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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CASE ANECDOTES, COMMENTS AND OPINIONS

Kinetics of cellular and humoral responses to third COVID-19 vaccine in heart transplant recipients: Correspondence

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Dear editor, we would like to correspond on the publication "Kinetics of cellular and humoral responses to third BNT162B2 COVID-19 vaccine over 6 months in heart transplant recipients − implications for the omicron variant".[1] According to Peled et al, the third BNT162b2 dose generated a successful and long-lasting neutralization of the wild-type virus, the delta variant, and to a lesser extent, the omicron variant.[1] It also triggered a long-lasting SARS-CoV-2-specific T-cell response. We can all agree that COVID-19 is a dangerous infection with a wide range of clinical symptoms and that vaccination is essential for effective disease control.[2] Patients who have had transplants may have weakened immune systems and may respond to immunizations differently than healthy people. A confounding effect could be caused by an asymptomatic COVID-19, which is not uncommon.[2] Without laboratory investigation, it is usually not possible to detect previous asymptomatic COVID-19.[2] Asymptomatic infections may occur during the observation period, which may have an impact on the final finding. The history of infection, which is a crucial determinant in establishing the clinical course of the immune response to both infection and immunization, cannot be used to exclude asymptomatic COVID-19.

Disclosure statement

None of the authors has a financial relationship with a commercial entity that has an interest in the subject of the presented manuscript or other conflicts of interest to disclose.

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2. Joob B, Wiwanitkit V. Letter to the editor: Coronavirus disease 2019 (COVID-19), infectivity, and the incubation period. J Prev Med Public Health 2020;53:70.

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Kinetics of cellular and humoral responses to third BNT162B2 COVID-19 vaccine over six months in heart transplant recipients - Implications for the omicron variant: Correspondence

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We thank Sookaromdee and Wiwanitkit[1] for their correspondence regarding our manuscript, "Kinetics of cellular and humoral responses to third BNT162B2 COVID-19 vaccine over 6 months in heart transplant recipients - implications for the omicron variant,"[2] pertaining to the possibility of a confounding effect from asymptomatic COVID-19 infection. The published literature to date suggests otherwise. Data demonstrate an increased rate of the severe form of COVID-19 in heart transplant patients compared to international cohorts of general populations, providing support for the notion that a severe course of COVID-19 is frequent in heart transplant patients.[3-6] Furthermore, there are other studies which support our findings. Havlin et al.[7] − published in this journal and discussed in the editorial of Aslam et al.[8] −were unable to demonstrate any antibody response at 4-6 weeks after the second dose of the Pfizer BioNTech vaccine. Interestingly, Havlin et al. also presented findings for 33 post-COVID lung transplant recipients and reported that 85% of those patients had anti-spike IgG within the 90 days of SARS-CoV-2 infection. Longitudinal studies also indicate a difference in seroconversion kinetics in immunosuppressed individuals who suffer from COVID-19 illness, with delayed IgG seroconversion and lower IgG titers being observed.[9] In our study,[2] we assessed the third-

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dose induction of neutralization against variants at 3 weeks (longitudinally assessed for the durability of that response), thus further minimizing the potential confounding effect from asymptomatic COVID-19.

Sookaromdee and Wiwanitkit have not provided any published data on asymptomatic transmission other than a passing comment in another brief correspondence.[10]

We do not believe asymptomatic COVID-19 was a significant confounding factor for a number of reasons. In our published study,[2] we note, first, that exclusion criteria included "SARS-CoV2 infection (presence of a positive polymerase-chain reaction assay result for SARS-CoV-2, and a history of suspected clinical SARS-CoV-2 infection." Second, the issue of a potential confounding effect from asymptomatic COVID-19 is highlighted and discussed in our study limitations: "We did not longitudinally routinely perform polymerase-chain-reaction testing for SARS-CoV-2, which could have resulted in underdiagnosis of SARS-CoV-2 infection." Third, our cohort is unique in that the patients undergo close monitoring and are in continuous and active close contact with the medical team. Transplant patients undergo active screening more often than the general population due to the need for in patient screening procedures such as endomyocardial biopsies, coronary angiography or stress testing. Therefore, the contribution of asymptomatic SARS-CoV-2 infection as a confounding is estimated to be minimal. Patients are instructed to proactively report exposure or on any event suspected of being a "symptom." Fourth, longitudinally assessed, none of the patients demonstrated an elevation in levels of antibodies, arguing against an etiology of an asymptomatic infection. Finally, our manuscript[2] did not aim to assess clinical outcomes. At present, we are following the clinical outcomes of our cohort as the pandemic continues, and, to date, our current data support the findings presented in our article.[2] We have also additionally observed that neutralization titers post COVID-19 are much higher and on an entirely different scale from the postvaccination response (to be submitted for publication).

In conclusion, as the pandemic continues, assessment of clinical presentation and severity of COVID-19 disease demand further research to better define the role of immunization status, time from transplant, immune response, optimal serological and neutralization correlates that confer clinical immunity, era and variants of concern. Until more evidence becomes available, extra precautions must be taken for transplant patients, including the endorsement of vaccinations and optimization of immunogenicity alongside alternative strategies to effectively protect such patients from COVID-19 given the increased mortality associated with this condition in the heart transplant population.[11]

Disclosure statement

None of the authors has a financial relationship with a commercial entity that has an interest in the subject of the presented manuscript or other conflicts of interest to disclose.

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Tackling the paradox of orthotropic heart transplantation from SARS-CoV-2 positive donors: A single center experience

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The ongoing COVID-19 pandemic has profoundly impacted many aspects of patient care, including heart transplantation (HTx). Early in the pandemic, several transplant societies, recommended against transplanting grafts from SARS-CoV-2-positive (SARS-CoV-2+) donors given the potential risk for transmission of the virus and risk of allograft dysfunction.[1,2] However, multiple recent case reports in solid organ transplants have noted nontransmission of the virus.[3]

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