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Original Research Article

Knowledge, Attitude and Practices among Convalescent Plasma Donors Attending a Tertiary Care Centre in South-East Karnataka during COVID-19 Pandemic

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Abstract:

Introduction: Severe acute respiratory syndrome coronavirus 2 (SARS–CoV-2), the causative agent of coronavirus disease 2019 (COVID-19) was first reported in Wuhan, China, in December 2019 and led onto a global spread in March 2020, after which COVID-19 was declared a pandemic. By July 28 2021, over 196 million cases were confirmed, spanning 188 countries or territories and accounting for over 4 million deaths Early in the outbreak, preventive and treatment options were limited, of which antibody therapy (i.e., convalescent plasma collected from individuals after recovery from COVID-19) has emerged as a leading treatment for COVID-19 [2] especially in treatment of severe cases . Several large clinical trials have now been initiated to evaluate the efficacy and safety of convalescent plasma treatment of SARS-CoV-2 patients. Data show that convalescent plasma treatment is safe and suggest that it can reduce disease if given early enough and with sufficient levels of antibodies. Objective of this study was to measure the level of efforts needed to promote convalescent plasma donation programs for COVID-19 convalescent population having no basic knowledge on the subject.

Materials and Methods: A blood centre based cross sectional study was conducted in Department of Immunohematology and Blood Transfusion, Bangalore Medical College and Research Institute, Bangalore, Karnataka over a period of 9 months (July 2020 to April 2021). Bangalore is the Silicon Valley of India with a metropolitan population. The convalescent donors came to know about the plasma donation through various platforms namely social media (39%), NGOs (32%), newspaper/magazine advertisements (7%), television and radio (1%), heard from other people (4%), other plasma donors (7%) and incentive announced by government of Karnataka (10%). 27.45% plasma donors were aware about their blood group and 82.35% participants had previous history of blood donation. Only 15.68% (8 out of 51) participants were aware about the apheresis procedure and among them only 4 donors had previous experience of apheresis procedure. Attitude towards convalescent plasma donation: The questionnaire included following aspects with 5 point Likert scale assessment. 11.76% of CP donors knew that nulliparous females were eligible for plasma donation and 80.39% are unaware of female CP donation eligibility criteria. 13.72% donors preferred known persons over unknown in relation with replacement donation and 2 out of 51 participants preferred unknown over known. 9.8% participants responded they had no such preference. 19.61% participants think that it's their duty as a citizen to help fellow countrymen who are in need and 5.8% had a neutral response.

Conclusion: To increase awareness and marketing 'Voluntary convalescent donation can enhance adequacy of convalescent plasma needs of the entire country. This study also underlines how different media, especially electronic media, can be used to propagate convalescent plasma donation.

Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS–CoV-2), the causative agent of coronavirus disease 2019 (COVID-19) was first reported in Wuhan, China, in December 2019 and led onto a global spread in March 2020, after which COVID-19 was declared a pandemic. By July 28 2021, over 196 million cases were confirmed, spanning 188 countries or territories and accounting for over 4 million deaths [1]. Early in the outbreak, preventive and treatment options were limited, of which antibody therapy (i.e., convalescent plasma collected from individuals after recovery from COVID-19) has emerged as a leading treatment for COVID-19 [2] especially in treatment of severe cases [3]. Several large clinical trials have now been initiated to evaluate the efficacy and safety of convalescent plasma treatment of SARS-CoV-2 patients [4]. Data on the outcomes of these trials have been limited and, to date, preliminary results from only a few small cohorts and randomized clinical trials have been published [5–10]. Overall, these data show that convalescent plasma treatment is safe and suggest that it can reduce disease if given early enough and with sufficient levels of antibodies [11].

