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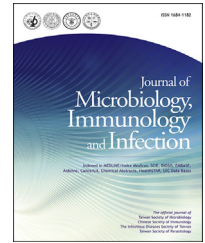
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Correspondence

De-isolation criterion of real-time PCR test in patients with COVID-19: Two or three consecutive negative nasopharyngeal swabs?



Dear Editor,

The coronavirus disease 2019 (COVID-19) has spread globally since December 2019, affected several millions of infection, and had led to tens of thousands of death. Many countries implanted strict measures, including shutting down cities or community activities, banning international or domestic travel, confirmed case isolation and quarantine policy to contain this outbreak but also impact global economic and caused huge healthcare system burden. Since the studies of virological infectivity and dynamic transmissibility are ongoing, different policies had been applied in different countries. The interim guidance from Centers for Disease Control and Prevention (CDC), USA suggested that the test-based strategy, *i.e.*, two consecutive negative results of oropharyngeal swabs by real-time-polymerase chain reaction (RT-PCR), could be the criterion for return to work or de-isolation. However, Taiwan CDC recommended three consecutive negative results as the de-isolation criterion for confirmed cases before Jun. 17, 2020. So far, the contagious period of symptomatic or asymptomatic cases of COVID-19 is not fully understood, and adoption of the stricter policy, three consecutive negative results, may avoid person-to-person transmission. However, prolonged shedding of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) RNA in nasopharyngeal swabs or lower respiratory tract aspirates in the cases of COVID-19 after clinical resolution and seroconversion had been reported¹ and prolonged isolation or hospitalization and the consumption of personal protective equipment were two major disadvantages of applying strict policy. This observation study is aimed to report the effect of different de-isolation criterion.

From Feb. 1 to Apr. 21, 2020, 12 patients of COVID-19 admitted to two hospitals at southern Taiwan were included for analysis. Their median age was 23.5 years with a range of 16–52 years, and 6 (50%) were males. Only one had underlying hypertension with regular medical control. Nine patients had fever and cough, but no patient experienced severe respiratory distress or needed ventilator support during hospitalization. Five patients reported anosmia and two of them only had anosmia without rhinorrhea or other discomfort. All patients except a naval crew were diagnosed within one week after symptom onset and their median interval between the symptom onset and diagnosis was 2 days, with a range of 1–6 days. Chest X-ray films showed pulmonary infiltrations or opacities in five patients, and four required supplemental oxygen during the initial week of hospitalization. Except four patients had prolonged anosmia during hospitalization, the median interval between diagnosis and symptom resolution in other eight patients was 3.5 days (range 0–7 days). Their symptoms improved before negative swab tests. Ten patients ever received oral hydroxychloroquine therapy. Oropharyngeal/nasopharyngeal swab specimens were collected every 2–4 days and were tested for viral RNA in one hospital, according to the laboratory method recommended by CDC, Taiwan². Patients received at least four times and at most 26 times of oropharyngeal/nasopharyngeal swab sampling. De-isolation would be considered if patients experienced defervescence, symptom resolution, and had three consecutive negative SARS-CoV-2 RNA tests.

Total 146 clinical specimens were collected. The median hospital stay was 27 days with a range of 11–61 days. Fig. 1 depicted the sequential change between the days of confirmed date (D0) to each event of nasopharyngeal swab results during the hospitalization. Four patients (case A–D),

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