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Caution should be exercised for the detection of
SARS-CoV-2, especially in the elderly

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Introduction

In December 2019, a pneumonia outbreak, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first identified in Wuhan, China and presented a major threat to public health¹. Nationwide, there were more than 70,000 confirmed cases, and 2500 deaths². Most patients were elderly, with severe disease^{3,4}. For acute respiratory infection, RT-PCR is routinely used to detect causative viruses in respiratory secretions⁵. Coronavirus RNA can be detected from nose and throat swabs, sputum and other lower respiratory tract secretions, blood and feces. Such specimens were examined by RT-PCR. Three targets, RdRP, E and N genes were detected, indicating samples were positive for SARS-CoV-2⁶. After patient recovery, a chest CT examination, combined with SARS-CoV-2 RNA detection, confirmed diagnosis. However, some recovery patients with negative RNA tests turned RNA positive. The preliminary data is about 14% of discharged patients in Guangdong reported by the Guangdong Center for Disease Control (CDC).

This is an important scientific issue. If samples are positive for SARS-CoV-2 RNA, patients should be managed according to infection source. Fortunately, there were no close contacts of second-generation cases. We herein report six SARS-CoV-2 cases confirmed in our hospital, for the changes of results of SARS-CoV-2 RNA should attract attention. Most patients were elderly, with a low Geriatric Nutritional Risk Index (GNRI). However, the association of the phenomenon with aging and GNRI has not yet been reported in detail. Further investigations are necessary to confirm and improve these findings. Similarly, discharged patient follow-up should be strengthened.

Case report

Case 1. A 65-year-old man had a seven day cough history on January 20, 2020. The patient's main complaint was cough, but he had no fever, white phlegm, stuffiness, runny nose, vertigo, fatigue, tight chest or nausea. He returned from Wuhan to Zhuhai on January 12th by train. The patient's wife was a laboratory-confirmed case. Based on his primary laboratory report, chest radiographs, clinical and epidemiologic information, the patient was confirmed with coronavirus disease-2019 (COVID-19), and received combination therapy. This included oseltamivir phosphate capsules (75 mg twice a day, 0–3 days), recombinant human interferon alfa-2b (6 million IU twice a day, 0–7 days), moxifloxacin hydrochloride (0.4 g daily, 0–17 days), normal human immunoglobulin (5.0 g daily, 6–8 days), lopinavir ritonavir tablets (0.5 g twice a day, 6–21 days) and human serum albumin (20 g daily, 1–7 days). On day eight of treatment, human serum albumin was reduced to 10 g daily, and withdrawn on day 10. Laboratory tests are shown (Table 1). The results indicated the patient had stable vital signs, with significantly reduced lymphocytes. The patient's nutritional condition was evaluated by GNRI (Table 1, note). The patient had a low GNRI nutritional status, with a high nutrition-related risk (GNRI < 82, Table 1, Day 0). On day 18 of treatment, his nasopharynx swab was negative for SARS-CoV-2 RNA. These results were persistently negative on days 18 and 20. The patient's GNRI nutritional status also improved. Cough symptoms improved, and lung lesions were partially absorbed. The patient was transferred to the transition ward and drug treatment was suspended (also isolation ward). However, when a SARS-CoV-2 RNA assay was performed on day 22 and 23, the results were positive.

Case 2. A 64-year-old male patient had fever, cough and a sore throat, and had been in contact with travelers from Wuhan. Based on his primary laboratory report, a chest radiograph, clinical and epidemiologic information, the patient was confirmed with COVID-19 and received combination therapy. This included; arbidol hydrochloride tablets (0.2 g three times a day, 0–2 days), moxifloxacin hydrochloride (0.4 g daily, 0–5 days), chloroquine (0.5 g twice a day, 2–13 days), ceftriaxone sodium injection (1.0 g twice a day, 5–7 days), linezolid injection (600 mg twice a day, 5–7 days), thymosin alpha-1 injection (1.6 mg daily, 6–7 days) and lopinavir ritonavir tablets (0.5 g daily, 14–16 days). On day 14 of treatment, chloroquine was reduced to 0.5 g daily, and withdrawn on day 16. The patient had a low GNRI nutritional status, with a high nutrition-related risk (GNRI < 82, Table 2, Day 0). On the second day of treatment, the patient's temperature indicated low-grade intermittent fever (ranging from 36.0°C–37.5°C). On day 16 of treatment, the nasopharynx swab was negative for SARS-CoV-2 RNA. These results were persistently negative on days 16, 17 and 18. The GNRI nutritional status improved. The patient was without fever for seven days, and lung lesions were partially absorbed (Supplemental Fig. 1). The patient was therefore transferred to a transition ward, and drug treatment was suspended (also isolation ward). When the SARS-CoV-2 RNA assay was rechecked on day 20 and 21, the assay was positive.

