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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Letter to the editor

Impact of pathogen reduction technology on neutralizing antibody titer in COVID-19 convalescent plasma

Pathogen reduction technologies (PRT) have been widely implemented to increase the safety of coronavirus disease 2019 (COVID-19) convalescent plasma (CP), considering that most (first-time) CP donors have no donation history and thus their donations should be considered at higher infectious risk [1]. In addition, given the theoretical risk of transfusion transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the use of PRT confers to COVID-19 CP a further safety profile [2]. Several pathogen reduction systems, including methylene blue + visible light, riboflavin + ultraviolet B (UVB) and amotosalen + ultraviolet A (UVA), have been developed during the past decades to minimize the residual risk of transmission of blood-borne infections with blood components.

A still debated issue is the impact of PRT on the qualitative composition of COVID-19 CP, particularly on the anti-SARS-CoV-2 neutralizing antibody function. Data from the literature gave mixing results, considering that while some studies did not observe a significant decline, other head-to-head comparison studies showed differences in preserving neutralizing antibody function between the various PRT [3,4]. To elucidate the impact of PRT on immunological properties of COVID-19 CP, we report a single center experience on the use of amotosalen and UVA.

From 1 April 2021 to 15 May 2021, 30 consecutive patients recovered from COVID-19 donated CP at the Transfusion Center of the Hospital of Mantua. Their mean age was 39.3 years (interquartile range 27–50 years) and the male/female ratio was 2.3 (21 males

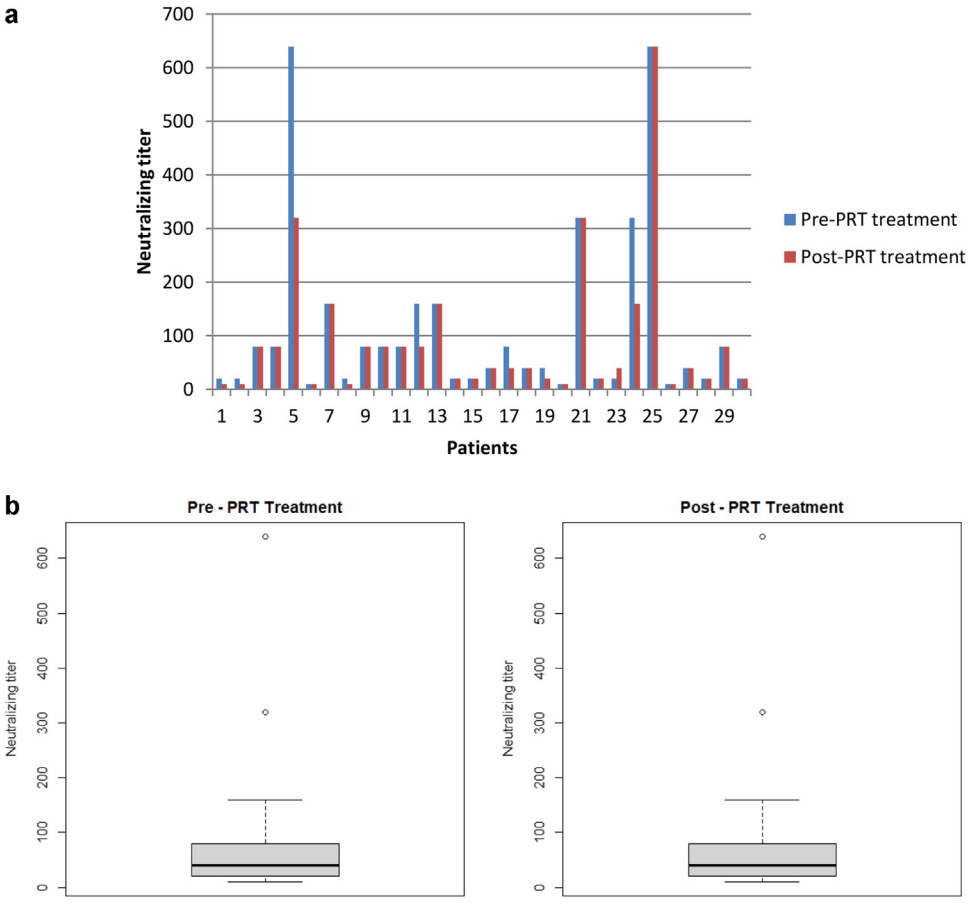

Fig. 1. a. Pre- and post-amotosalen + UVA PRT treatment and anti-SARS-Cov-2 neutralizing antibody titer. b. Box-plot diagram showing pre- and post-amotosalen + UVA PRT treatment and anti-SARS-Cov-2 neutralizing antibody titer. The comparison between the two boxes (right and left) shows a substantial equivalence in terms of variability and distribution of the pre- and post-PRT treatment values. The bold horizontal black bar indicates the median values, while the width of the box indicates the distance between the first and the third quartile of the distribution.

