

COVID-19 infection in a patient with FMF: does colchicine have a protective effect?

We read with great interest the report by Monti *et al* on the 320 rheumatic patients treated with various disease-modifying anti-rheumatic drugs (DMARDs) in the era of COVID-19 infection.¹ They suggest that patients with chronic arthritis receiving DMARDs may not have an increased risk of severe COVID-19. We agree that patients under DMARD treatment should be closely monitored since data are lacking. Also, we hypothesise that some DMARDs (especially colchicine) may protect rheumatic patients from COVID-19 or perhaps cause them to pass in a milder form of the disease. COVID-19 is not just a simple viral infection; it is an autoinflammatory/auto-immune process that develops as a result of immune system dysfunction, cytokine release syndrome and haemophagocytic lymphohistiocytosis.² Herein we reported COVID-19 infection in a patient with familial Mediterranean fever (FMF) under treatment with colchicine.

A 36-year-old male patient has been on follow-up with the diagnosis of FMF since 2008 and has been using colchicine. Obesity and hypertension are present as comorbid disease. He presented with complaints of widespread headache, back pain, muscle and joint pain, fatigue, and loss of taste and sensation, which started 5 days earlier. He did not describe fever, cough and sore throat. On physical examination, widespread tenderness was present in the joints and muscles, while systemic examination, fever and blood pressure were normal. Laboratory examinations revealed mild serum erythrocyte sedimentation rate, C reactive protein and ferritin elevation, and renal and liver function tests were normal. Leucopenia and lymphopenia on the complete blood count was detected. The patient who was a hospital staff and worked in a COVID-19 clinic was evaluated for a possible COVID-19 infection, and the real-time PCR test was positive. On radiological investigation, thorax CT was normal (figure 1). The patient was diagnosed with COVID-19 and treatment according to accepted protocol (hydroxychloroquine, azithromycin, oseltamivir) in our country was started. Colchicine was also continued. Marked regression in the patient's complaints after treatment was seen and control COVID-19 PCR test was negative.

COVID-19 is an acute viral infection that can involve predominantly the upper airway and lung. It acts by binding to ACE 2 (ACE2) receptors in target organs such as lung alveolar type 2 cells.³ When COVID-19 is passed into the cell via ACE2, activation of NLRP3 inflammasome is triggered by immunological mechanisms. The presence of high NLRP3-induced pro-inflammatory cytokines (IL-1, IL-1 β) in the serum of patients with COVID-19 supports this hypothesis.⁴ Colchicine is an anti-inflammatory agent which inhibits the microtubule polymerisation on the cytoskeleton. Microtubules play an important role in cell migration, signal transduction and gene expression.⁵ Colchicine acts on NLRP3 inflammasome resulting in inhibition of important signalling pathways involving intracellular secretion of cytokines and chemokines. It is estimated that one of the important pathogenic mechanisms of COVID-19 is through activation of NLRP3 inflammasome.⁶ Considering the mechanism of action of colchicine, it would be rational to use it in patients with COVID-19 infection.⁷ Our patient with FMF developed COVID-19 infection under treatment with colchicine. The patient was PCR positive for COVID-19 and has only mild symptoms of the disease (such as myalgia and arthralgia)

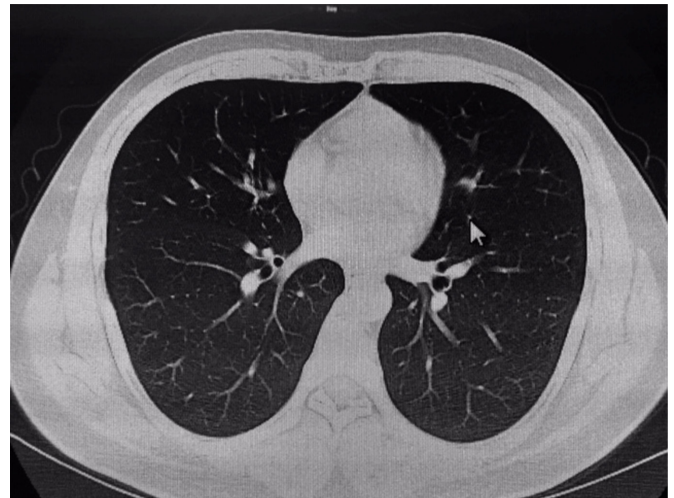



Figure 1 Thorax CT of patient with familial Mediterranean fever–COVID-19 showed normal finding.

but without fever or pneumonia development. Although we cannot draw any definitive conclusion from our observation, we hypothesise that colchicine may prevent a severe form of the disease. Prospective, randomised, placebo-controlled studies are needed in this regard.

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