Case 3. A 64-year-old female patient had fever, cough and white phlegm. She was a laboratory-confirmed case in contact with travelers from Wuhan. The patient had a low GNRI nutritional status, with a high nutrition-related risk (GNRI < 82, Table 3, Day 0). Administered combination therapy included chloroquine (0.5 g twice a day, 1–11 days), normal human immunoglobulin (10 g daily, 4–5/8–11 days), human serum albumin (20 g daily, day 4), thymosin alpha-1 injection (1.6 mg daily, 7–11 days), ceftriaxone sodium injection (1.0 g twice a day, 7–11 days)

and linezolid injection (600 mg twice a day, 7–11 days). On day seven of treatment, a nasopharynx swab was negative for SARS-CoV-2 RNA. These results were persistently negative on days 11, 12, 14 and 16, and clinical symptoms improved, with lung lesions partially absorbed (Supplemental Fig. 2). The GNRI nutritional status improved (GNRI: 82 - < 92, Table 3). The patient was transferred to the transition ward and drug treatment was suspended. When a SARS-CoV-2 RNA assay of the nasopharynx swab was rechecked on day 18, it was positive, but a feces swab was negative.

Case 4. A 71-year-old female patient was a laboratory confirmed case in contact with travelers from Wuhan, with cough and white phlegm. The patient had a history of grade 3 hypertension for 10 years. She had a low GNRI nutritional status, with high nutrition-related risk (GNRI < 82, Table 4, Day 0). Combination therapy included chloroquine (0.5 g twice a day, 0–3 days), normal human immunoglobulin (10 g daily, 2–13 days), human serum albumin (10 g daily, 0–13 days), thymosin alpha-1 injection (1.6 mg daily, 2–13 days), arbidol hydrochloride tablets (0.2 g three times a day, 4–16 days) and lopinavir ritonavir tablets (0.5 g daily, 6–13 days). Blood pressure therapy was instigated. On day nine of treatment, a nasopharynx swab was negative for SARS-CoV-2 RNA. These results were persistently negative on days 9, 10 and 12, and clinical symptoms improved, with lung lesions partially absorbed (Supplemental Fig. 3). Her GNRI nutritional status also improved. SARS-CoV-2 RNA results on fecal swabs were persistently negative on days 10 and 12. The patient was then transferred to a transition ward, where only blood pressure therapy was continued. When a SARS-CoV-2 RNA assay of a nasopharynx and feces swab was performed, they were positive on day 16.

Case 5. A 55-year-old female patient, in contact with travelers from Wuhan, was confirmed with SARS-CoV-2 RNA from a nasopharynx swab on January 20th, 2020. Combination therapy included levofloxacin tablets (0.5 g daily, 0–5 days), chloroquine (0.5 g twice a day, 2–11 days) and thymosin alpha-1 injection (1.6 mg daily, 6–10 days). On day 10 of treatment, a nasopharynx swab was negative for SARS-CoV-2 RNA. These results were persistently negative from days 11–18. Clinical symptoms improved and lung lesions were partially absorbed. However, fecal swabs were persistently positive for SARS-CoV-2 RNA. The patient was transferred to a transition ward, and drug treatment was suspended. On day 28, a nasopharynx swab was rechecked and was positive for SARS-CoV-2 RNA, but a feces swab was negative.