and 9 females). Eleven donors (36.7%) had suffered from moderate/severe COVID-19, while the remaining 19 donors (73.3%) had had an asymptomatic or mild disease. The ABO blood group distribution was: 11 (36.7%) group A, 13 (43.3%) group O, 4 (13.3%) group B and 2 (6.7%) group AB. About 660 ml of CP were collected during each plasmapheresis procedure using a cell separator (Amicus, Fresenius Kabi). PRT was then performed with the INTERCEPT processing system (Cerus Europe BV). Immediately before and immediately after the viral inactivation procedure each CP unit underwent a plaque reduction neutralization test (PRNT), as described elsewhere [5], for the titration of anti-SARS-CoV-2 neutralizing antibodies. A pairwise comparison of the results was then performed (Fig. 1a and 1b). No statistically significant difference was observed between mean pre-inactivation and post-inactivation titers (111.0 ± 164.7 versus 90.0 ± 131.8, *P* 0.59). Similarly to the literature data [2], only 27% (8/30) of CP units showed an anti-SARS-2 neutralizing antibody titer reduction following PRT. In conclusion, the results of our study confirm that amotosalen + UVA is a pathogen reduction method that efficiently preserves the neutralizing antibody function in COVID-19 CP.

Disclosure of interest

The authors declare that they have no competing interest.

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Covid-19 induced blood supply shortage: A Tunisian blood deposit perspective☆

La pénurie d'approvisionnement en sang induite par le Covid-19: perspective d'un dépôt de sang tunisien

Dear editor,

Despite the damage they cause, disasters are a great challenge to the healthcare systems. Those events may be man-made like terrorist attacks or natural like storms and pandemics [1]. On March 11, 2020, the World Health Organization (WHO) announced the COVID-19 infection as a pandemic [2]. This pandemic unveiled the lack of resilience of the Healthcare service in Africa [3]. As healthcare facilities, blood banks were worldwide affected by this pandemic [4]. The American Association of blood banks (AABB) published a disaster operations handbook to help blood banks manage such events [5]. Nevertheless, low-middle income countries have not yet reached this level of preparedness, particularly in blood banks. Hence, maintaining the balance between blood demand and supply in a pandemic has been more challenging. On March 20, 2020, the Tunisian government announced a lockdown which impacted greatly on the blood supply. Many papers assessing the impact of the COVID-19 pandemic on blood donation have been published. Nonetheless, little data is available on the management of blood banks during this period. The study aim was to evaluate the satisfaction rate of packed red blood cells components (pRBCCsn) requests and assess the local response to the COVID-19 pandemic in Aziza Othmana's (a Tunisian hospital) blood deposit.

Six-week data was retrospectively obtained from the blood deposit records, from March 15 to April 30, 2020. All pRBCCsn requests from the hematology department were included. For each request, the following data were collected: The date of reception of the request; The date of satisfaction (date of reception the pRBCCsn from the Tunisian national center of blood transfusion; The date of transfusion (date of release of the pRBCCsn to the hematology department) and the number of requested and received pRBCCsn. Requests that lacked one of those variables were excluded. Initially nominative assigned pRBCCsn that were reassigned were identified. The request's satisfaction was defined as total if the number of requested pRBCCsn was the same as the received ones, partial if it was less, and unsatisfied if no pRBCCsn were received. The satisfaction time of satisfied requests was defined as the time from the date of reception to the date of satisfaction. The release time of each received pRBCCsn was defined as the duration between the date of satisfaction and the date of transfusion. The global and weekly transfusion rates of satisfactions were also calculated.

Aziza Othmana is a teaching hospital that has the main hematology department in the country. The hematology department includes an emergency, a day hospital, and a hospitalization (including a sterile unit).

During the six-week study period, 891 PRBCCSN requests were received (Fig. 1). One third of the requests (*n* = 282, 36%) was for

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