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Correspondence

Good response of low-dose steroid in a patient with COVID-19 pneumonia and autoimmune disease



Dear Editor,

We report the case of 29-year-old Taiwanese woman with coronavirus disease (COVID-19) pneumonia with fever, anosmia, ageusia, rash, and autoimmune features, who showed a good response to short-term, low-dose steroids.

The patient had lived in California, USA, where she was diagnosed with an unspecified autoimmune disorder. On the third day of home quarantine, after returning from the USA, she developed high fever, muscle soreness, and cough (day 1). Chest radiography showed bilateral infiltrates in the lung's lower lobes, and laboratory tests revealed lymphopenia (12.9%) and monocytosis (13.9%) and were negative for influenza. Nasal swab real-time polymerase chain reaction (PCR) for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) revealed a cycle threshold value of 18 on day 3.

The patient experienced anosmia and ageusia on day 4–11, with high fever persistence despite the administration of empirical antibiotics, acetaminophen, and ibuprofen (Fig. 1). On day 10, she developed a rash over both forearms and knees, with puffiness of her fingers (Supplemental Fig. 1). The rash was unlikely to be a drug eruption, because it disappeared briefly 7 days after stopping antibiotics and then reappeared; in total, the rash lasted 10 days. We administered a single dose of 40 mg prednisolone orally, resulting in a brief drop in temperature (Fig. 1). The high fever recurred the next day with an episode of desaturation (oxygen saturation, 93% in room air). We started oral dexamethasone 6 mg/day on days 11–14 and tapered it to 4 mg/day on days 15–16. The fever subsided, and real-time PCR from a mouth gargle and nasal swab were weakly positive for SARS-CoV-2 (Fig. 1).

Our patient's autoimmune profile was positive for anti-nuclear antibodies (ANA) (1:160 homogenous and speckled patterns) and anti-Ro antibodies (67 U/mL, negative <7 U/mL), equivocal for anti-cardiolipin IgG antibodies (15 G Phospholipid [GPL] U/mL, equivocal ≥ 10 to ≤ 40 GPL U/mL), and positive for IgM antibodies (252 M Phospholipid [MPL] U/mL, positive > 40 MPL U/mL). On days 26–32, her fever returned and we suspected Sjogren's syndrome. She

restarted oral prednisolone 10 mg/day with hydroxychloroquine; hydroxychloroquine was discontinued 1 day later following gastrointestinal upset. The fever subsided immediately, and the steroid was tapered and discontinued on day 36. She was discharged on day 43. She had persistently positive ANA (1:1280 homogenous, 1:1280 speckled), anti-Ro (74 U/mL), and anti-cardiolipin IgM antibodies (268 MPL U/mL) at the three-month follow-up visit.

SARS-CoV-2, the virus that has resulted in a global pandemic since 2020, can affect multiple organs and cause a cytokine storm^{1,2}; symptoms may mimic autoimmune diseases.³ February 2021, steroids have been recommended for patients with severe COVID-19 pneumonia.⁴ Low-dose steroids may reduce immunopathological damage by modulating cytokines and relieving symptoms.⁵ There are concerns, however, about steroids over-suppressing the immune response and promoting virus replications.^{5,6} More studies are needed to evaluate the safety and efficacy of a short course of low-dose steroids in patients with COVID-19 pneumonia and concomitant autoimmune diseases.

Declaration of competing interest

The authors declare no competing interests.

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None required.

Ethical statement

The patient provided informed consent for publication of this manuscript.

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The real-time PCR SARS-CoV-2 (Ct)

Sample Type	D2	D6	D10	D14	D18	D22	D26	D30	D34	D38	D42
Nasal swab	18		32	36	(-) 30	36		(-) (-)	34	(-) (-)	
Sputum			34								
Gargle				(-)	(-) (-)	(-)		(-) (-)	(-) (-) (-)		