Case 6. A 36-year-old female patient, was a laboratory confirmed case in contact with travelers from Wuhan, without apparent clinical symptoms. Combination therapy included chloroquine (0.5 g twice a day, 0–11 days), thymosin alpha-1 injection (1.6 mg daily, 6–10 days) and arbidol hydrochloride tablets (0.2 g three times a day, 12–14 days). On day six of treatment, clinical symptoms improved and lung lesions were partially absorbed (Supplemental Fig. 4). Nasopharynx swabs were persistently negative for SARS-CoV-2 RNA on days 7, 8, 9, 10 and 11. Results for fecal swabs were also persistently negative from day 10. The patient was then transferred to a transition ward, and drug treatment suspended. However, a nasopharynx swab was rechecked on day 15 and was positive for SARS-CoV-2 RNA.

Discussion

There are several possible explanations for SARS-CoV-2 RNA changes in patients. Firstly, pneumonia is a relatively long-lasting disease, often requiring two to three months to recover. Older people or people with poor health, may also

have a slower recovery from pneumonia⁷. However, a large part of the patients' lung inflammation is in the process of absorption, and has not yet reached clinical recovery. In terms of microorganisms, humans produce antibodies after viral infection, which may prevent subsequent spread. For elderly people, it may take longer to produce such antibodies, suggesting low viral levels may persist⁸. Four of our six patients were elderly and GNRI was calculated to evaluate the nutritional status of these patients. They all had a low GNRI nutritional status (GNRI < 82, Table, Day 0). During combination therapy, which also included nutritional support, patient GNRI nutritional status improved. GNRI is a universally adopted index evaluating patient nutritional conditions; it is an effective and simple risk index that represents a patients' nutritional risk, and has been proven as a predictive index for prognoses in hospitalized elderly patients⁹. Malnutrition is one reason why elderly patients are high risk patients. Many such patients lack nourishment, and disease-related malnutrition is associated with higher mortality and morbidity and delays in illness recovery¹⁰. Thus nutritional support may enhance patient tolerance for disease. Similarly, GNRI may be useful in identifying patients with high risk, such as elderly patients with COVID-19. Further investigations must confirm and improve these findings. In addition, frailty and sarcopenia indices can be used to evaluate and grade elderly patients with COVID-19.

Secondly, negative RNA results cannot rule out new coronavirus infections. Factors causing false negatives must be excluded, including poor sample quality from the nose and throat and other parts, samples collected too early or too late, improperly stored samples, improperly transported and processed samples, technology issues, such as virus mutation, PCR inhibition, etc. Specimen collection issues also impact on the accuracy of RNA detection, potentially leading to false negative results. More research is required to identify specific

mechanisms and reasons. To increase positive detection rates, it is recommended that sputum samples be taken frequently, and that tracheal intubation is performed on patients with lower respiratory tract secretions. After patient discharge, the body's immune functions are low during the recovery period; there may be a risk of infection from other pathogens¹¹. Therefore, discharged patients must isolate for a further two weeks to ensure safety. According to the 7th edition of prevention and control of pneumonia from novel coronavirus infections, released by China CDC, designated hospitals should contact primary medical institutions where patients live, share case data, and promptly push the discharged patient information to the patient's jurisdiction or the residential committee and primary medical institutions. Discharged patients are recommended to isolate for management and health monitoring for 14 days, with a return to hospital in the second and fourth week after discharge. New and more accurate diagnostic methodologies must be developed to improve strategies for disease prevention and health promotion.

Conclusions

GNRI may be useful in identifying high risk elderly patients with COVID-19. Patients with low GNRI should have real-time nutritional support, but further research will confirm this. Similarly, the follow-up of discharged patients should be strengthened.

Conflict of interests

The authors declare no conflict of interest.

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Table 1. Clinical laboratory results of the patient case 1.

Items	Day0	Day7	Day1 6	Day18	Day20	Day22	Day23
Body temperature (°C)	36.5	36.6	37	36.5	36.5	36.8	36.7
Pulse (beats/minute)	79	82	84	80	78	80	82
Respiratory rate (breaths/minute)	18	20	18	18	20	18	19
Blood pressure (mmHg)	131/7 5	126/74	114/6 3	135/83	137/86	115/7 6	107/6 5
White blood cell (10^9 /liter)	7.20	6.87	5.55	5.40	4.73	4.85	-
Neutrophil (%)	70.10	63.50	58.40	58.50	58.00	60.40	-
Absolute neutrophil(10^9 /liter)	5.05	4.36	3.24	3.16	2.74	2.93	-
Lymphocyte (%)	16.80	23.00	28.50	27.40	28.10	26.20	-

