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EFFECT OF COVID-19 ON THE PATTERN OF BLOOD DONOR DEFERRAL AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Introduction: The COVID -19 pandemic has significantly impacted the healthcare system globally, including blood transfusion services. This has disrupted the traditional pattern of blood donation criteria, leading to changes in blood donor criteria, donor screening and donation procedures. The main aim of this study is to compare the Blood Donor Deferral patterns during Pre and Post COVID. **Methods**: This cross-sectional study was done at a tertiary care centre for a period of 2 year from Jan 2019 to Dec 2019 (Pre COVID) and Jan 2022 to Dec 2022(Post COVID). The Data for Donor deferral was compared for Pre-COVID and Post COVID period. Standard Operating procedures (SOP) based on national guidelines were used for donor selection and deferral. In addition, COVID-related deferrals were also incorporated. The donor deferral period for COVID vaccination was taken as 14 days as per the ICMR guidelines. **Results**:17807 and 18106 were registered during Pre and Post COVID time , 16489 and 16671 donors were accepted for donation. Deferral rate was 7.40% and 8.60% respectively in Pre-COVID and Post- COVID. **Conclusion:** The changes in donor eligibility criteria and deferral patterns that occurred as a result of the COVID-19 pandemic and the subsequent rollout of COVID-19 vaccines have important implications for the safety of the blood supply.

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INTRODUCTION

The COVID-19 pandemic had a significant impact on healthcare systems worldwide, including blood donation and transfusion services. One of the crucial aspects of the blood donation process is ensuring the safety of the blood supply. Donor eligibility criteria and deferral patterns are critical components of this process. In response to the COVID-19 pandemic, blood centres worldwide have implemented additional screening measures and deferral criteria to minimize the potential for transmission of the Corona virus.[1]

One of the primary concerns was the potential for asymptomatic donors to transmit the virus. To Curtail that Blood centres implemented special screening measures to identify donors who may have been exposed to the COVID 19 virus, questionnaire about recent travel, contact with individuals who had tested positive for COVID-19.[2]

In addition to these screening measures, many deferral criteria were implemented for donors who were tested positive for COVID-19 or were in close contact with someone who had tested positive. Donor Deferral was for 28 days after the clearance of symptoms which was changed to 14 days later on. The rollout of COVID-19 vaccines has had a significant impact on donor deferral patterns. As the vaccination campaign began, blood centres began re-evaluating their deferral criteria for donors who had received the vaccine.[3]

In the United States, the Food and Drug Administration (FDA) issued guidance in February 2021 that allowed individuals who had received a COVID-19 vaccine to donate blood as long as they did not have symptoms of the virus and met all other donor eligibility criteria. The FDA noted that there was no evidence that the vaccine could cause transmission of the virus through blood transfusion.[4]

As vaccination was done on a large scale, the Indian Council of Medical Research (ICMR), Drugs Controller General of India and the National Blood Transfusion Council recommended a deferral period of 14 days after COVID-19 vaccination. Therefore, recruitment of voluntary, safe, and healthy blood donors for the provision of quality blood products to needy patients during the COVID-19 pandemic, became a constant challenge for the blood transfusion services, due to the depletion of potential blood donors.[3]

In this article, the impact of the COVID-19 vaccination on donor deferral patterns in a tertiary care hospital was explored.

MATERIAL AND METHODS

This cross-sectional study was done at a tertiary care centre for a period of 2 year from Jan 2019 to Dec 2019 (Pre COVID) and Jan 2022 to Dec 2022(Post COVID). The Data for Donor deferral was compared for pre-COVID and Post COVID period. All blood donors were screened as per the recently amended Blood Centre Rule, Schedule F, Part XII B of the Drugs and Cosmetic Act 1940. All voluntary and replacement, nonremunerated, whole-blood donors recruited at blood centre and outdoor camps were included in the study.

