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Original Research Article

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

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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.

1. Introduction

Blood donation is a noble act which saves life of many patients.[1] 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.[2]

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.[3] 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.[4]

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

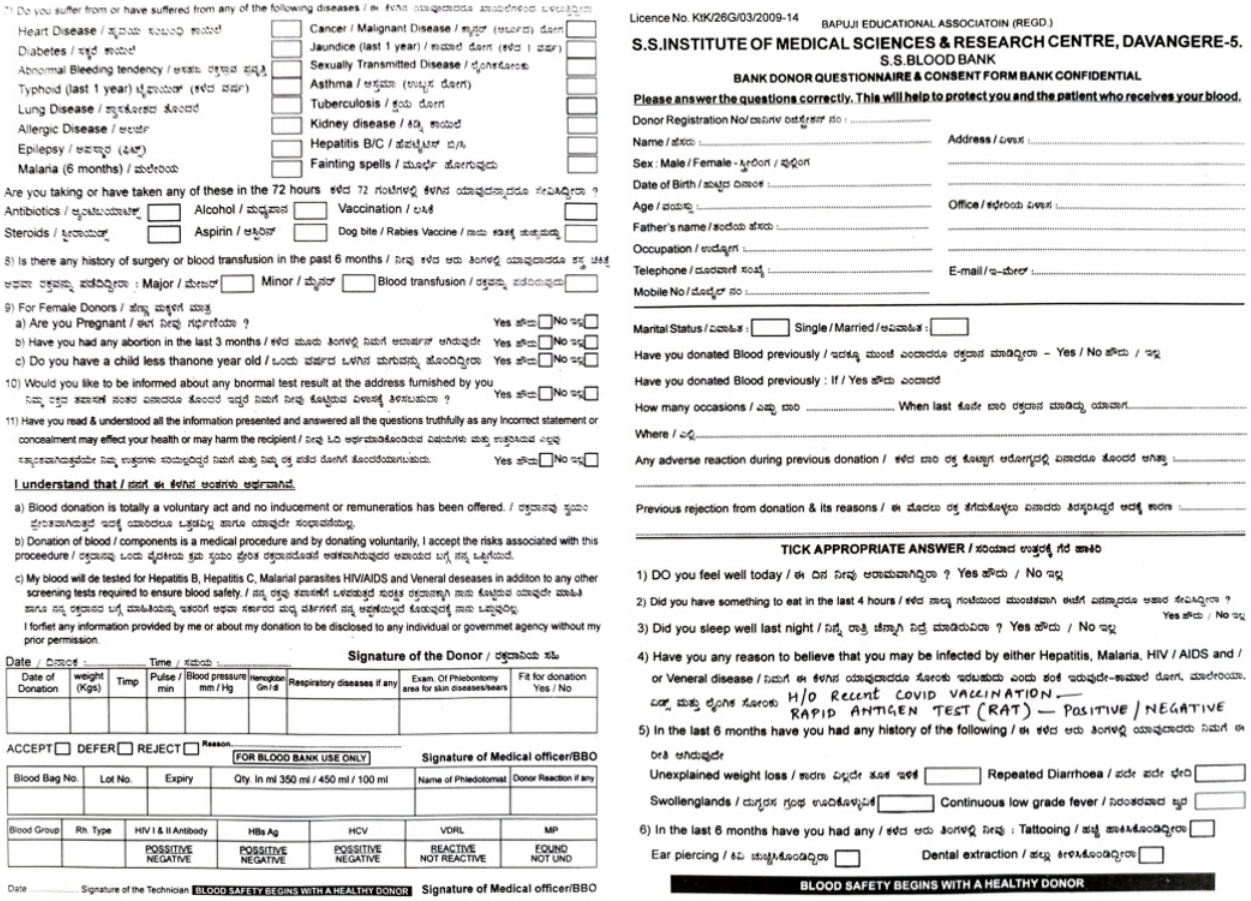
Reason of deferral	No. of deferred donors
Hypertension	16 (43.3%)
HbsAg positive (T.T.D.)	6 (16.2%)
Recently vaccinated (COVID vaccine)	5 (13.5%)
Low Hb	4 (10.8%)
Hypothyroid	2 (5.4%)
Underweight	2 (5.4%)
Underage	1 (2.7%)
COVID positive	1 (2.7%)
Temporary deferral	13 (12.4%)
Permanent deferral	24 (22.9%)

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.[5] 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.[6] 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.[7] 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.[2] 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.[8]

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



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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/ ದಾನಿಗಳ ನೋಂದಣಿ ಸಂ :

Name / ಹೆಸರು : Address / ವಿಳಾಸ :