Use of convalescent plasma as treatment for COVID-19 is authorised for off-label use in India [12]. The PLACID Trial was an open label, parallel arm, phases II, multicentre, randomised controlled trial conducted in India, in 39 tertiary care hospitals across India. Of these, 29 were teaching public hospitals and 10 were private hospitals spread across 14 states and union territories representing 25 cities. [10]. The convalescent plasma donor eligibility criteria in PLACID Trial included men or nulliparous women who were aged between 18 and 65 years, weighed more than 50 kg, had received a diagnosis of COVID-19 confirmed by a RT-PCR test result, and had experienced symptoms of covid-19 with at least fever and cough. Additionally, the symptoms must have completely resolved for 28 consecutive days before donation or a period of 14 days before donation with two negative RT-PCR test results for SARS-CoV-2 from nasopharyngeal swabs collected 24 hours apart. All routine screening tests, including ABO blood grouping; Rhesus phenotype; complete blood counts; screening for HIV, hepatitis B or C virus, syphilis, and malaria; and total serum protein were conducted according to the Drugs and Cosmetics (second amendment) Rules, 2020 [13]. The conclusion was although the use of convalescent plasma seemed to improve resolution of shortness of breath and fatigue in patients with moderate covid-19 and led to higher negative conversion of SARS-CoV-2 RNA on day 7 post-enrolment, this did not translate into a reduction in 28-day mortality or progression to severe disease [10]. Later in May 2021, Government of India removed Convalescent Plasma (off label) Therapy from clinical management protocol of adult COVID-19 stating its ineffectiveness in the patient management [14].

Our Institute was a part of PLACID trial and it was difficult to get convalescent plasma donors for participating in the trial initially. This study was therefore conducted with an aim to find out knowledge, attitude and practices of people towards convalescent plasma donation to comprehend the situation and find ways to enhance convalescent plasma donation in the Bangalore city. Additionally, the convalescent plasma donors who came forward had empathy for other patients needing plasma as they know implications of non-availability of convalescent plasma for these patients. Objective of this study was to measure the level of efforts needed to promote convalescent plasma donation programs for COVID-19 convalescent population having no basic knowledge on the subject.

Materials and Methods

A blood centre based cross sectional study was conducted in Department of Immunohematology and Blood Transfusion, Bangalore Medical College and Research Institute, Bangalore, Karnataka over a period of 9 months (July 2020 to April 2021). Bangalore is the Silicon Valley of India with a metropolitan population. Our voluntary convalescent plasma donors were recruited with the help of a Non-Governmental Organization (NGO) (Sai Krushna Charitable Trust, Bangalore) by means of phone communication and social media.

Replacement donors approached us directly as our Blood Center was declared as Public Plasma Bank by Government of Karnataka, India. Hence, in total the convalescent plasma donor recruitment was done with the help of newspapers, social media and telecommunication. All voluntary and replacement convalescent plasma donors who attended our blood centre and gave consent to participate in the study, were included in the study. After donor screening and selection according to the Drugs and Cosmetics (second amendment) Rules, 2020, an informed written consent was taken from the convalescent plasma donors for participation in this study and who gave informed consent for participation in the study were given a structured questionnaire in English and regional languages either in person or through WhatsApp which constituted the following key aspects:

- Knowledge about convalescent plasma donation and apheresis procedure

- Attitude towards voluntary convalescent plasma donation and its importance in the current COVID scenario
- Practices followed currently regarding Voluntary Convalescent plasma donation

Statistical Analysis:

The data collection was done in Microsoft Excel and analysis done with the help of Microsoft Excel and OpenEpi online software.

Results:

Out of 103 convalescent plasma donors comprising 79.61% voluntary donors (96.68% males and 7.32% females) and 20.39% (all males) replacement donors, 51 donors gave consent for participation in the study. Among the participated donors, 4 out of total 39 voluntary donors were females (Table 1).

Table 1: Status of donation and gender distribution among participants

Type of donation	Males	Females	Total
Voluntary	35 (89.74%)	4 (10.26%)	39(76.47%)
Replacement	12	nil	12 (23.53%)

The blood group distribution among total convalescent plasma donors attending our blood center constituted 38.83% O positive, 33.01% B positive, 19.42% A positive, 2.92% AB positive and 5.82% Rh negative groups (Figure 1). The age distribution of convalescent donors also explained in Table 2.