Absolute lymphocyte (10^9 /liter)	1.21	1.58	1.58	1.48	1.33	1.27	-
C-reactive protein (mg/L)	4.57	5.07	5.16	3.44	4.78	-	-
Procalcitonin (ng/mL)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-
PH value	7.375	7.388	7.401	7.417	7.428	-	-
Oxygen saturation (%)	97.50	93.80	97.40	97.20	97.70	-	-
Aspartate aminotransferase (U/L)	20.00	13.80	20.20	18.30	20.30	-	-
Troponin (ng/mL)	-	< 0.010	-	-	-	-	-
Lactic dehydrogenase (U/L)	193.0 0	229.00	132.0 0	122.00	127.00	-	-
Creatine kinase (U/L)	68.00	57.00	71.00	76.00	63.00	-	-

Fibrinogen (g/L)	3.80	2.83	2.58	3.33	3.33	-	-
D-dimer (ug/mL)	89.00	97.00	75.00	94.00	86.00	-	-
Glucose (mmol/L)	14.50	6.29	6.03	5.76	6.14	-	-
Geriatric nutritional risk index, GNRI	74.27	76.02	75.67	75.46	75.46	-	-
2019-nCoV nasopharynx swab	positive	positive	-	negative	negative	positive	positive
2019-nCoV feces swab	positive	positive	-	positive	positive	-	positive

Case 1. A 65-year-old man was confirmed novel 2019-nCoV pneumonia and received combination therapy. The laboratory tests were shown in Table 1. On the eighteenth day of treatment, the 2019-nCoV RNA result of nasopharynx swab turns negative. The results persistent negative on day 18 and 20. But the results of 2019-nCoV RNA rechecked on day 22 and 23 were positive, again.

GNRI formula: $GNRI = [1.489 \times \text{albumin (g/L)}] + [41.7 \times (\text{weight/WLo})]$, where WLo means ideal weight and was calculated from the Lorentz equations: for men: $H-100-[(H-150)/4]$; for women: $H-100-[(H-150)/2.5]$ (H: height). From these GNRI values, 4 grades of nutrition-related risk as follows: high risk (GNRI: <82),

moderate risk (GNRI: 82 to <92), low risk (GNRI: 92 to ≤98), and no risk (GNRI: >98).

Table 2. Clinical laboratory results of the patient case 2.

Items	Day0	Day7	Day16	Day17	Day18	Day20	Day21
Body temperature (°C)	38.0	37.2	38.5	36.5	37.5	37.4	36.5
Pulse (beats/minute)	81	84	76	70	64	74	72
Respiratory rate (breaths/minute)	18	19	18	18	17	18	18
Blood pressure (mmHg)	162/90	125/82	117/69	115/74	110/68	140/84	142/80
White blood cell(10^9 /liter)	6.14	6.60	-	5.94	-	-	6.32
Neutrophil (%)	54.30	61.60	-	55.60	-	-	60.70
Absolute neutrophil (10^9 /liter)	3.33	4.07	-	3.30	-	-	3.83

Lymphocyte (%)	28.30	21.50	-	27.30	-	-	22.50
Absolute lymphocyte(10^9 /liter)	1.74	1.42	-	1.62	-	-	1.42
C-reactive protein (mg/L)	3.52	16.12	-	1.30	-	-	0.65
Procalcitonin (ng/mL)	< 0.10	< 0.10	-	< 0.10	-	-	< 0.10
PH value	7.399	7.364	-	7.402	-	-	7.381
Oxygen saturation (%)	97.90	95.10	-	99.40	-	-	97.80
Aspartate aminotransferase (U/L)	32.00	23.90	-	22.50	-	-	25.20
Troponin (ng/mL)	-	-	-	< 0.010	-	-	< 0.010
Lactic dehydrogenase (U/L)	180.0 0	208.0 0	-	180.00	-	-	199.00

Creatine kinase (U/L)	66.00	74.00	-	82.00	-	-	82.00
Fibrinogen (g/L)	2.44	-	-	1.93	-	-	-
D-dimer (ug/mL)	131.00	-	-	207.00	-	-	-
Glucose (mmol/L)	5.00	5.03	-	4.42	-	-	4.79
Geriatric nutritional risk index, GNRI	76.01	78.55	-	78.69	-	-	79.59
2019-nCoV nasopharynx swab	positi ve	positi ve	negati ve	negati ve	negati ve	positi ve	positiv e
2019-nCoV feces swab	-	positi ve	-	-	positiv e	positi ve	-

