 (13.5%)
Low Hb	4 (10.8%)
Hypothyroid	2 (5.4%)
Underweight	2 (5.4%)
Underage	1 (2.7%)
COVID positive	1 (2.7%)
Temporary deferral	13 (12.4%)
Permanent deferral	24 (22.9%)

### 5. Discussion

The advent of COVID-19 pandemic has rendered a staggering blow to the healthcare services including blood banking and transfusion services. Raturi et al in their study says that blood donation, which is the only way to maintain the blood supply chain, has suffered drastically due to the outbreak.<sup>5</sup> Divya et al also reported that there is a decline in the number of blood donations due to the fear of exposure to the infection.<sup>6</sup> Sachdev et al in their study reported similar fear emanating from the scepticism about safety measures put in place at hospitals to prevent transmission of infection.<sup>7</sup> In the present study, the organizers of the blood donation camp made sure that proper COVID-19 protocols were incorporated to allay the fear of infection like mandatory use of masks, observing a social distance of six feet among the donors, availability of sanitisers at each and every stage as well as RAT (Rapid Antigen Testing) to screen infected individuals.

Donor screening and evaluation is a prerequisite for blood safety.<sup>2</sup> Accordingly, deferred donors are informed and counselled. The various reasons for deferral in the voluntary blood donation camp held during second wave of COVID-19 pandemic were analysed. However, due to lack of similar studies during the pandemic, comparisons were drawn with studies done prior to the pandemic.<sup>8</sup>

The most common reason of deferral in the present study was hypertension (43.3%) which is a permanent cause. Similar observation was made in the studies by RS Patil

7) Do you suffer from or have suffered from any of the following diseases / ಈ ಕೆಳಗೆ ಯಾವುದೇ ರೋಗವನ್ನು ಹೊಂದಿದ್ದೀರಾ ?

Heart Disease / ಹೃದಯ ಕಾಯಿಲೆ	<input type="checkbox"/>	Cancer / Malignant Disease / ಕ್ಯಾನ್ಸರ್ (ಪ್ರಾಚೀನ) ದೇಹ	<input type="checkbox"/>
Diabetes / ಡಯಾಬೀಟಿಸ್	<input type="checkbox"/>	Jaundice (last 1 year) / ಮೂತ್ರ ಪಿತ್ತ (ಕಡಲೆ 1 ವರ್ಷ)	<input type="checkbox"/>
Abnormal Bleeding tendency / ಅಸಹಜ ರಕ್ತಸ್ರವಣ ಶಕ್ತಿ	<input type="checkbox"/>	Sexually Transmitted Disease / ಲೈಂಗಿಕ ರೋಗ	<input type="checkbox"/>
Typhoid (last 1 year) / ಟೈಫಾಯಿಡ್ (ಕಡಲೆ 1 ವರ್ಷ)	<input type="checkbox"/>	Asthma / ಅಸ್ಮಿಯಾ (ಶ್ವಾಸಕ ದೇಹ)	<input type="checkbox"/>
Lung Disease / ಶ್ವಾಸಕಾಯಿ ಕಾಯಿಲೆ	<input type="checkbox"/>	Tuberculosis / ಟಬರ್ಕುಲಿಸಿಸ್	<input type="checkbox"/>
Allergic Disease / ಅಲರ್ಜಿ	<input type="checkbox"/>	Kidney disease / ಕಿಡನಿ ಕಾಯಿಲೆ	<input type="checkbox"/>
Epilepsy / ಅಪಕ್ವಾಳ (ಘಟನೆ)	<input type="checkbox"/>	Hepatitis B/C / ಹೆಪಟೈಟಿಸ್ ಬಿ/ಸಿ	<input type="checkbox"/>
Malaria (6 months) / ಮಲೇರಿಯಾ	<input type="checkbox"/>	Fainting spells / ಮುಳುಗುತು	<input type="checkbox"/>

Are you taking or have taken any of these in the 72 hours / 72 ಗಂಟೆಗಳಲ್ಲಿ ಈಗ ಯಾವುದೇ ರೋಗಿ ಕೆಲಸವನ್ನು ಮಾಡುತ್ತೀರಾ ?

