

Letter to the Editor - Deep thought on the cured and discharged COVID-19 patients with positive again for SARS-CoV-2 nucleic acid detection

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Dear editor,

At present, the COVID-19 caused by SARS-Cov-2 infection has given rise to a worldwide pandemic. As of 2:00 am CEST, 4 May 2020, there have been 3,407,747 confirmed cases of COVID-19, including 238,198 deaths in the world¹. Meanwhile, tens of thousands of COVID-19 patients have been clinically cured and discharged. However, multiple cured COVID-19 patients were displayed positive again for SARS-CoV-2 nucleic acid detection, which aroused attention to the problem of “re-positive”. As early as March 2020, Zhang et al² reported that patient with a 54-year-old man, who had been discharged from the hospital showed positive again for SARS-CoV-2 nucleic acid detection. In addition, according to the office of the Zhejiang Provincial (China) leading Group for Prevention and Control work, there are 11 cases of “re-positive” in Zhejiang Provincial, including 9 cases of “re-positive” sputum and 2 cases of “re-positive” stool, with an average age of 49.2 years and an average hospitalization time of 31.3 days³. These patients are all under isolation and observation at designated places, given antiviral and Chinese traditional medicine treatment, and regularly follow-up and reexamine in designated hospitals.

Why do some cured and discharged patients “re-positive” SARS-CoV-2 nucleic acid detection? Guiqiang Wang said that it may be more appropriate to use “re-detection” to describe this, that is, the virus has not really disappeared in such patients and pharynx swabs and nasopharynx swabs cannot be found in

the upper respiratory tract, but there is still the virus in the lower respiratory tract (Guiqiang Wang, personal communication).

Recently, Yao et al⁴ reported that patient with a 78-year-old woman, who showed negative for nucleic acid detection for three consecutive times, meeting the discharge criteria died of heart disease unexpectedly. Through immunohistochemistry assay of the lungs, liver, heart, intestines and skin, pathological examination revealed that there was still SARS-CoV-2 in the lungs⁴, suggesting that SARS-CoV-2 exists in the patient.

However, another reason for the “re-positive” may be that the sensitivity of nucleic acid detection is not enough. It may not, at least in a small number of virus particles, be found in upper respiratory tract samples. In fact, most of the “re-positive” patients are asymptomatic infections but have a certain degree of infectivity. If nucleic acid detection is used as the cured and discharge criteria for COVID-19 patients, then patients with false negative SARS-CoV-2 nucleic acid detection may lead to new outbreaks, prompting people to think about the feasibility of nucleic acid detection combined with other detection methods.

Fortunately, based on the analysis of 285 patients with COVID-19, all patients tested positive for antiviral immunoglobulin-G (IgG) within 19 days after the onset of symptoms, which was associated with worse outcome⁵, suggesting that serological testing may be used as a supplement for the identification of asymptomatic infections and the diagnosis of suspected patients with negative nucleic acid detection results.

Therefore, we suggested that the combination of serological testing and SARS-CoV-2 nucleic acid detection should be used as the criterion for judging cured and discharged patients. In addition, it is also necessary to appropriately prolong the time of home isolation and medical observation of cured and discharged patients, especially for elderly patients with underlying diseases, timely follow-up medical examination and an increase in the number of nucleic acid examination to increase the detection rate.

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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

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