Case 2. A 64-year-old male patient was confirmed novel 2019-nCoV pneumonia and received combination therapy. On the sixteenth day of treatment, the 2019-nCoV RNA result of nasopharynx swab turns negative. The results persistent negative on day 16, 17 and 18. Without fever for 7 days, as well as the lung lesions partially absorbed (Supplemental Fig1). While the results of 2019-nCoV RNA rechecked on day 20 and 21 are positive, again.

Table 3. Clinical laboratory results of the patient case 3.

Items	Day0	Day6	Day1 0	Day1 1	Day1 3	Day1 4	Day1 5	Day1 6	Day1 7
Body temperature (°C)	36.7	36.9	36.5	36.5	37.0	37.2	37.0	37.0	37.2
Pulse (beats/minute)	84	80	76	76	80	82	82	84	80
Respiratory rate (breaths/minute)	20	18	18	18	20	18	20	20	18
Blood pressure (mmHg)	140/88	115/77	143/77	120/0	139/3	154/0	152/4	156/0	145/8
White blood cell (10 ⁹ /liter)	3.65	3.68	-	-	-	-	-	5.16	-
Neutrophil (%)	42.20	43.30	-	-	-	-	-	45.30	-
Absolute neutrophil (10 ⁹ /liter)	1.54	1.60	-	-	-	-	-	2.34	-
Lymphocyte (%)	48.80	47.60	-	-	-	-	-	44.80	-

Absolute lymphocyte(10^9 /liter)	1.78	1.75	-	-	-	-	-	2.31	-
C-reactive protein (mg/L)	5.14	2.83	-	0.85	-	-	-	0.59	-
Procalcitonin (ng/mL)	0.13	<	-	-	-	-	-	<	-
		0.10						0.10	
PH value	7.415	7.408	-	7.402	-	-	-	7.427	-
Oxygen saturation (%)	94.90	96.60	-	96.40	-	-	-	97.50	-
Aspartate aminotransferase (U/L)	15.10	14.80	-	22.30	-	-	-	23.50	-
Troponin (ng/mL)	<	<	-	<	-	-	-	<	-
	0.010	0.010		0.010				0.010	
Lactic dehydrogenase (U/L)	180.0	153.0	-	160.0	-	-	-	166.0	-
	0	0		0				0	

Creatine kinase (U/L)	58.00	40.00 -	42.00 -	-	-	-	37.00 -	
Fibrinogen (g/L)	3.26	3.11 -	2.46 -	-	-	-	2.25 -	
D-dimer (ug/mL)	44.00	79.00 -	385.00	-	-	-	205.00 -	
Glucose (mmol/L)	5.40	5.01 -	4.98 -	-	-	-	4.64 -	
Geriatric nutritional risk index, GNRI	78.64	84.89 -	86.67 -	-	-	-	81.61 -	
2019-nCoV nasopharynx swab	positi ve	positi ve	negat ive	negat ive	negat ive	-	negat ive	positi ve
2019-nCoV feces swab	-	positi ve	-	-	-	negat ive	negat ive	negat ive

Case 3. A 64-year-old female patient is a laboratory-confirmed human case of travelers from Wuhan. On the seventh day of treatment, the 2019-nCoV RNA result of nasopharynx swab turns negative. The results persistent negative on day 11, 12, 14 and 16, as well as the clinical symptoms improved and the lung lesions partially absorbed (Supplemental Fig 2). While the results of 2019-nCoV RNA of nasopharynx swab rechecked on day 18 is positive, with feces swab rechecked negative.

Table 4. Clinical laboratory results of the patient case 4.

