

Clinical course of COVID-19 in a series of patients with chronic arthritis treated with immunosuppressive targeted therapies

Different viral agents are associated with an increased risk of more severe disease course and respiratory complications in immunocompromised patients.¹⁻³ The recent outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) disease 2019 (COVID-19) responsible for a severe acute respiratory syndrome (SARS) represents a source of concern for the management of patients with inflammatory rheumatic diseases. Lombardy is the region in Northern Italy with the highest incidence of COVID-19 cases, with more than 33 000 confirmed patients and 1250 requiring admission to the intensive care unit within 1 month. Since the first reports of COVID-19 cases in Italy, we have circulated a survey with a 2-week follow-up contact to patients with chronic arthritis treated with biological disease-modifying antirheumatic drugs (bDMARDs) or targeted synthetic disease-modifying antirheumatic drugs (tsDMARDs) followed up at our biological outpatient clinic in Pavia, Lombardy. The survey investigated the patients' health conditions, the presence of contacts with subjects known to be affected by COVID-19 and management of the DMARDs during the first few weeks of pandemic. All patients had provided their informed consent for the use of personal and clinical data for scientific purposes, and no patient refused to participate.

During the first month, we have collected information on 320 patients (female 68%, mean age 55 ± 14 years) treated with bDMARDs or tsDMARDs (57% with rheumatoid arthritis, 43% with spondyloarthritis, 52% treated with tumour necrosis factor inhibitors, 40% with other bDMARDs and 8% with tsDMARDs). As shown in table 1, four were confirmed cases of COVID-19 identified through rhinopharyngeal swabs. Another four patients reported symptoms which were highly suggestive of COVID-19. Five additional patients with reported certain contacts remained asymptomatic at the end of the 2-week observation period.

All patients with confirmed COVID-19 received at least one antibiotic course, and the hospitalised patient also received antiviral therapy and hydroxychloroquine. Overall, five patients

Table 1 Clinical characteristics of the patients with confirmed or suspected COVID-19

	Confirmed COVID-19	Clinical picture highly suggestive of COVID-19	Contact with a known COVID-19 patient
Number of patients	4	4	5
Age (years) (mean \pm SD)	58 \pm 5	56 \pm 8	54 \pm 12
Female, n (%)	4 (100)	3 (75)	4 (80)
Comorbidities, n (%)			
Hypertension	1 (25)	2 (50)	1 (20)
Diabetes	0	0	0
Cardiovascular disease	0	0	1 (20)
Other	4 (100)	4 (100)	3 (60)
Smoking, n (%)			
Active	1 (25)	0	0
Previous	2 (50)	3 (75)	1 (20)
Rheumatological diagnosis			
RA, n (%)	3 (75)	3 (75)	5 (100)
SpA/PA,* n (%)	1 (25)	1* (25)	0
Rheumatological treatment, n (%)			
bDMARD			
Adalimumab	0	0	1 (20)
Etanercept	2 (50)	2 (50)	0
Abatacept	1 (25)	1 (25)	0
Tocilizumab	0	0	1 (20)
tsDMARD			
Tofacitinib	1 (25)	0	1 (20)
Baricitinib	0	1 (25)	2 (40)
Concomitant csDMARD			
Methotrexate	2 (50)	1 (25)	3 (60)
Leflunomide	1 (25)	0	1 (20)
Sulfasalazine	0	1 (25)	0
Concomitant hydroxychloroquine	1 (25)	2 (50)	2 (40)
Low-dose glucocorticoids*	2 (50)	2 (50)	2 (40)
Known contact with COVID-19	0	1 (25)	5 (100)
Symptoms, n (%)			
Fever	4 (100)	1 (25)	0
Non-productive cough	3 (75)	2 (50)	0
Sputum production	1 (25)	0	0
Rhinorrhoea	2 (50)	1 (25)	0
Sore throat	0	0	0
Fatigue	4 (100)	2 (50)	0
Myalgia	2 (50)	1 (25)	0
Arthralgia	1 (25)	1 (25)	0
Anosmia/dysgeusia	3 (75)	3 (75)	0
Dyspnoea at rest	1 (25)	0	0
Dyspnoea on exertion	2 (50)	1 (25)	0
Headache	2 (50)	0	0
Diarrhoea	1 (25)	0	0
Nausea/vomiting	0	0	0
Chest X-ray performed	4 (100)	0†	0
Chest X-ray pathological findings	0	0	0
Hospital admission	1 (25)	0	0

*Glucocorticoids \leq 5 mg/day prednisone equivalent.

†Subject to home quarantine.

bDMARD, biological disease-modifying antirheumatic drug; COVID-19, coronavirus disease 2019; csDMARD, conventional synthetic disease-modifying antirheumatic drug; PA, psoriatic arthritis; RA, rheumatoid arthritis; SpA, spondyloarthritis; tsDMARD, targeted synthetic disease-modifying antirheumatic drug.

were on previous stable treatment with hydroxychloroquine. All patients with symptoms of infection temporarily withdrew the bDMARD or tsDMARD at the time of symptom onset. To date,

there have been no significant relapses of the rheumatic disease. None of the patients with a confirmed diagnosis of COVID-19 or with a highly suggestive clinical picture developed severe respiratory complications or died. Only one patient, aged 65, required admission to hospital and low-flow oxygen supplementation for a few days.