Sex : Male / Female - ಸ್ತ್ರೀಲಿಂಗ / ಪುಲ್ಲಿಂಗ

Date of Birth / ಹುಟ್ಟಿದ ದಿನಾಂಕ :

Age / ವಯಸ್ಸು : Office / ಕಛೇರಿಯ ವಿಳಾಸ :

Father's name / ತಂದೆಯ ಹೆಸರು :

Occupation / ಉದ್ಯೋಗ :

Telephone / ದೂರವಾಣಿ ಸಂಖ್ಯೆ : E-mail / ಇ-ಮೇಲ್ :

Mobile No / ಮೊಬೈಲ್ ನಂ :

Marital Status / ವೈವಾಹಿಕ : Single / Married / ಅವಿವಾಹಿತ / ವಿವಾಹಿತ

Have you donated Blood previously / ಇದಕ್ಕೂ ಮುಂಚೆ ಎಂದಾದರೂ ರಕ್ತದಾನ ಮಾಡಿದ್ದೀರಾ – Yes / No ಹೌದು / ಇಲ್ಲ

Have you donated Blood previously : If / Yes ಹೌದು ಎಂದಾದರೆ

How many occasions / ಎಷ್ಟು ಬಾರಿ When last ಕೊನೆ ಬಾರಿ ರಕ್ತದಾನ ಮಾಡಿದ್ದು ಯಾವಾಗ

Where / ಎಲ್ಲಿ

Any adverse reaction during previous donation / ಈ ಬಾರಿ ರಕ್ತ ಕೊಟ್ಟಾಗ ಆದೋಗ್ಯದಲ್ಲಿ ವಿಪರೀತ ಕೊಂದರೆ ಆಗಿತ್ತಾ :

Previous rejection from donation & its reasons / ಈ ಮೊದಲು ರಕ್ತ ಕೊಡುವುದನ್ನು ವಿಪರೀತ ತಿರಸ್ಕರಿಸಿದ್ದರೆ ಅದಕ್ಕೆ ಕಾರಣ :

TICK APPROPRIATE ANSWER / ಸರಿಯಾದ ಉತ್ತರಕ್ಕೆ ಗೆರೆ ಹಾಕಿರಿ

1) DO you feel well today / ಈ ದಿನ ನೀವು ಆರೋಗ್ಯವಾಗಿದ್ದೀರಾ ? Yes ಹೌದು / No ಇಲ್ಲ

2) Did you have something to eat in the last 4 hours / ಈದ ನಾಲ್ಕು ಗಂಟೆಯಿಂದ ಮುಂಚೆಯಾಗಿ ಊಟಿಗೆ ವಿಷಯಾದರೂ ಆಹಾರ ಸೇವಿಸಿದ್ದೀರಾ ? Yes ಹೌದು / No ಇಲ್ಲ

3) Did you sleep well last night / ನಿನ್ನೆ ರಾತ್ರಿ ಚೆನ್ನಾಗಿ ನಿದ್ರೆ ಮಾಡಿದುವಿರಾ ? Yes ಹೌದು / No ಇಲ್ಲ

4) Have you any reason to believe that you may be infected by either Hepatitis, Malaria, HIV / AIDS and / or Veneral disease / ನಿಮಗೆ ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಸೋಂಕು ಇರಬಹುದು ಎಂದು ಶಂಕೆ ಇರುವುದೇ–ಕಾಮಾಲೆ ರೋಗ, ಮಲೇರಿಯಾ, ಏಡ್ಸ್ ಮತ್ತು ಲೈಂಗಿಕ ಸೋಂಕು H/O Recent COVID VACCINATION — RAPID ANTIGEN TEST (RAT) — POSITIVE / NEGATIVE

5) In the last 6 months have you had any history of the following / ಈ ಕೆಳದ ಆರು ತಿಂಗಳಲ್ಲಿ ಯಾವುದಾದರು ನಿಮಗೆ ಈ ರೀತಿ ಆಗಿರುವುದೇ

Unexplained weight loss / ಕಾರಣ ವಿಲ್ಲದೇ ತೂಕ ಇಳಿಕೆ Repeated Diarrhoea / ಪದೇ ಪದೇ ಭೇದಿ

Swollenglands / ದುಗ್ಧರಸ ಗ್ರಂಥಿ ಉಬ್ಬಿಕೊಳ್ಳುವಿಕೆ Continuous low grade fever / ನಿರಂತರವಾದ ಜ್ವರ

6) In the last 6 months have you had any / ಕಳೆದ ಆರು ತಿಂಗಳಲ್ಲಿ ನೀವು : Tattooing / ಹಚ್ಚೆ ಹಾಕಿಸಿಕೊಂಡಿದ್ದೀರಾ