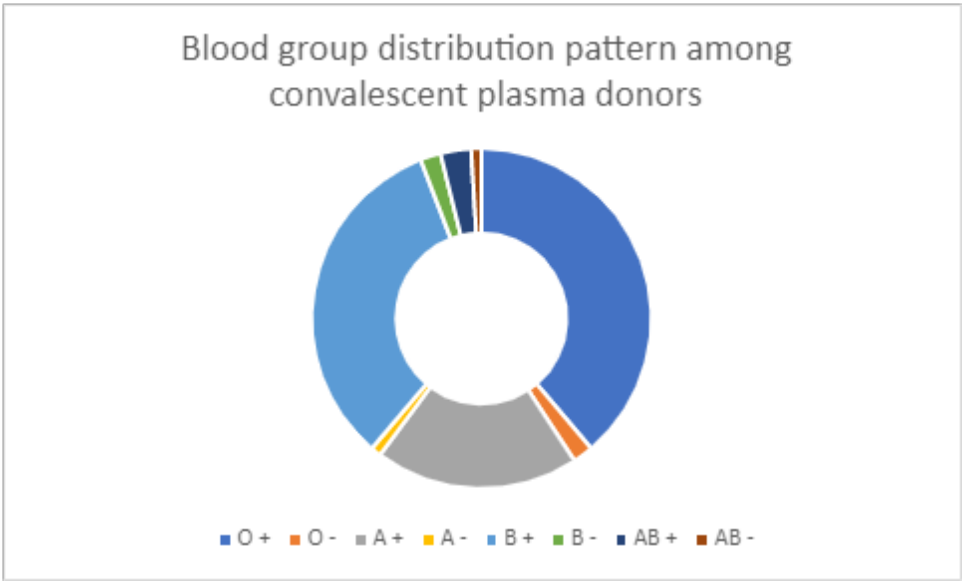

Figure 1: Blood group distribution among convalescent plasma donors who attended the blood centre over the study period

Table 2: Age distribution of convalescent plasma donors participating in the study

Age distribution (years)	Voluntary male donors	Voluntary female donors	Replacement donors
25- 35	11 (21.57%)	3 (5.88%)	5 (9.8%)
35-45	21 (41.19%)	1 (1.96%)	6 (11.76%)
45-60	3 (5.88%)	0	1 (1.96%)
Total	35	4	21

Knowledge on apheresis convalescent plasma donation: The convalescent donors came to know about the plasma donation through various platforms namely social media (39%), NGOs (32%), newspaper/magazine advertisements (7%), television and radio (1%), heard from other people (4%), other plasma donors (7%) and incentive announced by government of Karnataka (10%) (Figure 2).