Our findings do not allow any conclusions on the incidence rate of SARS-CoV-2 infection in patients with rheumatic diseases, nor on the overall outcome of immunocompromised patients affected by COVID-19. A high level of vigilance and strict follow-up should be maintained on these patients, including the exclusion of superimposed infections. However, our preliminary experience shows that patients with chronic arthritis treated with bDMARDs or tsDMARDs do not seem to be at increased risk of respiratory or life-threatening complications from SARS-CoV-2 compared with the general population.

These findings are not surprising as the severe respiratory complications caused by coronaviruses are thought to be driven by the aberrant inflammatory and cytokine response perpetuated by the host immune system.⁴ During different coronavirus outbreaks, such as SARS and Middle East respiratory syndrome, there has been no increased mortality reported in patients undergoing immunosuppression for organ transplantation, cancer or autoimmune diseases.^{3,5} Accordingly, among 700 patients admitted for severe COVID-19 at our hospital (a referral centre for SARS-CoV-2 infection) during last month, none was receiving bDMARDs or tsDMARDs.

Although continuous surveillance of patients with rheumatic diseases receiving immunosuppressive drugs is warranted, these data can support rheumatologists for the management and counselling of their patients, avoiding the unjustifiable preventive withdrawal of DMARDs, which could lead to an increased risk of relapses and morbidity from the chronic rheumatological condition.

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No additional risk from COVID-19 for people with rheumatic diseases taking biologics and JAK inhibitors



There is no need for withdrawal of DMARDs during the COVID-19 pandemic.

INTRODUCTION

COVID-19 is caused by a new type of coronavirus called severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). It was declared a pandemic by the World Health Organization on 11 March 2020. COVID-19 has forced people to change their behaviours to try to limit the spread of infection.

Some people with rheumatic diseases are more likely to get infections. Some people are also more prone to complications when they get an infection. This is partly because of their underlying disease, and partly because some medicines used to treat rheumatic diseases work by suppressing the immune system.

WHAT DID THE AUTHORS HOPE TO FIND?

The authors wanted to see how the COVID-19 pandemic affected people with rheumatic diseases.

WHO WAS STUDIED?

The study looked at 320 people with rheumatic diseases being treated in Lombardy, Italy. Around two-thirds were female, with an average age of 55 years. 57% had rheumatoid arthritis, while 43% had spondyloarthritis. Most of the people taking part were receiving biologics (abatacept, adalimumab, etanercept, tocilizumab). Around 1 in 10 were receiving Janus kinase (JAK) inhibitors (baricitinib, tofacitinib).

HOW WAS THE STUDY CONDUCTED?

A survey was sent to people with rheumatic diseases, with another follow-up survey after 2 weeks. People were asked to report their health conditions, whether they had been in contact with anyone diagnosed with COVID-19, and how the pandemic had affected their attitude towards, and management of their rheumatic disease. The authors also looked at medical records, and reports from other clinics, in addition to the findings from the surveys.

WHAT WAS THE MAIN FINDING?

The main finding was that people with rheumatic diseases who are diagnosed with COVID-19 do not seem to have an increased risk of complications compared to the general population. The information suggests that biologic and JAK inhibitor medicines do not increase the risk of complications and should continue to be used to manage rheumatic diseases. However, caution is still warranted as these medicines work by suppressing the immune system, and people should continue to be closely monitored by their healthcare teams.

ARE THESE FINDINGS NEW?

Yes. At the time this report was published, there was limited information about COVID-19 in people with rheumatic diseases. This was the first paper to report that people with rheumatic diseases receiving biologics or JAK inhibitors who are diagnosed with COVID-19 have a similar level of risk of complications to that of the general population. Since this report was published, other research groups in different countries have found similar results,^{1,2} and many comments have supported the results.³⁻⁶ At the time this article was published, the largest study in people with rheumatic diseases and confirmed or suspected COVID-19 was 86 cases in New York City in the United States, where 72% of people treated with biologics or JAK inhibitors had similar rates of being admitted into hospital or dying from COVID-19, to that of the general population.²

WHAT ARE THE LIMITATIONS OF THIS STUDY?

The main limitation is that this study was quite small, with only 320 people from one part of Italy.

WHAT DO THE AUTHORS PLAN TO DO WITH THIS INFORMATION?

Information is being collected in national and international registries, such as the Italian Society of Rheumatology sponsored registry (COVID-19-RMD), or the European EULAR-COVID-19 Database. The data collected will help to work out what impact COVID-19 has on people with rheumatic diseases.^{7,8}

WHAT DOES THIS MEAN FOR ME?

If you are taking a biologic or JAK inhibitor medicine for your rheumatic disease, these results suggest that you are not at higher risk of complications from COVID-19, and there is no need to stop taking your medicine. If you are concerned about the risk of taking your medicine during the pandemic, you should speak to your doctor. It is important that you do not stop taking your medicine by yourself, as this could make your rheumatic disease worse.

Protect yourself from COVID-19 by following the advice of the government in your country, including washing your hands regularly, avoiding touching your face, and following social distancing rules.

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