

Letter to Editor



Clinical Characteristics of Recovered Patients with COVID-19 Who Retested Positive for the Virus

Fangzhou Hu, MSc¹; Ruifang Zhao, MSc¹; Jinjing Chen, MSc¹¹Henan Provincial People's Hospital, Zhengzhou, Henan, China

Dear Editor

Coronavirus disease 2019 (COVID-19) is a human infectious disease caused by a coronavirus with high infectivity and high mortality.^{1,2} Current research data indicate that most of the cases are mild and can be cured. In order to cope with the situation of re-positive nucleic acid test in cured patients, the discharge criteria for confirmed patients are clearly defined,³ such as 14 days of isolation management and required health monitoring. But even so, Luo et al⁴ reported recovered patients with COVID-19 who retested positive for the virus in many places. What does this phenomenon mean? Is it contagious? No, current evidence suggests that we do not have to panic. First, they have no obvious clinical symptoms, such as fever, severe cough or symptoms of respiratory distress. Second, those in close contact with them were not infected. In this paper, we review the reasons why nucleic acid tests are positive again as well as the clinical characteristics of recovered patients with COVID-19.

The Reasons Why Nucleic Acid Tests Are Positive Again

The accuracy of nucleic acid detection is not only affected by the detection rate of the kit, but is also related to the location, manipulation and laboratory conditions of sampling, but the most important factor is the characteristics of the virus. The new coronavirus is a kind of recombinant RNA virus that has emerged recently, and the natural recombination of RNA virus may make the coronavirus evolve naturally. After the virus infects the human body, not only is the clearance slow, but also in the later stage of the disease, the virus load is low, detoxification is intermittent, the location is deep and it is not easy

to be detected, which leads to a false negative result on discharge. In addition, the strength of individual immune function affects the of infection and disease progress. The patients whose nucleic acid tests are positive again in clinic are usually old with poor immune function. Finally, drug abuse and immunosuppression may contribute. Unreasonable use of anti-inflammatory and antimicrobial agents is not only associated with false negative symptoms, but also renders the patient prone to drug resistance, which increases the difficulty of subsequent treatment.

Clinical Characteristics

Some research suggests that there are no clinical symptoms indicating new pulmonary infections such as fever, severe cough and shortness of breath in patients with re-positive nucleic acid test results. Besides, white blood cells, lymphocytes and D-dimer fluctuate within their normal range.⁴ The oxygenation index is also within the normal range, the second hospitalization length is shortened, and lung inflammation continues to improve in most patients.⁵ But other studies suggest that most patients have fever. The common feature of these studies is that nucleic acid tests in all patients could turn negative again and none of their close family and friends are infected (See Table 1).

In conclusions, as a large number of patients are cured and discharged from hospital, we must remain vigilant, although current studies have shown that patients who test positive again are not infectious. We need to set stricter discharge standards, especially for older patients. In addition, we also need to ensure the quality of the kit. Only in this way can the epidemic be controlled.

Table 1. Summary of Clinical Characteristics of Recovered Patients with COVID-19 who Retested Positive for the Virus

Authors	Study Location	Age Range	Median Age (y)	No. of Patients	Fever (%)	Cough (%)	Chest Tightness/Dyspnea (%)
Luo et al, 2020	Guangdong, China	12–77	44	20	0 (0)	1 (5)	0 (0)
Huang et al, 2020	Guangdong, China	19–79	46	23	0 (0)	0 (0)	1 (4)
Zhu et al, 2020	Zhejiang, China	44–63	54	17	12 (70.6)	8 (47.1)	2 (11.8)

Authors' Contribution

FH contributed significantly to analysis and manuscript preparation. RZ and JC helped perform the analysis with constructive discussions. All authors read and approved the final manuscript.

Conflict of Interest Disclosures

The authors declare that there is not any conflict of interests.

Ethical Statement

The study was conducted as ethical principles of the Helsinki Declaration.

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