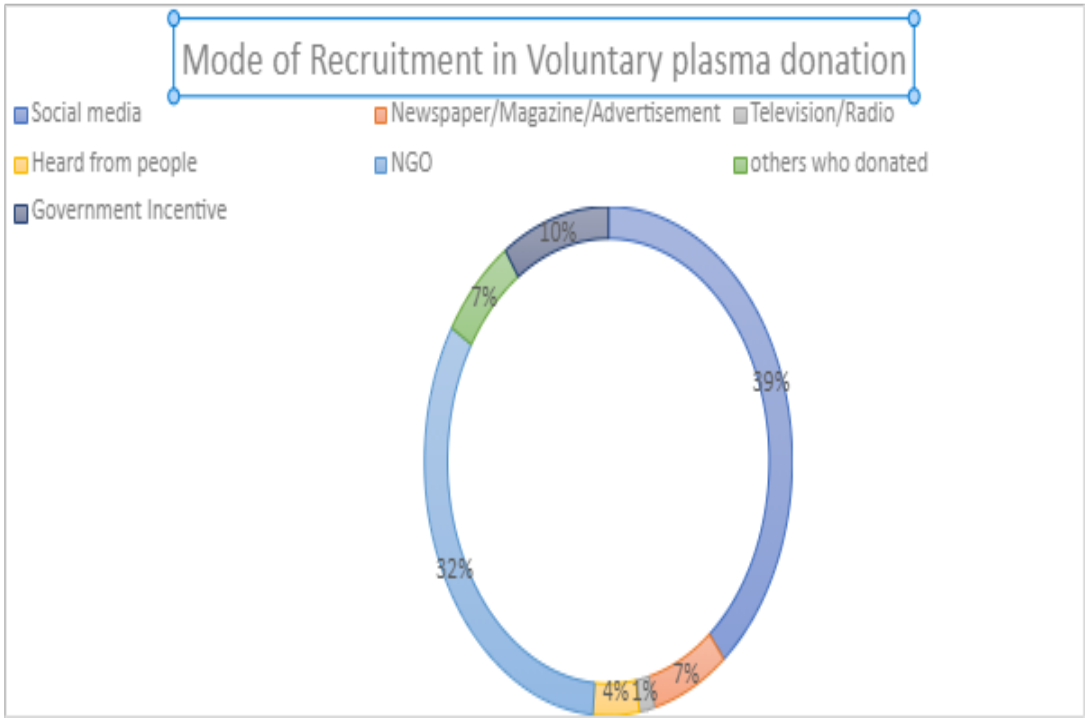

Figure 2: Mode of recruitment in voluntary convalescent plasma donation

27.45% plasma donors were aware about their blood group and 82.35% participants had previous history of blood donation. Only 15.68% (8 out of 51) participants were aware about the apheresis procedure and among them only 4 donors had previous experience of apheresis procedure. Among participants with previous history of blood donation, 38.1% donors had 1-5 blood donation experience, 33.33% and 28.6% donors had 5-10 and more than 10 blood donation experience respectively. 11.76% of convalescent plasma donors were fully aware about the convalescent plasma donor selection criteria (number of days after which a person is eligible for plasma donation after being tested positive for COVID-19, minimum weight, relationship between last food intake and plasma donation, gender eligibility for plasma donation, how frequently a person can donate plasma during the convalescent period, quantity of plasma collected during an apheresis procedure). 5 out of 51 donors knew that their plasma will be replenished within 24 hours post apheresis plasma donation.

Attitude towards convalescent plasma donation:

The questionnaire included following aspects with 5 point Likert scale assessment and the results are explained in Figure 3: whether convalescent plasma (CP) is beneficial for the recipient, CP donation affect the COVID antibodies levels in an individual, willingness to perform repeated CP donation, apheresis donation is a safer procedure, whether they recommend and motivate their peers into CP donations, importance of awareness in promoting CP donations among COVID-19 convalescent population, whether they are comfortable following apheresis procedure and act as motivators in the community for promoting the same, preference of voluntary plasma donation over replacement donations and voluntary donors are safer than replacement donors.

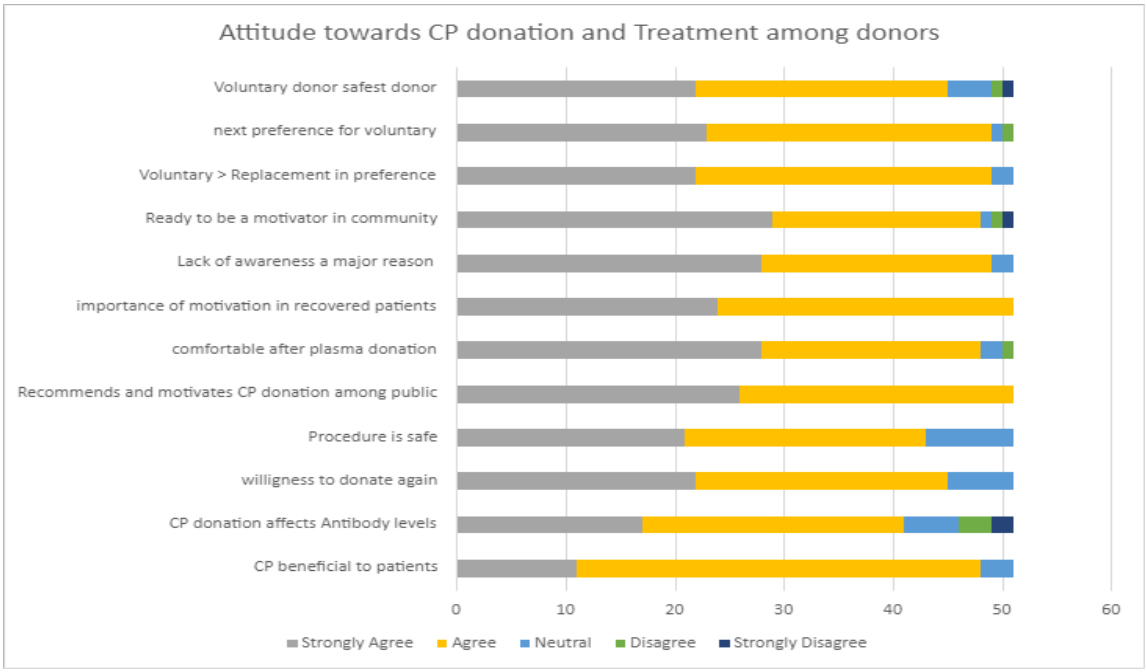

Figure 3: Attitude towards Convalescent plasma donation and Convalescent plasma therapy among the CP donors