Items	Day0	Day4	Day9	Day10	Day12	Day16
Body temperature (°C)	36.5	36.2	37.0	36.8	36.7	36.8
Pulse (beats/minute)	71	65	72	78	82	80
Respiratory rate (breaths/minute)	20	18	18	19	19	18
Blood pressure (mmHg)	153/73	136/62	130/72	134/70	144/75	130/60
White blood cell (10^9 /liter)	4.59	5.12	4.31	-	-	4.75
Neutrophil (%)	47.50	70.10	46.70	-	-	57.10
Absolute neutrophil (10^9 /liter)	2.18	3.59	2.01	-	-	2.71
Lymphocyte (%)	43.40	21.70	42.20	-	-	32.20

Absolute lymphocyte(10^9 /liter)	1.99	1.11	1.82	-	-	1.53
C-reactive protein (mg/L)	4.83	2.09	0.47	-	-	-
Procalcitonin (ng/mL)	< 0.10	< 0.10	< 0.10	-	-	< 0.10
PH value	7.415	7.442	7.437	-	-	-
Oxygen saturation (%)	98.60	100.00	98.00	-	-	-
Aspartate aminotransferase (U/L)	17.20	18.50	15.00	-	-	-
Troponin (ng/mL)	< 0.010	< 0.010	< 0.010	-	-	-
Lactic dehydrogenase (U/L)	127.00	128.00	138.00	-	-	-

Creatine kinase (U/L)	26.00	30.00	37.00	-	-	-
Fibrinogen (g/L)	2.86	2.44	2.51	-	-	-
D-dimer (ug/mL)	58.00	91.00	91.00	-	-	-
Glucose (mmol/L)	5.36	5.24	4.83	-	-	-
Geriatric nutritional risk index, GNRI	67.97	71.24	75.26	-	-	-
2019-nCoV nasopharynx swab	positive	positive	negative	negative	negative	positive
2019-nCoV feces swab	negative	-	-	negative	negative	positive

Case 4. A 71-year-old female patient is one of laboratory confirmed case of travelers from Wuhan with chief symptoms of cough and white phlegm. On the ninth day of treatment, the 2019-nCoV RNA result of nasopharynx swab turns negative. The results persistent negative on day 9, 10 and 12, as well as the clinical symptoms improved and the lung lesions partially absorbed (Supplemental Fig 3). The results of 2019-nCoV RNA result of feces swab persistent negative on day 10 and 12. While the results of 2019-nCoV RNA of nasopharynx and feces swab rechecked on day 16 are positive.

Table 5. Clinical laboratory results of the patient case 5.

Items	Day0	Day9	Day1 0	Day1 1	Day1 2	Day1 3	Day1 4	Day1 8	Day2 5	Day2 8
Body temperature (°C)	37.6	36.7	36.3	36.8	36.7	36.8	36.7	36.5	36.4	36.5
Pulse (beats/minute)	70	68	60	78	82	80	78	76	72	74
Respiratory rate (breaths/minute)	20	18	18	19	19	18	18	19	18	18
Blood pressure (mmHg)	133/ 87	154/1 00	142/ 85	134/7 0	144/7 5	130/6 0	132/6 2	131/7 2	135/ 76	132/6 8
White blood cell (10 ⁹ /liter)	5.23	-	6.34	-	7.74	-	7.91	-	6.34	-
Neutrophil (%)	52.8 0	-	55.0 0	-	57.00	-	63.80	-	55.0 0	-
Absolute neutrophil (10 ⁹ /liter)	2.76	-	3.49	-	4.42	-	5.05	-	3.49	-

Lymphocyte (%)	34.0 0	-	34.4 0	-	32.60	-	24.30	-	34.1 0	-
Absolute lymphocyte(10^9 /liter)	1.78	-	2.13	-	2.52	-	1.92	-	2.16	-
C-reactive protein (mg/L)	29.6 4	-	<0.2 9	-	0.56	-	1.33	-	-	-
Procalcitonin (ng/mL)	0.13	-	0.11	-	< 0.10	-	< 0.10	-	0.11	-
PH value	7.56 5	-	7.39 8	-	7.396	-	7.419	-	-	-
Oxygen saturation (%)	99.3 0	-	99.5 0	-	99.10	-	98.90	-	-	-
Aspartate aminotransferase (U/L)	29.8 0	-	14.2 0	-	15.30	-	14.70	-	12.2 0	-
Troponin (ng/mL)	< 0.01 0	-	< 0.01 0	-	< 0.010	-	< 0.010	-	< 0.01 0	-

