

Vpliv epidemije SARS-CoV-2 na kakovost življenja bolnikov z vnetnimi revmatskimi boleznimi

Impacts of the 2019 pandemic of severe acute respiratory syndrome–coronavirus 2 on the quality of life of patients with inflammatory rheumatic diseases

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IZVLEČEK

Namen: Namen raziskovalne naloge je bil oceniti vpliv pandemije SARS-CoV-2 in zaščitnih ukrepov na kakovost življenja bolnikov z določenimi revmatskimi boleznimi, ki se zdravijo na Oddelku za revmatologijo v Univerzitetnem kliničnem centru Maribor (UKC MB).

Metode: Raziskava je bila opravljena na podlagi vprašalnika pri bolnikih, ki so vsaj enkrat od 1. 2. 2020 do 30. 5. 2021 obiskali revmatološko ambulanto oziroma so vzpostavili stik po telefonu ali virtualno. Vključeni so bili vprašalniki, ki so na naslov UKC MB prispeli do 1. 1. 2022 in so bili pravilno ter v celoti izpolnjeni.

Rezultati: Vključenih je bilo 125 bolnikov. 57 (45,6 %) bolnikom ni odpadel noben termin pri revmatologu, 52 (41,6 %) je odpadel eden, 15 (12,0 %) dva in enemu (0,8 %) bolniku trije. Srečanja z revmatologom v živo so bila najbolj priljubljena pri 89% bolnikov,

ABSTRACT

Purpose: The aim of this study was to assess the impact of the SARS-CoV-2 pandemic and protective measures on the QoL of patients with inflammatory rheumatic diseases (IRDs) who received treatment at the Department of Rheumatology at the University Medical Centre Maribor (UMC).

Methods: A questionnaire was sent to IRD patients who visited a rheumatology outpatient clinic or were contacted by phone or virtually at least once between February 1, 2020 and May 30, 2021. The questionnaires were included if returned to UMC by January 1, 2022 and were completed correctly and in full.

Results: Of the 125 patients who met the inclusion criteria, 57 (45.6%) had no cancelled rheumatology appointments, 52 (41.6%) had one, 15 (12.0%) had two, and one patient (0.8%) had three. The most preferred mode of communication was in-person

srečanja po video klicu pa pri 1%. Zgolj 2 % bolnikov sta v času epidemije težko pridobivala zdravila, nihče pa zaradi teh težav ni navajal posledic na stanje bolezni. 58 % bolnikov se je z ukrepi omejitev zaradi epidemije strinjalo, 5 % pa je menilo, da bi z izvajanjem ukrepov morali prenehati. 70 % bolnikov se je cepilo proti SARS-CoV-2, okužbo s SARS-CoV-2 pa je navedlo 21 %. Povprečna vrednost DAS-28 je znašala $3,100 \pm 1,292$ (revmatoidni artritis = $3,252 \pm 1,209$; psoriatični artritis = $2,927 \pm 1,376$; $p = 0,274$; $t = 1,101$).

Zaključek: Ocenjujemo, da je epidemija s pridruženimi ukrepi deloma poslabšala kakovost življenja bolnikov.

meetings with a rheumatologist (89%) and the least was a video call (1%). Only 2% of patients had problems obtaining medication during the pandemic, but none reported consequences with disease status. More than half (58%) of patients agreed with the restrictions during the pandemic and 5% stated the restrictions should be terminated. Most (70%) patients were vaccinated against SARS-CoV-2 and 21% reported SARS-CoV-2 infection. The mean disease activity score (DAS-28) was 3.100 ± 1.292 (rheumatoid arthritis, 3.252 ± 1.209 ; psoriatic arthritis, 2.927 ± 1.376 ; $p = 0.274$; $t = 1.101$).

Conclusion: The pandemic and associated protective measures had deleterious effects on the QoL of IRD patients.

INTRODUCTION

The 2019 pandemic of severe acute respiratory syndrome–coronavirus 2 (SARS-CoV-2) caused millions of deaths worldwide (1). Patients with chronic diseases and weakened immunity are at a greater risk for several comorbidities and more severe disease than the healthy population (2, 3). Many European governments implemented restrictions that limited access to healthcare services, which negatively affected the mental health and quality of life (QoL) of patients (4), especially those with chronic inflammatory rheumatic diseases (IRDs), such as rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and psoriatic arthritis (PsA) (5).

Since the declaration of the SARS-CoV-2 pandemic on March 11, 2020 by the World Health Organization (6), governments worldwide restricted movements of the public, ordered mandatory wearing of masks, initiated quarantine requirements, and closed national borders. Access to healthcare services was also limited. Thus, many patients with IRDs could no longer meet with a rheumatologist in-person and had to communicate remotely to avoid cancellations or rescheduling. Despite the introduction of telemedicine, many patients were not able to communicate with a doctor because of the lack of knowledge about the use of telecommunication devices or delayed implementation in everyday practice, additional financial burdens, and restrictions to public transport (7). Most notably, many studies have reported

the profound impact of the pandemic on mental health (e.g., loneliness, cognitive decline, and depression) in addition to worsening musculoskeletal symptoms of IRD patients due to changes in the availability of drugs and therapies, and increased anxiety about family life, finances, and employment status (8). Therefore, the aim of the present study was to assess the impact of the 2019 pandemic of SARS-CoV-2 on QoL, attitudes towards the SARS-CoV-2 vaccine, and effects on health of IRD patients.