Practices noted in Convalescent Plasma donation: Practices among the plasma donors were analysed in the form of dichotomous questions. The questions included the practices related to the nature of their previous blood donations (voluntary or replacement) (Figure 4), reasons behind poor response from the convalescent population in participating in CP donation (Figure 5), eligibility criteria for females in CP donation, preference of a known person over unknown in case of replacement donation, CP donation is considered to be duty as a citizen to help the people in need. The reasons behind poor CP donation response rate included lack of awareness, weakness following plasma donation, loss of useful COVID antibodies following plasma donation, increased chance of reinfection after a blood bank visit situated in a hospital premise, worsening of existing health conditions following an apheresis donation, fear of needles, commonness or rarity of own blood group and complacent nature of prospective donors. 7.8% participants responded that there are no deferral criteria for females related to history of pregnancy or abortion and is same as in regular blood donation.

11.76% of CP donors knew that nulliparous females were eligible for plasma donation and 80.39% are unaware of female CP donation eligibility criteria. 13.72 % donors preferred known persons over unknown in relation with replacement donation and 2 out of 51 participants preferred unknown over known. 9.8% participants responded they had no such preference. 19.61% participants think that it's their duty as a citizen to help fellow countrymen who are in need and 5.8% had a neutral response.

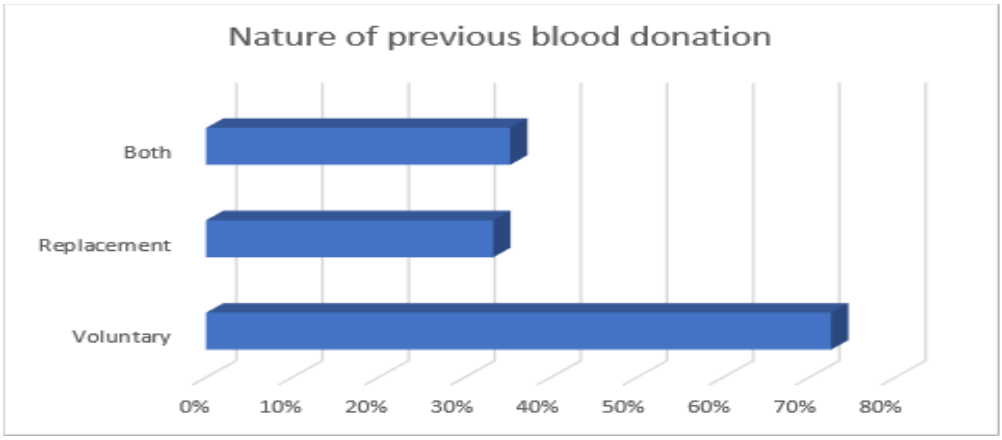

Figure 4: Nature of previous blood donation done by study participants.