Antibiotics / ಆಂಟಿಬಯೋಟಿಕ್	<input type="checkbox"/>	Alcohol / ಪಾನೀಯ	<input type="checkbox"/>	Vaccination / ಲಸಿಕೆ	<input type="checkbox"/>
Steroids / ಸ್ಟೀರಾಯ್ಡ್	<input type="checkbox"/>	Aspirin / ಅಸ್ಪಿರಿನ್	<input type="checkbox"/>	Dog bite / Rabies Vaccine / ದೇಹ ಕಚ್ಚಾಟ / ರೇಬಿಸ್ ಲಸಿಕೆ	<input type="checkbox"/>

8) Is there any history of surgery or blood transfusion in the past 6 months / ನಿನ್ನಲ್ಲಿ ಕಡಲೆ 6 ತಿಂಗಳಲ್ಲಿ ಯಾವುದೇ ಶಸ್ತ್ರಚಿಕಿತ್ಸೆ ಅಥವಾ ರಕ್ತದಾನ ಇದ್ದದ್ದು : Major / ಮೇಜರ್  Minor / ಮೈನರ್  Blood transfusion / ರಕ್ತದಾನ

9) For Female Donors / ಸ್ತ್ರೀ ದಾನಕರರಿಗೆ ಮಾತ್ರ  
 a) Are you Pregnant / ಈಗ ನಿನ್ನಲ್ಲಿ ಗರ್ಭಿಣಿ ? Yes  No   
 b) Have you had any abortion in the last 3 months / ಕಡಲೆ 3 ತಿಂಗಳಲ್ಲಿ ಯಾವುದೇ ಅನಿರೋಧಿತ ಅನಿರೋಧಿತ ಇದ್ದದ್ದು ? Yes  No   
 c) Do you have a child less than one year old / ಒಂದು ವರ್ಷಕ್ಕಿಂತ ಕಡಿಮೆಯ ವಯಸ್ಸಿನ ಮಗುವಿದ್ದೀರಾ ? Yes  No

10) Would you like to be informed about any abnormal test result at the address furnished by you / ನಿನ್ನ ನಿನ್ನ ವಿಳಾಸದಲ್ಲಿ ಯಾವುದೇ ಅಸಹಜ ಟೆಸ್ಟ್ ರಿಸಲ್ಟ್ ಬಗ್ಗೆ ನಿನ್ನನ್ನು ತಿಳಿಸುವುದೇ ? Yes  No

11) Have you read & understood all the information presented and answered all the questions truthfully as any incorrect statement or concealment may affect your health or may harm the recipient / ನಿನ್ನ ಹಿರಿ ಅಥವಾ ದಾನಕಾರನ ಆರೋಗ್ಯಕ್ಕೆ ಯಾವುದೇ ತಪ್ಪು ಮಾಹಿತಿ ನೀಡುವುದು ನಿನ್ನ ಆರೋಗ್ಯಕ್ಕೆ ಅಥವಾ ದಾನಕಾರನ ಆರೋಗ್ಯಕ್ಕೆ ಹಾನಿ ಮಾಡುತ್ತದೆ. Yes  No

**I understand that / ನನಗೆ ಈ ಕೆಳಗೆ ಮಾಹಿತಿ ಅರ್ಥವಾಗಿದೆ.**

a) Blood donation is totally a voluntary act and no inducement or remunerations has been offered. / ರಕ್ತದಾನ ಶುದ್ಧ ಪ್ರವೃತ್ತಿಯಿಂದಾಗಿ ಮತ್ತು ಯಾವುದೇ ಪ್ರೋತ್ಸಾಹ ಅಥವಾ ಪಾವತಿಯನ್ನು ನೀಡಲಾಗುವುದಿಲ್ಲ.  
 b) Donation of blood / components is a medical procedure and by donating voluntarily, I accept the risks associated with this procedure / ರಕ್ತದಾನ ಅಥವಾ ಅದರ ಘಟಕಗಳ ದಾನ ಒಂದು ವೈದ್ಯಕೀಕರಣ ಕ್ರಮ ಮತ್ತು ಸ್ವಯಂ ಪ್ರವೃತ್ತಿಯಿಂದಾಗಿ ನಾನು ಅನುಮತಿಸುತ್ತೇನೆ.  
 c) My blood will be tested for Hepatitis B, Hepatitis C, Malarial parasites HIV/AIDS and Venereal diseases in addition to any other screening tests required to ensure blood safety. / ನಿನ್ನ ರಕ್ತದಲ್ಲಿ ಹೆಪಟೈಟಿಸ್ ಬಿ/ಸಿ, ಮಲೇರಿಯಾ ಪರಾಶಿಕ್ತಗಳು ಮತ್ತು ವೇನರಿಯಲ್ ರೋಗಗಳನ್ನು ಹೊಂದಿದಂತಹ ಯಾವುದೇ ಸ್ಕ್ರೀನಿಂಗ್ ಟೆಸ್ಟ್ ಅಥವಾ ಇತರ ಟೆಸ್ಟ್ಗಳನ್ನು ಮಾಡುವುದು ರಕ್ತದಾನದ ಸುರಕ್ಷತೆಯನ್ನು ಖಚಿತಪಡಿಸಲು ಅಗತ್ಯವಿದೆ.

