Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Convalescent plasma therapy in patients with COVID-19

Dear Editor,

We would like to express our sincere thanks to the author's interest in our paper, and we are also grateful for her adding invaluable contribution to improve the value of our paper.

Unfortunately, during the current pandemic, more than 1 million people died because of COVID-19, and millions of people needed hospitalization, and some needed intensive care unit (ICU) support. Until the active vaccination against SARS-CoV-2 reaches large populations, effective treatments and supportive approaches are crucial to reduce the case fatality rate (CFR) and the need for ICU and hospitalization. Most of the previous studies about SARS-CoV-2 antibody containing convalescent plasma (CP) are not randomized. There is only a limited number of randomized studies, and in most of these randomized studies, they did not use age, gender, and comorbidity matched control group for comparison. Older age and comorbidities such as diabetes mellitus, hypertension, or cardiac disease are the risk factors for a more aggressive clinical course in patients with COVID-19 [1,2]. For this reason, in the design of this study, we preferred to use an age, gender, and comorbidity matched group for comparison. The study group was severe or critically ill COVID-19 patients who received anti-SARS-CoV-2 antibody-containing CP along with the antiviral treatment (n = 888), and the control group was composed of at 1:1 ratio (n = 888). In total, the data of laboratory-confirmed 1776 COVID-19 patients were analyzed retrospectively. Both groups were consisting of severe and critically ill COVID-19 patients; in addition, selecting an age, gender, and comorbidity matched control group made the results of the comparison stronger [3].

The author reasonably wanted to know if the use of steroids and/or anticoagulants was similar in patients across the groups [4]. However, this data was not available. Instead, the data about the use of favipravir, lopinavir + ritonavir, hydroxychloroquine, high dose vitamin C, and azithromycin was available, and we demonstrated them in Table 1. The author also stated the lack of data regarding which hospitals in the country could have provided CP for the treatment of COVID-19. In Turkey, therapeutic apheresis centers licensed by the Ministry of Health and Turkish Red Crescent carry out activities for obtaining CP from donors [5]. Therefore, every hospital in the country has the ability to provide CP if needed for their COVID-19 patients. The author also stated that the care standards might be different across hospitals using CP. This is a countrywide study; therefore, we analyzed the data of hospitals in Turkey. The aim of this study was to show the efficacy of CP in severe and critically ill COVID-19 patients treated in Turkey. The administration of CP is performed according to Turkish Republic, Ministry of Health's COVID-19 Immune Plasma Supply and Use Guideline in hospitals in Turkey. This guideline clearly defines the donor selection, indication, administration, and follow up after transfusion. The different indications of using CP would not be a confounding factor for our results. We hope, in the future, using CP indication will be clarified and standardized in all over the world.

The author has concerns about analyzing time effects on COVID-19 outcome as both "interval between COVID-19 symptoms and CP transfusion" and "the interval between COVID-19 diagnosis and CP transfusion". The time between the onset of symptoms and applying to the hospital for laboratory COVID-19 tests may vary from patient to patient. Therefore, we preferred to use 2-time intervals (interval between COVID-19 symptoms and CP transfusion-interval between COVID-19 diagnosis and CP transfusion) to investigate the relation between COVID-19 outcome and the administration of CP.

The author also stated the lack of data about pathogen inactivation processes and anti-SARSCoV-2 IgG antibodies screenings. In Turkey, CPs were obtained from multiple centers instead of a single center. Therapeutic apheresis centers licensed by the Ministry of Health and Turkish Red Crescent carry out activities for obtaining CP from donors. The data about pathogen inactivation processes and anti-SARSCoV-2 IgG antibodies screenings were not available. If we had it, it would be very valuable to compare the CPs that had undergone pathogen inactivation with those had not. In addition, investigating the cutoff level of the neutralizing antibody titer in CP to provide sufficient antibody response in patients would be very valuable; however, we did not have this data.

Lastly, the author also stated her wishes for the requirement of prospective randomized studies that have available data about adverse effects of CP transfusion, neutralizing antibody titer, pathogen inactivation, and outcome. Our study revealed that duration in ICU was shorter in CP group and the rates of mechanical ventilation (MV) support and vasopressor support were significantly lower in CP group compared with the control group. The CFR was 24.7 % in CP group, and it was 27.7 % in the control group. In addition, we found an association between a higher rate of MV support and >20 days interval between CP transfusion and COVID-19 diagnosis or COVID-19 related symptoms.

We agree with the author that further studies are crucial to find the optimum volume, administration time, neutralizing antibody titer and safety of CP; we are also eagerly waiting for prospective, randomized, large scale clinical trials to be finalized in the future. The optimal treatment approaches for COVID-19 have still been investigated by researchers worldwide.

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Declaration of Competing Interest

All authors declare that they do not have any conflict of interest that could inappropriately influence the present study.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.transci.2020.103017.

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