Correspondence on 'Severity of COVID-19 and survival in patients with rheumatic and inflammatory diseases: data from the French RMD COVID-19 cohort of 694 patients'

The article of interest entitled 'Severity of COVID-19 and survival in patients with rheumatic and inflammatory diseases: data from the French RMD COVID-19 cohort of 694 patients', is an important study with the largest cohort of patients with systemic vasculitis (65 patients, 9%).[1] Furthermore, 17 patients (26% all vasculitis) had antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis.[1] The study has many important findings. While risk factors for severe COVID-19 in this large study were similar to those observed in patients with non-rheumatic diseases, vasculitis was found to be an independent risk factor for severe infection and mortality.[1] This is in contrast to another large cohort of 600 patients with rheumatological conditions (7% vasculitis) from the Global Rheumatology Alliance, where the underlying rheumatological condition was not associated with increased risk of hospitalisation from COVID-19.[2]

The other important finding from the study by the multicentre French study is that while only 2.5% of the cohort had ANCA-associated vasculitis, this diagnosis was present in 12% (7/58) of the total deaths observed in the study.[1] Based on the supplemental tables, three of the seven patients were on prednisone doses ≥30 mg/day suggesting active ANCA-associated vasculitis.[1] Furthermore, four of the seven patients who died were also on concurrent rituximab, and rituximab use was associated with risk of moderate-to-severe COVID-19 infection which may be partly related to confounding by indication.[1]

Data of manifestations and outcomes in patients with eosinophilic granulomatosis with polyangiitis (EGPA, Churg-Strauss), the rarest form of ANCA-associated vasculitis, are sparse. Furthermore, the outcomes of patients infected with COVID-19 while on treatment with mepolizumab or other interleukin-5 (IL-5) inhibitors are still unclear. Eosinopenia has been identified as a prognostic factor for severe COVID-19.[3] This is of concern in patients with EGPA and other eosinophilic disorders who may be on treatment with IL-5 inhibitors and get infected with COVID-19. Furthermore, the dose of mepolizumab used in EGPA is higher than that used for eosinophilic asthma. In this report, the clinical symptoms and outcomes of COVID-19 (PCR confirmed) in two patients with EGPA are presented (table 1).

Both patients had mild EGPA, which was well controlled. They were both on stable low-dose prednisone. Absolute eosinophil count, sedimentation rate and C reactive protein were normal at their visit prior to the infection. The first patient, who was also on omalizumab, had a normal IgE (44 kIU/L) while the second patient had a stable but elevated IgE of 249 kIU/L. Neither patient was on other adjunctive immunosuppressive therapies. Manifestations of COVID-19 included constitutional symptoms, changes in smell and cough. Treatment of COVID-19 infection was symptomatic. Prednisone was continued at the same dose in both cases. Given uncertainty about the effects of biologics like mepolizumab in COVID-19, and clinical stability, mepolizumab was held until symptoms resolved. Despite infection with COVID-19, neither patient experienced flare of asthma, lung disease or vasculitic complications. COVID-19 antibodies were tested in one patient and showed immune response.

The only other report of COVID-19 in EGPA was in a patient with severe vasculitic manifestations including cardiac involvement, pulmonary haemorrhage and neuropathy necessitating treatment with cyclophosphamide and rituximab.[4] Data on clinical course and outcomes of COVID-19 in patients treated with IL-5 inhibitors are limited to a case report of two patients with severe asthma treated with benralizumab (anti-IL-5 receptor antagonist).[5] Neither patient was on systemic glucocorticoid therapy at baseline.[5] Both patients developed severe pulmonary manifestations necessitating hospitalisation but recovered.[5] Finally, the effect of COVID-19 infection on asthma exacerbation is still unclear.[6] One study suggests the reduced expression of ACE2 in the airway epithelial cells of patients with allergic asthma, but not atopic asthma, may be a protective factor against COVID-19 in these patients.[7]

In summary, neither of the two patients presented in this report experienced flares of asthma, sinus disease or vasculitis. The clinical course of patients with COVID-19 with different forms of ANCA-associated vasculitis, including EGPA, warrants further detailed study. The potential role of adjunctive immunosuppressive therapy, disease activity, disease severity on outcomes of COVID-19 in patients with vasculitis needs to be clarified. It is also unclear if mepolizumab needs to be held in cases of mild-to-moderate COVID-19.

Tanaz A Kermani

Rheumatology, University of California, Los Angeles David Geffen School of Medicine, Los Angeles, California, USA

Correspondence to Dr Tanaz A Kermani, Rheumatology, University of California Los Angeles David Geffen School of Medicine, Los Angeles, CA 90095, USA; tkermani@mednet.ucla.edu

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Table 1 Clinical manifestations of vasculitis and COVID-19 in two patients with eosinophilic granulomatosis with polyangiitis (EGPA)

Age/ sex	Duration EGPA	Manifestations EGPA	Treatment EGPA	Symptoms COVID-19	Outcome
33/M	1 year	Nasal polyposis, sinusitis, asthma, pulmonary infiltrates, rashes, lacrimal gland involvement, MPO-ANCA positive	Prednisone 7 mg, mepolizumab 300 mg SQ Q4 weeks, omalizumab 150 mg SQ Q4 weeks	Fatigue, myalgias, headache, sore throat, fevers, chills, cough, diarrhoea, anosmia, lack of taste	Resolution after 14 days, no flare asthma or EGPA
52/M	3 years	Nasal polyposis, sinusitis, asthma, bronchiectasis, rashes, splinter haemorrhages, ANCA negative	Prednisone 2.5 mg alternating with 5 mg every other day, mepolizumab 300 mg SQ every 4 weeks	Fatigue, myalgias, fever, headache, nasal congestion, cough, decreased sense of smell	Resolution after 10 days, no flare asthma or EGPA

.ANCA, antineutrophil cytoplasmic antibody; M, male; MPO, myeloperoxidase; SQ, subcutaneous.

Competing interests None declared.

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ORCID iD
Tanaz A Kermani http://orcid.org/0000-0002-7335-7321

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