Lactic dehydrogenase (U/L)	185.00	-	126.00	-	147.00	-	137.00	-	172.00	-
Creatine kinase (U/L)	91.00	-	29.00	-	29.00	-	34.00	-	57.00	-
Fibrinogen (g/L)	2.51	-	2.13	-	-	-	-	-	16.10	-
D-dimer (ug/mL)	388.00	-	947.00	-	-	-	-	-	1.93	-
Glucose (mmol/L)	4.97	-	5.16	-	4.32	-	4.08	-	-	-
2019-nCoV nasopharynx swab	posit ive	negat ive	posit ive	negat ive	negat ive	negat ive	negat ive	negat ive	-	positi ve
2019-nCoV feces swab	-	-	-	-	-	-	-	-	positi ve	positi ve
									posit ive	negat ive

Case 5. A 55-year-old female patient, contacted with travelers from Wuhan, is confirmed according to the positive results of 2019-nCoV RNA of nasopharynx swab on January 20, 2020. On the tenth day of treatment, the 2019-nCoV RNA result of nasopharynx swab turns negative. The results persistent negative from day 11 to day 18, as well as the clinical symptoms improved and the lung lesions partially absorbed. While the results of 2019-nCoV RNA of feces swab persistent positive. On day 28, the results of 2019-nCoV RNA of nasopharynx swab

rechecked is positive, with results of 2019-nCoV RNA of feces swab rechecked negative.

Table 6. Clinical laboratory results of the patient case 6.

Items	Day0	Day6	Day7	Day8	Day9	Day10	Day11	Day15
Body temperature (°C)	36.8	36.4	36.7	36.5	36.6	36.5	36.4	36.6
Pulse (beats/minute)	76	80	60	64	76	78	70	80
Respiratory rate (breaths/minute)	18	18	20	17	18	18	19	18
Blood pressure (mmHg)	127/89	109/81	108/71	114/77	112/79	106/77	111/77	105/68
White blood cell (10 ⁹ /liter)	8.10	8.86	-	7.99	-	-	-	7.75
Neutrophil (%)	58.80	64.30	-	70.20	-	-	-	68.80
Absolute neutrophil (10 ⁹ /liter)	4.77	5.70	-	5.61	-	-	-	5.33

Lymphocyte (%)	31.40	26.20	-	20.50	-	-	-	21.30
Absolute lymphocyte(10^9 /liter)	2.54	2.32	-	1.64	-	-	-	1.65
C-reactive protein (mg/L)	4.10	3.93	-	3.99	-	-	-	4.06
Procalcitonin (ng/mL)	< 0.10	< 0.10	-	< 0.10	-	-	-	< 0.10
PH value	7.360	7.404	-	7.420	-	-	-	7.400
Oxygen saturation (%)	76.10	98.40	-	100.0 0	-	-	-	97.80
Aspartate aminotransferase (U/L)	15.50	16.80	-	17.60	-	-	-	17.80
Troponin (ng/mL)	< 0.010	< 0.010	-	< 0.010	-	-	-	< 0.010
Lactic dehydrogenase	127.0	147.0	-	118.0	-	-	-	129.0

(U/L)	0	0		0				0
Creatine kinase (U/L)	60.00	58.00	-	61.00	-	-	-	52.00
Fibrinogen (g/L)	3.08	3.01	-	2.98	-	-	-	3.05
D-dimer (ug/mL)	41.00	14.00	-	35.00	-	-	-	43.00
Glucose (mmol/L)	4.67	4.66	-	5.17	-	-	-	5.10
2019-nCoV nasopharynx swab	positi ve	positi ve	negati ve	negati ve	negati ve	negati ve	negati ve	positi ve
2019-nCoV feces swab	-	-	-	positi ve	positi ve	negati ve	negati ve	negati ve

Case 6. A 36-year-old female patient, one of laboratory confirmed cases of travelers from Wuhan, without apparent clinical symptoms. On the sixth day of treatment, the clinical symptoms improved and the lung lesions partially absorbed (Supplemental Fig 4). The 2019-nCoV RNA result of nasopharynx swab turns negative. The results of nasopharynx swab persistent negative on day 7, 8, 9, 10 and 11, as well as the results of feces swab persistent negative from day 10. While

the results of 2019-nCoV RNA of nasopharynx swab rechecked on day 15 is positive, again.

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