Ear piercing / ಕಿವಿ ಚುಚ್ಚಿಸಿಕೊಂಡಿದ್ದೀರಾ Dental extraction / ಹಲ್ಲು ಕೀಳಿಸಿಕೊಂಡಿದ್ದೀರಾ

BLOOD SAFETY BEGINS WITH A HEALTHY DONOR

7) Do you suffer from or have suffered from any of the following diseases / ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಖಾಯಿಲೆಗಳಿಂದ ಬಳಲುತ್ತಿದ್ದೀರಾ

Heart Disease / ಹೃದಯ ಸಂಬಂಧಿ ಕಾಯಿಲೆ
Diabetes / ಸಕ್ಕರೆ ಕಾಯಿಲೆ
Abnormal Bleeding tendency / ಅಸಹಜ ರಕ್ತಸ್ರಾವ ಪ್ರವೃತ್ತಿ
Typhoid (last 1 year) / ಟೈಫಾಯಿಡ್ (ಕಳೆದ ವರ್ಷ)
Lung Disease / ಶ್ವಾಸಕೋಶದ ತೊಂದರೆ
Allergic Disease / ಅಲರ್ಜಿ
Epilepsy / ಅಪಸ್ಮಾರ (ಫಿಟ್ಸ್)
Malaria (6 months) / ಮಲೇರಿಯ
Cancer / Malignant Disease / ಕ್ಯಾನ್ಸರ್ (ಅರ್ಬುದ) ರೋಗ
Jaundice (last 1 year) / ಕಾಮಾಲೆ ರೋಗ (ಕಳೆದ 1 ವರ್ಷ)
Sexually Transmitted Disease / ಲೈಂಗಿಕಸೋಂಕು
Asthma / ಅಸ್ತಮಾ (ಉಬ್ಬಸ ರೋಗ)
Tuberculosis / ಕ್ಷಯ ರೋಗ
Kidney disease / ಕಿಡ್ನಿ ಕಾಯಿಲೆ
Hepatitis B/C / ಹೆಪಟೈಟಿಸ್ ಬಿ/ಸಿ
Fainting spells / ಮೂರ್ಛೆ ಹೋಗುವುದು

Are you taking or have taken any of these in the 72 hours ಕಳೆದ 72 ಗಂಟೆಗಳಲ್ಲಿ ಕೆಳಗಿನ ಯಾವುದನ್ನಾದರೂ ಸೇವಿಸಿದ್ದೀರಾ ?

Antibiotics / ಆ್ಯಂಟಿಬಯಾಟಿಕ್ Alcohol / ಮದ್ಯಪಾನ Vaccination / ಲಸಿಕೆ
Steroids / ಸ್ಟೀರಾಯಿಡ್ Aspirin / ಆಸ್ಪಿರಿನ್ Dog bite / Rabies Vaccine / ನಾಯಿ ಕಡಿತಕ್ಕೆ ಹುಚ್ಚುಮದ್ದು

8) Is there any history of surgery or blood transfusion in the past 6 months / ನೀವು ಕಳೆದ ಆರು ತಿಂಗಳಲ್ಲಿ ಯಾವುದಾದರೂ ಶಸ್ತ್ರ ಚಿಕಿತ್ಸೆ ಅಥವಾ ರಕ್ತವನ್ನು ಪಡೆದಿದ್ದೀರಾ : Major / ಮೇಜರ್ Minor / ಮೈನರ್ Blood transfusion / ರಕ್ತವನ್ನು ಪಡೆದಿರುವುದು

9) For Female Donors / ಹೆಣ್ಣು ಮಕ್ಕಳಿಗೆ ಮಾತ್ರ
a) Are you Pregnant / ಈಗ ನೀವು ಗರ್ಭಿಣಿಯೇ ? Yes ಹೌದು No ಇಲ್ಲ
b) Have you had any abortion in the last 3 months / ಕಳೆದ ಮೂರು ತಿಂಗಳಲ್ಲಿ ನಿಮಗೆ ಅಬಾರ್ಷನ್ ಆಗಿರುವುದೇ Yes ಹೌದು No ಇಲ್ಲ
c) Do you have a child less thanone year old / ಒಂದು ವರ್ಷದ ಒಳಗಿನ ಮಗುವನ್ನು ಹೊಂದಿದ್ದೀರಾ Yes ಹೌದು No ಇಲ್ಲ