I forfeit any information provided by me or about my donation to be disclosed to any individual or government agency without my prior permission.

**Signature of the Donor / ದಾನಕಾರನ ಸಹಿ**

Date / ದಿನಾಂಕ	Weight (Kgs)	Temp	Pulse / min	Blood pressure / mm / Hg	Hemoglobin / gm/l	Respiratory diseases if any	Exam. Of Phlebotomy area for skin diseases/lesions	Fit for donation Yes / No

ACCEPT  DEFER  REJECT  Reason: \_\_\_\_\_

**FOR BLOOD BANK USE ONLY**

Blood Bag No.	Lot No.	Expiry	Qty. In ml 350 ml / 450 ml / 100 ml	Name of Phlebotomist	Donor Reaction if any

Blood Group	Rh. Type	HIV 1 & 2 Antibody	HbS Ag	HCV	VDRL	MP
		POSITIVE / NEGATIVE	POSITIVE / NEGATIVE	POSITIVE / NEGATIVE	REACTIVE / NOT REACTIVE	FOUND / NOT FOUND

Date: \_\_\_\_\_ Signature of the Technician **BLOOD SAFETY BEGINS WITH A HEALTHY DONOR** Signature of Medical officer/BBO

**BLOOD SAFETY BEGINS WITH A HEALTHY DONOR**

Licence No. KIK26G/03/2009-14 BAPUJI EDUCATIONAL ASSOCIATION (REGD.)  
**S.S.INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE, DAVANGERE-5.**  
**S.S.BLOOD BANK**  
**BANK DONOR QUESTIONNAIRE & CONSENT FORM BANK CONFIDENTIAL**

Please answer the questions correctly. This will help to protect you and the patient who receives your blood.

Donor Registration No/ ದಾನಕಾರನ ಸಂಖ್ಯೆ : \_\_\_\_\_  
 Name / ಹೆಸರು : \_\_\_\_\_ Address / ವಿಳಾಸ : \_\_\_\_\_  
 Sex : Male / Female / ಸ್ತ್ರೀ / ಪುರುಷ \_\_\_\_\_  
 Date of Birth / ಜನ್ಮ ದಿನಾಂಕ : \_\_\_\_\_  
 Age / ವಯಸ್ಸು : \_\_\_\_\_ Office / ಕಛೇರಿ/ ಸೇವಾ ಕೇಂದ್ರ : \_\_\_\_\_  
 Father's name / ತಂದೆಯ ಹೆಸರು : \_\_\_\_\_  
 Occupation / ವೃತ್ತಿ : \_\_\_\_\_  
 Telephone / ದೂರವಾರ್ತೆ ಸಂಖ್ಯೆ : \_\_\_\_\_ E-mail / ಇ-ಮೇಲ್ : \_\_\_\_\_  
 Mobile No / ಮೊಬೈಲ್ ಸಂಖ್ಯೆ : \_\_\_\_\_

Martial Status / ವಿವಾಹ :  Single / Married / ವಿವಾಹಿತ :

Have you donated Blood previously / ಹಿಂದೆ ಯಾವುದೇ ರಕ್ತದಾನ ಮಾಡಿದ್ದೀರಾ - Yes / No  / No

How many occasions / ಎಷ್ಟು ಬಾರಿ \_\_\_\_\_ When last time / ಕಡಲೆ ಏನು ಬಾರಿ \_\_\_\_\_

Where / ಇಲ್ಲಿ \_\_\_\_\_

Any adverse reaction during previous donation / ಕಡಲೆ ಯಾವುದೇ ಅನಿರೋಧಿತ ಘಟನೆ \_\_\_\_\_

Previous rejection from donation & its reasons / ಈ ಮೊದಲಿನಿಂದ ಯಾವುದೇ ತಿರಸ್ಕಾರದ ಕಾರಣ \_\_\_\_\_