Each donor was evaluated by the donor questionnaire and medical examination. In addition, COVID-related deferrals were also incorporated. The donor deferral period for COVID vaccination was taken as 14 days as per the ICMR guidelines. Blood donors were categorised into Permanent and Temporary Deferral. Further Deferred donors were divided

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into six different categories: (1) medical causes and Drugs, (2) Surgical causes, (3) Vaccination, (4) Risk of transfusion-transmitted diseases, (5) miscellaneous causes and (6) flu-like symptoms.[3]

STATISTICAL ANALYSIS

The data were retrieved from the donor deferral record and details were entered in the MS Excel sheet and descriptive statistics were calculated.

RESULTS

A total of potential 17807 and 18106 blood donors were registered during the Pre-COVID (2019) and Post-COVID (2022) period for donation.

Out of 17807 and 18106 registered donors, 16489 and 16671 donors were accepted for donation. Deferral rate was 7.40% and 8.60% respectively in Pre-COVID and Post- COVID

Table no. 1 describes temporary and permanent donor deferral in both periods.

Table no. 2 describes different category wise donor deferral in these time. The most common cause of deferral was category 1 (medical causes) in both these time periods. During Post COVID period, Category 5 deferral (flu like symptoms) and category 3 (Vaccination) were significantly higher than Pre COVID time. However, no significant change was seen in other categories.

Table no. 3 describes age wise distribution of donors deferred in both periods. Maximum deferral was seen in young age group (18-30 years).[3]

TIME PERIOD	TOTAL DONORS	TEMPORARY DEFERRAL	PERMANENT DEFERRAL
PRE-COVID(2019)	17807	1280(89.10%)	155(10.90%)
POST -COVID(2022)	18106	1118(84.80%)	200(15.20%)

TABLE NO. 1 DISTRIBUTION OF VARIOUS TEMPORARY AND PERMANENT DEFERRALS IN PRE AND POST COVID ERA.

SR. NO.	CATEGORY	PRE COVID (2019)	POST COVID (2022)
1	MEDICAL CAUSES	665(50.45%)	525(36.58%)
2	SURGICAL CAUSES	165(12.51%)	133(9.26%)
3	VACCINATION	105(7.9%)	183(12.75%)
4	RISK OF TTI	185(14.03%)	185(12.89%)
5	FLU LIKE SYMPTOMS	150(11.38%)	273(19.02%)
6	MISCELLANEOUS	48(3.64%)	98(6.8%)
		1318(100%)	1435(100%)

TABLE NO. 2: DIFFERENT CATEGORY WISE REASONS FOR DONOR DEFERRALS IN PRE- COVID AND POST COVID PERIODS

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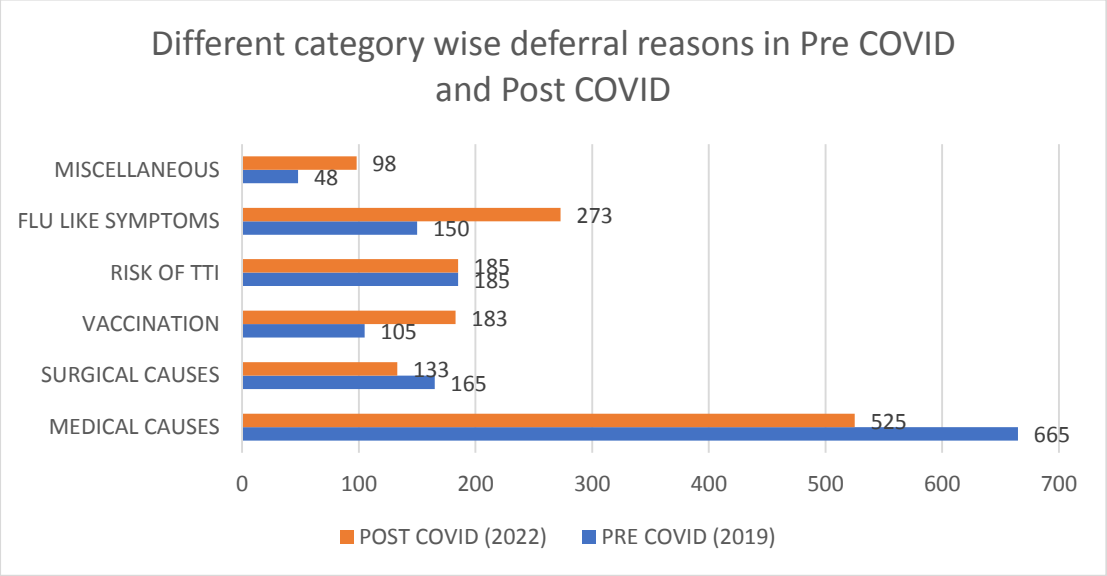