10) Would you like to be informed about any bnormal test result at the address furnished by you ನಿಮ್ಮ ರಕ್ತ ಪರೀಕ್ಷೆಗಳಲ್ಲಿ ಏನಾದರೂ ತೊಂದರೆ ಇದ್ದರೆ ನಿಮಗೆ ನೀವು ಕೊಟ್ಟಿರುವ ವಿಳಾಸಕ್ಕೆ ತಿಳಿಸಬಹುದಾ ? Yes ಹೌದು No ಇಲ್ಲ

11) Have you read & understood all the information presented and answered all the questions truthfully as any Incorrect statement or concealment may effect your health or may harm the recipient / ನೀವು ಓದಿ ಅರ್ಥಮಾಡಿಕೊಂಡಿರುವ ವಿಷಯಗಳು ಮತ್ತು ಉತ್ತರಿಸಿರುವ ಎಲ್ಲವು ಸತ್ಯಾಂಶವಾಗಿರುತ್ತದೆಯೇ ನಿಮ್ಮ ಉತ್ತರಗಳು ಸರಿಯಾಗಿರದ್ದರೆ ನಿಮಗೆ ಮತ್ತು ನಿಮ್ಮ ರಕ್ತ ಪಡೆದ ರೋಗಿಗೆ ತೊಂದರೆಯಾಗಬಹುದು. Yes ಹೌದು No ಇಲ್ಲ

I understand that / ನಾನು ಈ ಕೆಳಗಿನ ಅಂಶಗಳು ಅರ್ಥವಾಗಿವೆ.

a) Blood donation is totally a voluntary act and no inducement or remuneratios has been offered. / ರಕ್ತದಾನವು ಸ್ವಯಂ ಪ್ರೇರಿತವಾಗಿರುತ್ತದೆ ಇದಕ್ಕೆ ಯಾವುದೇ ಉತ್ತೇಜನವಿಲ್ಲ ಹಾಗೂ ಯಾವುದೇ ಸಂಭಾವನೆಯಿಲ್ಲ.

b) Donation of blood / components is a medical procedure and by donating voluntarily, I accept the risks associated with this proceedure / ರಕ್ತದಾನವು ಒಂದು ವೈದ್ಯಕೀಯ ಕ್ರಮ ಸ್ವಯಂ ಪ್ರೇರಿತ ರಕ್ತದಾನಮಾಡಿಕೆ ಅಡಕವಾಗಿರುವುದರ ಅರಿವಿದರ ಬಗ್ಗೆ ನನ್ನ ಒಪ್ಪಿಗೆಯಿದೆ.

c) My blood will de tested for Hepatitis B, Hepatitis C, Malarial parasites HIV/AIDS and Veneral deseases in additon to any other screening tests required to ensure blood safety. / ನನ್ನ ರಕ್ತವು ಕಡ್ಡಾಯವಾಗಿ ಒಳಪಡುತ್ತದೆ ಸುರಕ್ಷಿತ ರಕ್ತದಾನಕ್ಕಾಗಿ ನಾನು ಕೊಟ್ಟಿರುವ ಯಾವುದೇ ಮಾಹಿತಿ ಹಾಗೂ ನನ್ನ ರಕ್ತದಾನದ ಬಗ್ಗೆ ಮಾಹಿತಿಯನ್ನು ಇತರರಿಗೆ ಅಥವಾ ಸರ್ಕಾರದ ಮತ್ತು ವಿಶೇಷಗಳಿಗೆ ನನ್ನ ಅನುಮತಿಯಿಲ್ಲದೆ ಕೊಡುವುದಕ್ಕೆ ನಾನು ಒಪ್ಪುವುದಿಲ್ಲ.
I forfiet any information provided by me or about my donation to be disclosed to any individual or governmet agency without my prior permission.

Signature of the Donor / ರಕ್ತದಾನಿಯ ಸಹಿ

Date / ದಿನಾಂಕ : Time / ಸಮಯ :

Date of Donation	weight (Kgs)	Timp	Pulse / min	Blood pressure mm / Hg	Hemoglobin Gm / dl	Respiratory diseases if any	Exam. Of Phlebotomy area for skin diseases/sears	Fit for donation Yes / No

ACCEPT DEFER REJECT Reason

FOR BLOOD BANK USE ONLY

Signature of Medical officer/BBO

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 I & II Antibody	HBs Ag	HCV	VDRL	MP
		POSSITIVE NEGATIVE	POSSITIVE NEGATIVE	POSSITIVE NEGATIVE	REACTIVE NOT REACTIVE	FOUND NOT UND

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

Fig. 1: Donor questionnaire

et al, where hypertension was the most common cause of permanent deferral.[9] 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.[10,11]

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.[1] Similar observation was reported by Sundar et al in their study.[12]

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

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.[14] 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.[2] 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.[15]

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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