**TICK APPROPRIATE ANSWER / ಸೂಕ್ತ ಉತ್ತರ ಗುರುತಿಸಿ**

1) DO you feel well today / ಈ ದಿನ ನಿನ್ನಲ್ಲಿ ಹೇಗೆ ಇದೆ ? Yes  No

2) Did you something to eat in the last 4 hours / ಕಡಲೆ 4 ಗಂಟೆಗಳಲ್ಲಿ ಯಾವುದೇ ಆಹಾರ ತಿನ್ನಿದ್ದೀರಾ ? Yes  No

3) Did you sleep well last night / ನಿನ್ನ ರಾತ್ರಿ ನಿದ್ರೆ ಸರಿಯಾಗಿ ಇದ್ದದ್ದು ? Yes  No

4) Have you any reason to believe that you may be infected by either Hepatitis, Malaria, HIV / AIDS and / or Venereal disease / ನಿನ್ನಲ್ಲಿ ಯಾವುದೇ ರೋಗದಿಂದಾಗಿ ನೀನು ಸೋತು ಹೋಗಬಹುದೆಂದು ನಿನಗೆ ತಿಳಿದಿದೆಯೇ ? Yes  No

5) In the last 6 months have you had any history of the following / ಕಡಲೆ 6 ತಿಂಗಳಲ್ಲಿ ಯಾವುದೇ ರೋಗಿ ಕೆಲಸವನ್ನು ಮಾಡಿದ್ದೀರಾ ?

Unexplained weight loss / ಅಸಹಜ ತೂಕ ಕಳೆದುಕೊಳ್ಳುವುದು  Repeated Diarrhoea / ಪುನಃ ಪುನಃ ದೀರ್ಘ

Swollen glands / ದೀರ್ಘ ಗ್ರಂಥಿ ಸುಡುವುದು  Continuous low grade fever / ನಿಯತಕಾಲಿಕ ಉಷ್ಣ

6) In the last 6 months have you had any / ಕಡಲೆ 6 ತಿಂಗಳಲ್ಲಿ ಯಾವುದೇ

Ear piercing / ಕಿವಿ ಸುಟ್ಟುಕೊಡುವುದು  Dental extraction / ದಂತ ತೆಗೆಯುವುದು

Fig. 1: Donor questionnaire

et al, where hypertension was the most common cause of permanent deferral.<sup>9</sup> The most common cause of temporary deferral was COVID-19 vaccination within 14 days which is an exclusive observation in the present study, the period of deferral post vaccination being reduced to 14 days after changes in NBTC guidelines as concluded by Bhasker and Gupta et al in their respective studies.<sup>10,11</sup>

Shah et al in their study observed that male volunteers were the predominant donors as compared to female volunteers which is similar to the present study.<sup>1</sup> Similar observation was reported by Sundar et al in their study.<sup>12</sup>

Antwi-Baffour et al in their study observed that anaemia was a leading cause of donor deferral which is similar to the present study.<sup>13</sup>

Agnihotri in his study observed that hypertension and anaemia were the major causes of deferral and low body weight of donor a less common cause of deferral which is similar to the present study.<sup>14</sup> Joy S et al reported that low haemoglobin and low body weight as major cause of donor deferral which was done among the student donors.<sup>2</sup> Shrivastava et al in their study mentioned that transfusion transmitted diseases was another major cause of donor

deferral which is in accordance to the present study. One donor was underage (<18 years) which was deferred similar to other studies. Endocrine diseases were also reported to be another cause of deferral by Shrivastava et al which was also noted in the present study where 2 (5.4%) donors had hypothyroidism.<sup>15</sup>

The present study reported 1 (2.7%) case of COVID-19 positivity by RAT testing which was deferred and unique in this study.

Out of 37 total deferrals, 24 were permanent deferrals and 13 were temporary deferrals.

**6. Conclusion**

The pandemic had a great impact to the blood bank stock which heavily depends on voluntary blood donation to ensure its supply chain. Hence, this study was undertaken to assess the various aspects of a blood donation camp held during the pandemic which can help in controlling and preventing spread of COVID-19 while ensuring availability of sufficient and safe blood for the patients in need. The authors also hope that this study can help in throwing a light

to the path of conducting such a camp in the face of a similar outbreak in future in order to maintain the supply of a blood bank.

## 7. Source of Funding

None.

## 8. Conflict of Interest

None.


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**Cite this article:** Nath P, Neetha Y, Krishnamurthy SP, Umopathy KG. Voluntary blood donation camp- A challenge during COVID-19 pandemic. *Indian J Pathol Oncol* 2023;10(3):245-248.