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The Treatment and Outcome of a Lung Cancer Patient Infected with SARS-CoV-2

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TO THE EDITOR:

Since December 2019, an outbreak of infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) from Wuhan, China has spread around the world, causing great concern[1, 2]. Currently, there is no specific treatment against this disease. A previous study has demonstrated that patients with cancer are at increased risks of severe infections[3]. Concerning deteriorating infection, most patients with cancer were recommended to withdraw cancer treatment after infection. However, the risks of cancer progression make this issue controversial. Herein, we firstly reported a cancer patient infected with SARS-CoV-2 continued targeted therapy with stable cancer control and recovered from pneumonia after kaletra (lopinavir/ritonavir) treatment.

On January 18, 2020, a 57-year-old Chinese male patient with lung cancer presented with fever when hospitalized for cancer treatment. Given his contact with a confirmed case of corona virus disease 2019 (COVID-19), a throat swab was obtained for SARS-CoV-2 on real-time reverse transcription-polymerase-chain-reaction (RT-PCR) and was found to be positive on January 26.

The patient was diagnosed with epidermal growth factor receptor (EGFR) L858R mutant advanced adenocarcinoma and started targeted therapy with gefitinib since February 2016. After cancer progression in September 2017, EGFR T790M was detected and osimertinib monotherapy was initiated. On

December 30, 2019, the patient was admitted to the hospital for radiotherapy due to enlarged lymph nodes. On January 18, 2020, the patient reported fever (temperature, 38.6), with symptoms of cough, shortness of breath, myalgia and diarrhea after nine rounds of radiation (Figure 1A). Chest computed tomography (CT) scans on January 23rd showed patchy shadows in both lungs (Figure 1B). After treatment with cefoselis, oseltamivir, meropenem, teicoplanin and moxifloxacin, his fever was reduced. Considering that the patient had contact history of patients with COVID-19, he underwent tests for SARS-CoV-2 on RT-PCR on January 26 and the result was positive. Thereafter, the patient started antiviral treatment with Kaletra (lopinavir/ritonavir) since January 29th. CT after 2 weeks (February 12th) showed improved pneumonia (Figure 1B). Follow-up RT-PCR tests for SARS-CoV-2 on February 1st, 2nd, 5th, 10th were negative, leading to confirmed recovery. The patient felt overall condition improved and was discharged from the hospital on February 14th. Of note, the patient continued targeted treatment with osimertinib because of slight discomfort during the infection period. Follow-up CT showed stable lesions in both lungs, resulting in stable disease (Figure 1B).

This patient, despite the diagnosis of COVID-19, continued osimertinib treatment because his overall situation permitted. Intensive care, examination and CT scans were performed in case of pneumonia exacerbation and cancer progression. Fortunately, stable cancer disease was observed and the

infection of SARS-CoV-2 was cured.

As for cancer patients with COVID-19, whether cancer treatment should be discontinued remains debatable. Although this case firstly demonstrated the potential of maintaining targeted treatment in patients with good condition, further studies are in urgent need.

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Figure Legend

Figure 1. A. Timeline of disease course according to days from initial presentation of illness to hospital discharge, from January 18 February 14, 2020. Orange lines indicate temperature over 37.3 and grey lines indicate temperate not over 37.3. B. Chest computed tomography scans during the patient's clinical course. The yellow arrows show patchy shadows in both lungs. The red arrows indicate tumors.

Figure 1