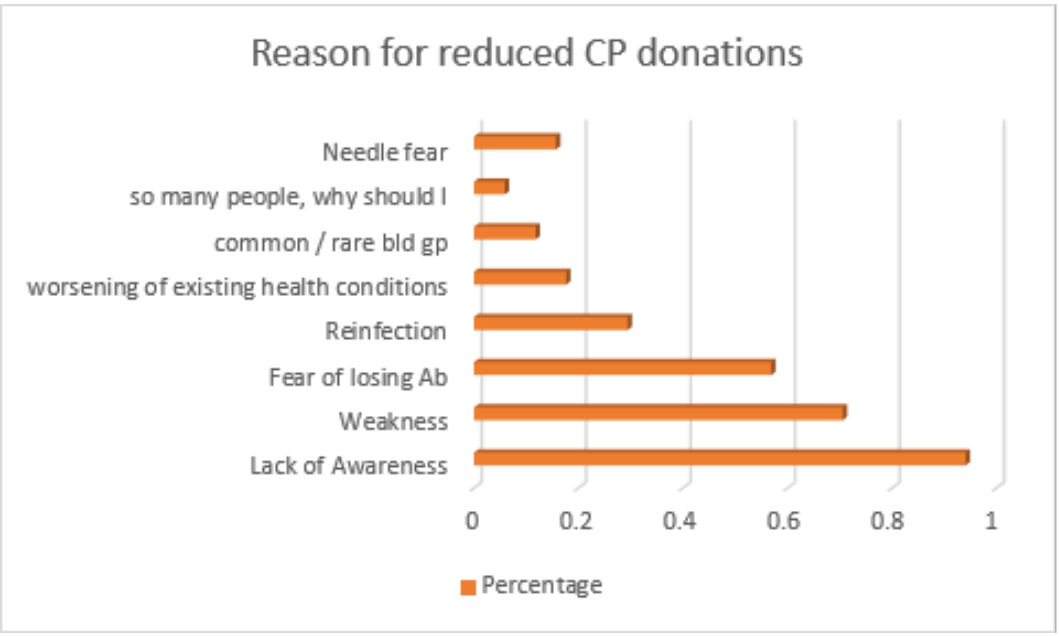

Figure 5: Reasons for poor CP donation response from convalescent population

Discussion

There are hardly any published reports on knowledge attitude and practices (KAP) towards convalescent plasma donation and ways to enhance the same. This serves as baseline information regarding knowledge, attitude and practices about convalescent plasma donation. This information can be the basis for improving or augmenting the voluntary convalescent plasma donations at the national level and may be even at the international level.

During initial months, there was acute scarcity of convalescent plasma donors and this led on the decision in conducting such a study among the prospective plasma donor population which may be the reason behind this lag phase. The convalescent population is entirely different from routine blood donor population as most of them neither had participated in any blood donation drive nor a previous apheresis donation experience. In spite of Government's efforts in promoting the convalescent plasma donation drive, an aware rapid response was not created as expected.

Del Fante C et al suggested that population of potential CP donors in their study had a mean age of 47.7 years and consisted of more males (85%) than females, because of the restriction of CP donation only to women who had not had previous pregnancies to prevent transfusion-related acute lung injury (TRALI) [15]. Most of the CP donors participated in our study belonged to 35-45 years category (21 out of 51) and had 'O' Rh D positive blood type (38.83%) and male donors predominated female donors (7.32%).

Another Indian study reported that maximum number of acceptance cases were from males (98.7%) and of the accepted cases, (41.73%) were from the 18-30 years' age group. 33.94% were from blood group 'O' Rh D positive giving maximum contribution from any blood group [16].

The observation of awareness about CP donation may be related to education levels and lack of creation of proper awareness among the general public regarding the importance of convalescent plasma donation being the need of the hour. An Indian study suggests that social stigma due to COVID-19 was experienced by 49.02% of the donors, while 21.97% had anxiety related to convalescent plasma donation as a common livid experience [17].

Hence the importance of holistic support strategy among the convalescent donor population is also to be highlighted. In the current study, most of the participants suggested that the convalescent population thinks they become weak or lose their COVID antibodies following plasma donation. This area highlights on the myths and misconceptions that exist in their mind that prevent them from participating in a good cause.

39% of participants got motivated due to their social media interactions which highlight the importance of social media platforms in creating awareness among the public related to convalescent plasma donation and strategies are to be adopted in disseminating the information and emphasizing the importance of voluntary plasma donation. Waheed U et al highlighted the fact that WhatsApp plays a substantial role in terms of recruitment for blood donors during COVID pandemic period and indicated that 31.65% of blood donors practically responded to messages and videos shared through the WhatsApp group to 1,248 individuals [18].

Conclusion

This study illustrates how to increase awareness and marketing 'Voluntary convalescent donation' can enhance adequacy of convalescent plasma needs of the entire country.

This study also underlines how different media, especially electronic media, can be used to propagate convalescent plasma donation.

