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## Preoperative testing strategy in discharged COVID-19 patients



Dear Editor,

Surveillance data indicated that patients initially diagnosed with positive reverse transcriptase -polymerase chain reaction (RT-PCR) for corona virus disease 2019 (COVID-19) became negative after a median duration of 10 days. Hence many countries changed the criteria for discharge from “test-based strategy” to “symptom-based strategy” or “time-based strategy. As per revised testing policy, mild and moderately-ill COVID-19 patients are being discharged from hospital 10 days after onset of symptoms, if there is no fever and no need for oxygen therapy for three days, without testing them before discharge [1]. Whereas severely ill patients are discharged with a negative RT-PCR after clinical recovery [1]. When any elective surgery is planned in these patients after discharge they are again tested for COVID-19 by RT-PCR, as a policy adapted by many hospitals. Many of these patients have been found to be RT-PCR positive, which possess a dilemma in further management. The positive RT-PCR results may be a false positive or may be due to detection of persistent nucleic acid remnant in the body. In either of these scenarios the person is not infective. However surgery is deferred in these patients and many of them are again treated for COVID-19.

We had one such patient (66yr, male) admitted with moderate COVID-19 and was discharged after 14 days of admission. His RT PCR was again positive when tested 20 days after discharge for an elective ear surgery. However, his subsequent serum antibody test revealed adequate neutralizing antibody (seven fold high titers) and the patients was considered non-infective.

Although, the viral shedding declines 7–10 days after onset of symptoms, it may continue for a prolonged duration in older, severely ill and immunocompromised patients [2]. The RT-PCR assay has been shown to detect viral RNAs in respiratory tract and stool specimens up to 63 days after symptoms onset [3]. But, recurrence of a positive RT-PCR result does not equate to infectivity, as evidenced by the inability to isolate or grow the virus from these specimens [3]. Hence, in patients who have been discharged after COVID-19 infection, repeating RT-PCR may not be a good option. Rather, antibody assay may be a better strategy as this is being used for convalescent plasma therapy. Immunity provided by neutralizing antibodies (NAbs) to the spike receptor binding protein, play a crucial role in viral clearance. A neutralizing antibody titers of at least 1:160 may be considered as the cut-off limit for non-infectivity as this has been set as a criteria for convalescent plasma donors [4]. Non- neutralizing antibodies in plasma and T- cell mediate immunity also may have some role. It is unclear, whether total antibody titers or titers of subclasses of antibodies (IgM, IgG, or IgA) to a specific antigen are more

optimal. The antibody titer depends on the time duration from the onset of symptoms. In previous studies, seroconversion has been observed to occur between 8 and 21 days after the onset of symptoms. The pooled sensitivity and specificity of these assays are above 90%, when tested after 14 days [5]. However, the quantitative antibody assay may be limited by non availability at certain places and may not be feasible before emergency surgery due to the time taken for the test.

Therefore, we propose that quantitative assay of serum antibodies against COVID-19 should be the preoperative testing strategy in patients who have been discharged after COVID-19 infection. Also, if these group of patients are found to be RT-PCR positive, antibody titers should be done to clarify the doubt regarding infectivity. This approach will avoid confusion and will provide a clear picture about the potential infectivity of the patient.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.tacc.2020.10.004>.

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