

Correspondence

COVID-19 infection under omalizumab therapy for chronic spontaneous urticaria: three cases

Dear Editor,

Information on the use of omalizumab in the COVID-19 pandemic is limited. There are case-level studies showing that this drug is beneficial or harmful in those with COVID-19 infection. Omalizumab has anti-inflammatory effects and anti-IgE properties. Here, three patients who had COVID-19 pneumonia and upper respiratory tract infection while using omalizumab regularly due to chronic spontaneous urticaria are presented.

Information on the use of biological drugs used in dermatology in the COVID-19 pandemic is limited and controversial. Omalizumab (OMZ) is approved by the Food and Drug Administration (FDA) for the treatment of moderate to severe allergic asthma and chronic spontaneous urticaria (CSU) resistant to H1-antihistamine.¹ There are no cases or studies regarding the safety of use of OMZ in the COVID-19 pandemic. Here, we present three cases who received OMZ treatment for CSU and developed pneumonia and upper respiratory tract infection due to COVID-19 during the pandemic period.

A 59-year-old female patient presented to the emergency department 3 weeks ago with the complaints of cough and weakness. On computed tomography (CT) scan, there was a ground-glass opacity in both lungs, more prominent in the lower lobes, and it was considered to be compatible with moderate COVID-19 pneumonia. Despite this, polymerase chain reaction (PCR) was negative on nasopharyngeal and oropharyngeal swab. It was learned that the patient had been using OMZ 300 mg/4 weeks intermittently for 3 years and took the last dose 1 week before the complaints of pneumonia. The patient was hospitalized in accordance with the guidelines in our country, and oral hydroxychloroquine, azithromycin, and parenteral enoxaparin sodium treatment was started. However, there was no improvement in the patient's clinical condition. Thereupon, oral favipiravir treatment was started. After this phase, the patient's C-reactive protein and D-dimer regressed to the normal range after 5 days. After her discharge, she continued her routine omalizumab treatment without any disruption. There was no progression of COVID-19 with the recommencement of OMZ dose.

A 54-year-old male patient had been regularly receiving OMZ treatment with a diagnosis of CSU for approximately 3 years. Twenty days after taking the last dose, he appeared in the emergency room with the complaints of cough, dyspnea, and weakness. CT scan revealed bilateral peripheral ground-glass opacity in the lungs. The patient was diagnosed with mild COVID-19 pneumonia. However, the PCR test was positive.

Since the patient's clinical condition was mild, it was decided that he continue his treatment at home. The patient recovered in 12 days. The patient resumed OMZ treatment approximately 45 days after the last OMZ dose.

A 32-year-old female patient had been receiving OMZ treatment with the diagnosis of CSU for 8 months. Approximately 9 days after the last dose of OMZ, she appeared in the emergency room with back pain and weakness. No pathological finding was detected on the CT scan. PCR test was positive. The patient was diagnosed with upper respiratory tract infection due to COVID-19. Hydroxychloroquine treatment was initiated, and outpatient treatment was given to the patient. The patient, who remained in isolation at home for 14 days, continued with OMZ treatment without any interruption in the 28-day interval.

Discussion

There are no positive or negative data on the use of OMZ in the COVID-19 pandemic. However, there are publications stating that omalizumab reduces inflammation by blocking proinflammatory cytokines and may even have antiviral effects. OMZ affects mast cells, blocking the release of inflammatory agents such as histamine and protease in addition to proinflammatory cytokines including IL-1, IL-6, and IL-33. In addition to improving sinonasal function in patients with chronic rhinosinusitis, there is a study showing that it leads to a decrease in local nasal mucosal inflammation and improvement in nasal respiration.² OMZ has been shown to increase antiviral immunity through downregulation of the high-affinity IgE receptor on plasmacytoid dendritic cells, which is essential for antiviral immune responses.³ There is no report on the association of COVID-19 infection while using OMZ in chronic spontaneous urticaria. However, there is a case report in which a patient with COVID-19 infection exacerbated the lesions of a patient with chronic spontaneous urticaria, who reported an excellent response after omalizumab treatment as the first.⁴ Also a patient is reported to have gotten COVID-19 infection while using OMZ for asthma. However, in this patient, the disease was reported as a mild upper respiratory tract infection, and pneumonia did not develop.⁵ Upper respiratory tract infection developed in a patient and pneumonia developed in two patients, but the need for an intensive care unit did not occur.

As a result, according to our observations, the majority of patients with CSU continued to use their medication. Despite the frequent use of the drug in this period, there are no data yet that this drug worsens COVID-19. Nevertheless, controlled

studies with large numbers of patients are needed for definitive evidence that OMZ can positively or negatively affect COVID-19 patients.

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