



Inflammatory Rebound in Severe Acute Respiratory Syndrome Coronavirus 2 Infection

Mehrdad Farrokhnia¹ and Behnam Dalfardi^{2,*}

¹Department of Internal Medicine, School of Medicine, Afzalipour Hospital, Kerman University of Medical Sciences, Kerman, Iran

²Endocrinology and Metabolism Research Center, Institute of Basic and Clinical Physiology Sciences, Kerman University of Medical Sciences, Kerman, Iran

*Corresponding author: Endocrinology and Metabolism Research Center, Institute of Basic and Clinical Physiology Sciences, Kerman University of Medical Sciences, Kerman, Iran. Email: b.dalfardi@kmu.ac.ir

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Dear Editor,

We read the paper of Samimagham et al. (1), which was recently published in Shiraz E-Medical Journal and attracted wide interest and attention. In that article, the authors reported two cases with possible recurrent COVID-19 infection. However, there are some points that can be addressed.

COVID-19 re-infection and its viral reactivation are two controversial issues. According to a recently published population-level observational study, protection against re-infection with SARS-CoV-2 can be more than 80% among people aged less than 65 years; however, it is about 47% in older cases (2). Although it is not precisely known, previous studies suggest that the reduced risk of re-infection with SARS-CoV-2 lasts for about 5 to 6 months after the primary infection (2-4). It has been suggested that viral re-infection is rare and affects less than 1% of all patients with COVID-19 (2).

It has been suggested that the results of SARS-CoV-2 RT-PCR assay can change from negative to positive in patients' follow-up, and it does not necessarily mean re-infection. Yuan et al. (5) evaluated 172 COVID-19-infected cases after discharge from hospital. These cases had two consecutive negative SARS-CoV-2 RT-PCR tests with a 24-hour interval before discharge. In follow-up, RT-PCR test results of 25 patients, who were in self-quarantine at home, turned to positive again. The mean duration of this change was 7.32 ± 3.86 days after the previous negative test. These cases had no clinical aggravation (5).

Presently, there is an ongoing discussion about inflammatory rebound in COVID-19, a phenomenon that may explain the aggravation of patients' manifestations after an initial clinical improvement. Herein, we present two cases

with virologically confirmed COVID-19 infection (RT-PCR assay) who had lung involvement according to the findings of chest computed tomography and experienced clinical rebound shortly after the reduction of glucocorticoid dose.

The first case was a 48-year-old man who was admitted with complaints of cough, fever, headache, and progressive dyspnea since about 10 days before hospitalization. His on-admission room air SpO₂ was 90%. Therefore, treatment with dexamethasone (6 mg daily) was started. The patient was discharged from the hospital after a few days when he had a normal room air SpO₂. Prednisolone (10 mg twice a day) with a taper for few days was prescribed at the time of discharge. However, about two days later, the patient's dyspnea aggravated, and he was admitted again. This time on admission, SpO₂ was 82%. His laboratory investigations revealed a new rise in serum CRP level to 176 mg/dL. However, serum procalcitonin level was in the negative range. Therefore, methylprednisolone (40 mg twice a day) was initiated. The patient showed clinical response, and his respiratory complaints improved. After a few days, his room air SpO₂ became normal again, and he was discharged from hospital. The patient had a negative range serum CRP level when he left the hospital.

Another case was a 44-year-old man who was hospitalized five days after beginning of his clinical manifestations, including fever, cough, dyspnea, and myalgia. Treatment with dexamethasone (6 mg daily) and remdesivir (200 mg on day one then 100 mg daily for four days) was started. He showed clinical response and was discharged after six days with oral prednisolone (10 mg twice a day, with a tapering pattern). This case had a normal room air SpO₂ when he left the hospital. However, after three days,

his clinical manifestations, particularly fever, aggravated again. Thus, he underwent some laboratory investigations showing an increased level of serum CRP (136 mg/dL) and a negative range serum procalcitonin. Therefore, we increased the dose of oral prednisolone to 20 mg twice a day; after that, the patient showed clinical improvement and his serum CRP level became normal.

In summary, the aggravation of clinical manifestations in patients with COVID-19 may be sometimes explained by inflammatory rebound, and this issue does not essentially mean re-infection.

Footnotes

Authors' Contribution: All the authors contributed to the study's conception. Data collection was performed by Mehrdad Farrokhnia and Behnam Dalfardi. Behnam Dalfardi wrote the first draft of the manuscript. All the authors approved the final version of the manuscript.

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