Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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LETTER TO THE EDITOR

Coronavirus Disease 2019 or Lung Cancer: What Should We Treat?

To the Editor:

Management of patients with lung cancer in the era of coronavirus disease 2019 (COVID-19) has become a global concern. We read with great interest the article written by Zhang et al.,[1] who first reported the treatment and outcome of a patient with lung cancer infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). A 57-year-old Chinese man affected by advanced lung adenocarcinoma harboring *EGFR L858R* mutation continued targeted therapy with osimertinib despite development of COVID-19 pneumonia. The patient achieved stable cancer control and recovered from pneumonia after antiviral therapy. As the authors have admitted, the patient continued osimertinib treatment because his overall situation permitted.

Nevertheless, the scenarios we might face in clinical practice may be quite different. First of all, both lung cancer and SARS-CoV-2 infection can manifest heterogeneously, ranging from an asymptomatic condition to severe respiratory distress requiring urgent treatment or intensive care. Furthermore, tumors harboring driver mutations, such as *EGFR* and treated with targeted therapy, usually affect young and never-smoker patients who represent a minority of cases. More frequently, patients with lung cancer are older people with a smoking habit and have no targetable mutations. Then, in most cases, treatments are chemotherapy, immunotherapy, or combination strategies.

Therefore, COVID-19 can occur in patients who are frail not only by tumor but also by age and comorbidity. In this context, patients have a higher risk of developing severe or lethal SARS-CoV-2 complications. In addition, there is an increasing debate on potential interactions between coronavirus and anticancer therapies.[2] Chemotherapy can cause immunosuppression and favor infectious complications. Conversely, patients receiving immunotherapy should be more immune reactive. Nonetheless, anti–programmed cell death-protein 1/programmed death ligand-1 or anti-CTLA4 immune checkpoint inhibitors (ICIs) may have a harmful effect on coexisting COVID-19 too.

Accumulating evidence suggests that the lung injury in COVID-19 is mainly owing to an aberrant inflammation process mediated by a cytokine storm.[3] Interestingly, increasing levels of cytokines are considered possible mechanisms underlying the immune-related events,[4] and cytokine release syndrome has been described as a rare complication of ICI treatment. In addition, SARS-CoV-2 can also affect T cells and macrophages. So, it may cause an immunologic dysregulation that might interfere with the response to immunotherapy. These processes could also motivate a possible overlap between COVID-19 pneumonia and immune-related pneumonitis. These two events have similar clinical and radiologic features that make their differential diagnosis and management more difficult. Moreover, serious, immune-related pneumonitis requires high-dose intravenous corticosteroids, which have a controversial role in the treatment of COVID-19 pneumonia.[5]

There is no clear evidence supporting the interactions between SARS-CoV-2 and ICIs. Nevertheless, on the basis of the limited data available, a mutual and detrimental effect cannot be excluded.

For all these reasons, stopping or continuing anticancer treatment in patients with COVID-19 may be a very difficult decision. Clinicians must consider several variables in the risk/benefit assessment. Continuation of targeted therapies in patients with COVID-19 could be safe if clinical conditions permit. Contrariwise, temporary suspension of anticancer treatment pending recovery from SARS-CoV-2 may be reasonable in patients who have had long-term control of the disease with maintenance chemotherapy or ICIs. Pending further evidence, the dramatic COVID-19 outbreak requires extreme caution while making therapeutic decisions for patients with lung cancer.

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