FIGURE 1. DIFFERENT CATEGORY WISE REASONS FOR DONOR DEFERRALS IN PRE- COVID AND POST COVID PERIODS

Sr no.	Age	No. of donors deferred (PRE-COVID)	No. of donors deferred (POST-COVID)
1	18-30	728(55.23%)	905(63.06%)
2	31-40	407(30.88%)	350(24.39%)
3	41-50	133(10.09%)	147(10.24%)
4	51-60	40(3.03%)	28(1.95%)
5	>60	10(0.75%)	50(0.34%)
	Total	1318(100%)	1435(100%)

TABLE NO. 3. AGE WISE DISTRIBUTION OF DONORS DEFERRED IN IN PRE-COVID AND POST COVID PERIODS

DISCUSSION

In the present study, Deferral rate was 7.40% and 8.60% respectively in pre (2019) and post covid (2022) period which is in line with the donor deferral rate reported by Das[6] (9.69%), Shrivastava *et al*[7] (11.5%), Ahmad *et al*.[8] (12.6%) and Agnihotri (11.6%)[9]. The quite low donor deferral rate has been reported by Jethani *et al*[10] (2.56%), Kapse *et al* [11] (3.56%) and Unnikrishnan *et al*.[12] (5.20%).

A much higher deferral rate was seen in a study conducted by Alha *et al*.[13] (18%) and Taneja *et al*.[14] (17.1%). The difference in the deferral rate seen in various studies across India can be attributed to difference in geographical and socioeconomic wellbeing.

Maximum deferral was seen in young age group (18-30 years) (Table no.3). Similar results were seen in studies done by Agrawal *et al*.[16], Shrivastava *et al*.[7] However, Arun *et al*[15]. showed maximum deferral in the 46–55-year age group. Young age group is the most common age group for donation. It is apparent from these findings that there is need to address the cause of deferral among them as they are the ones who are going to be regular blood donors.

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Temporary and permanent rates were similar in both times as shown in table no. 1. Temporary deferral more than permanent deferrals signifying that most deferred donors can be recruited back to the donor pool. Other studies conducted by Sundar *et al* [18] and Bahadur *et al*[19] found temporary deferrals to be 84% and 91% respectively.

Out of Temporary deferral most common cause of deferral was category 1 (medical causes) in both periods. In medical causes, low HB was the most reason. Similar results were noted by Kujur *et al*.[17] and Das S[6]. The high level of anaemia reflects light on poor nutritional status among Blood donor population.

During Post COVID period, Category 5 deferral (flu like symptoms) and Category 3(Vaccination) were significantly higher than Pre COVID time. In a study by Routray SS[3], similar results were seen where during COVID times there was increase in deferrals due to Flue like symptoms. Jain et al[5] and Routray SS[3] et al also reported increased deferral due to COVID-19 vaccination during COVID-19 pandemic.(Table no.2 and Figure no.1)

CONCLUSION

The changes in donor eligibility criteria and deferral patterns that occurred as a result of the COVID-19 pandemic and the subsequent rollout of COVID-19 vaccines have important implications for the safety of the blood supply. Understanding donor deferral patterns may help in identifying targeted donor populations and planning donor recruitment strategies in future pandemic crises.

On the other hand,time to time implementation of additional screening measures and deferral criterias by ICMR and NBTC in pandemic have helped to minimize the potential for transmission of the virus through Direct Contact. By identifying donors who may have been exposed to the virus and deferring those who had tested positive or been in close contact with someone who had tested positive, blood centers have helped to ensure the safety of the blood supply.

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