Reference

1. WHO Coronavirus (COVID-19) Dashboard | WHO Coronavirus (COVID-19) Dashboard With Vaccination Data
2. Casadevall A, Pirofski LA. The convalescent sera option for containing COVID-19. J Clin Invest. 2020; 130(4):1545–1548.
3. Joyner MJ, Wright RS, Fairweather D, et al. Early safety indicators of COVID-19 convalescent plasma in 5000 patients. J Clin Invest 2020; 130:4791 –7.
4. Devasenapathy N, Ye Z, Loed M, et al. Efficacy and safety of convalescent plasma for severe COVID-19 based on evidence in other severe respiratory viral infections: a systematic review and meta-analysis. CMAJ 2020; 192: E745-55.
5. Kong Y, Cai C, Ling L, et al. Successful treatment of a centenarian with coronavirus disease 2019 (COVID-19) using convalescent plasma. Transfus Apher Sci 2020; 59:102820
6. Shen C, Wang Z, Zhao F, et al. Treatment of 5 critically ill patients with COVID-19 with convalescent plasma. JAMA 2020; 323:1582-9.
7. Ye M, Fu D, Ren Y, Wang F, Wang D, Zhang F, Xia X, Lv T. Treatment with convalescent plasma for COVID-19 patients in Wuhan, China. Journal of medical virology. 2020 Oct; 92(10):1890-901.
8. Salazar E, Perez KK, Ashraf M, Chen J, Castillo B, Christensen PA, Eubank T, Bernard DW, Eagar TN, Long SW, Subedi S. Treatment of coronavirus disease 2019 (COVID-19) patients with convalescent plasma. The American journal of pathology. 2020 Aug 1; 190(8):1680-90.
9. Shenoy AG, Hettinger AZ, Fernandez SJ, Blumenthal J, Baez V. Early mortality benefit with COVID-19 convalescent plasma: a matched control study. British journal of haematology. 2021 Feb; 192(4):706-13.
10. Agarwal A, Mukherjee A, Kumar G, Chatterjee P, Bhatnagar T, Malhotra P. Convalescent plasma in the management of moderate covid-19 in adults in India: open label phase II multicentre randomised controlled trial (PLACID Trial). bmj. 2020 Oct 22; 371.
11. Casadevall A, Grossman BJ, Henderson JP, Joyner MJ, Shoham S, Pirofski LA, Paneth N. The assessment of convalescent plasma efficacy against COVID-19. Med. 2020 Dec 18; 1(1):66-77.
12. Central Drugs Standard Control Notice https://cdsco.gov.in/opencms/opencms/system/modules/CDSCO.WEB/elements/ download_file_division.jsp?num_id=NjA0Mw== Accessed on 25Aug 2020.
13. Department of Health and Family Welfare, Ministry of Health and Family Welfare. Government of India. Gazette of India. https://cdsco.gov.in/opencms/opencms/en/Notifications/Gazette-Notifications/ Accessed on 25 Aug 2020.
14. Department of Health and Family Welfare, Ministry of Health and Family Welfare. Government of India. Gazette of India. https://www.mohfw.gov.in/pdf/ClinicalManagementProtocolforCOVID19dated27062020.pdf
15. Del Fante C, Franchini M, Baldanti F, Percivalle E, Glingani C, Marano G, Mengoli C, Mortellaro C, Viarengo G, Perotti C, Liumbruno GM. A retrospective study assessing the characteristics of COVID-19 convalescent plasma donors and donations. Transfusion. 2021 Mar; 61(3):830-8.
16. Mahapatra S, Pati S. Constraints and challenges in convalescent plasma collection amidst the Covid 19 pandemic-strategies and recommendations to overcome these. Transfusion Clinique et Biologique. 2021 May 1; 28(2):175-9.
17. Maheshwari A, Varshney M, Gupta K, Bajpai M. Psychological assessment and lived experiences of recovered COVID-19 patients who presented for convalescent plasma donation. Transfusion Clinique et Biologique. 2021 Apr 22.
18. Waheed U, Wazeer A, Saba Noor & Qasim, Zahida. Effectiveness of WhatsApp for blood donor mobilization campaigns during COVID-19 pandemic. ISBT Sci Ser 2020; 10.1111/ voxs 12572.