MATERIALS AND METHODS

A questionnaire in the Slovene language was distributed to patients with IRDs (RA, PsA and SLE) and returned by post to the University Medical Centre Maribor UMC. The questionnaire focused on sociodemographics, general health, IRD status, treatment methods, impact of the SARS-CoV-2 pandemic on QoL, attitudes towards the SARS-CoV-2 vaccine, and the effects of SARS-CoV-2 infection on health. Some clinical and laboratory data of the included patients were obtained from medical records.

The study cohort was limited to adult patients diagnosed with RA (American College of Rheumatology [ACR] and European Alliance of Associations for Rheumatology

classification criteria), PsA (Classification Criteria for Psoriatic Arthritis), or SLE (ACR or Systemic Lupus International Collaborating Clinics classification criteria). Patients registered with the electronic system of UMC and who visited the Rheumatology Outpatient Clinic at least once between February 1, 2020 and May 30, 2021 were eligible for participation in this study. Completed questionnaires from the first 130 patients in each of the three groups (RA, PsA, and SLE) were reviewed for inclusion in this study. The questionnaire included explanations of the content and purpose of the study, together with a consent form. In total, 125 questionnaires that were completed in full and received by UMC by January 1, 2022 were included for analysis. The study protocol was approved by the Medical Ethics Committee of UMC Maribor on July 7, 2021 (approval no. UKC-MB-KME-48/21).

Statistical analysis (Student's t-test, Pearson's or Spearman's correlation test, and Hi2 test) was performed using IBM SPSS Statistics for Windows, version 28.0 (IBM Corporation, Armonk, NY, USA). A probability (p) value < 0.05 was considered statistically significant.

RESULTS

As described in Table 1, the patient cohort consisted of 125 patients (39 men, 86 women; mean age, 60.2 ± 13.3 years; age range, 23–92 years). The PsA, RA, and SLE groups consisted of 40 (32%), 44 (35%), and 41 (33%) patients, respectively. The average duration of IRD symptoms was 13.6 ± 10.0 (range, 1–45) years.

Of the 125 patients, 57 (45.6%) had no cancelled

rheumatology appointments, 52 (41.6%) had one, 15 (12.0%) had two, and 1 (0.8%) had three. More than one-third (38%) of patients lived in cities, while 62% lived in rural areas. In regard to the highest level of education, 1% of patients held a doctorate (PhD) degree, 3% had a master's degree, 26% had a faculty degree, 36% had a high school degree, 18% had a vocational school degree, and 17% had a primary school degree. In regard to employment status, 9% of patients were unemployed, 38% were employed, 52% were retired, and 1% were still in school. The employed group were more likely to prefer tele-meetings with a rheumatologist as compared to the other groups (18.8% vs. 6.5%, respectively, p = 0.035). All patients regularly met with a rheumatologist and 94% maintained the prescribed medication regimen. Only 2% of patients reported problems obtaining medication during the pandemic, but none reported any impact on disease status. During the pandemic, patients communicated with a rheumatologist through in-person meetings, telephone calls, and electronic mail (e-mail). An in-person meeting was the most preferred mode of communication and a video call was the least preferred (89% and 1%, respectively). Most (70%) patients had at least one comorbidity in addition to an IRD, which included diabetes, high blood pressure, kidney, heart, lung, liver or skin disease, an additional autoimmune disease, high blood cholesterol concentration, or allergies. More than half (58%) of patients agreed with the restrictions imposed during the pandemic, 24% considered the SARS-CoV-2 to be very dangerous, 12% considered SARS-CoV-2 as dangerous as the influenza virus, and 5% thought the measures should be terminated and life continued as before the pandemic. By

Table 1. Comparison of statistical data between subject groups.

	RA	PsA	SLE	All
Number of patients	44 (35.2%)	40 (32.0%)	41 (32.8%)	125 (100.0%)
Average age±SD (years)	66.8±13.2	57.5±9.4	55.7±14.1	60.2±13.3
M:F	8:36	23:17	8:33	39:86
Symptom duration±SD (years)	13.0±9.2	13.8±9.8	14.0±11.0	13.6±10.0
Employed	20.5%	52.5%	43.9%	38.4%
Vaccinated	68.2%	75.0%	68.3%	70.4%

Abbreviations: F, female; M, male; PsA, psoriatic arthritis; RA, rheumatoid arthritis; SD, standard deviation; SLE, systemic lupus erythematosus.

the end of the patient response period (January 1, 2022), 70% of patients had been vaccinated against SARS-CoV-2 (AstraZeneca, 22%; Johnson & Johnson, 3%; Moderna, 16%; Pfizer-BioNTech, 59%). Relatively few (5.6%) patients reported worsening of IRD symptoms after vaccination. The most common reason for refusing vaccination was fear of the disease worsening (44%), while 3% would refuse vaccination if given a choice. Vaccinated patients were older than the unvaccinated (62.2 ± 12.3 vs. 55.5 ± 14.4 years, respectively, $p = 0.009$). To prevent infection, all patients adhered to at least one of the measures listed in Figure 1.

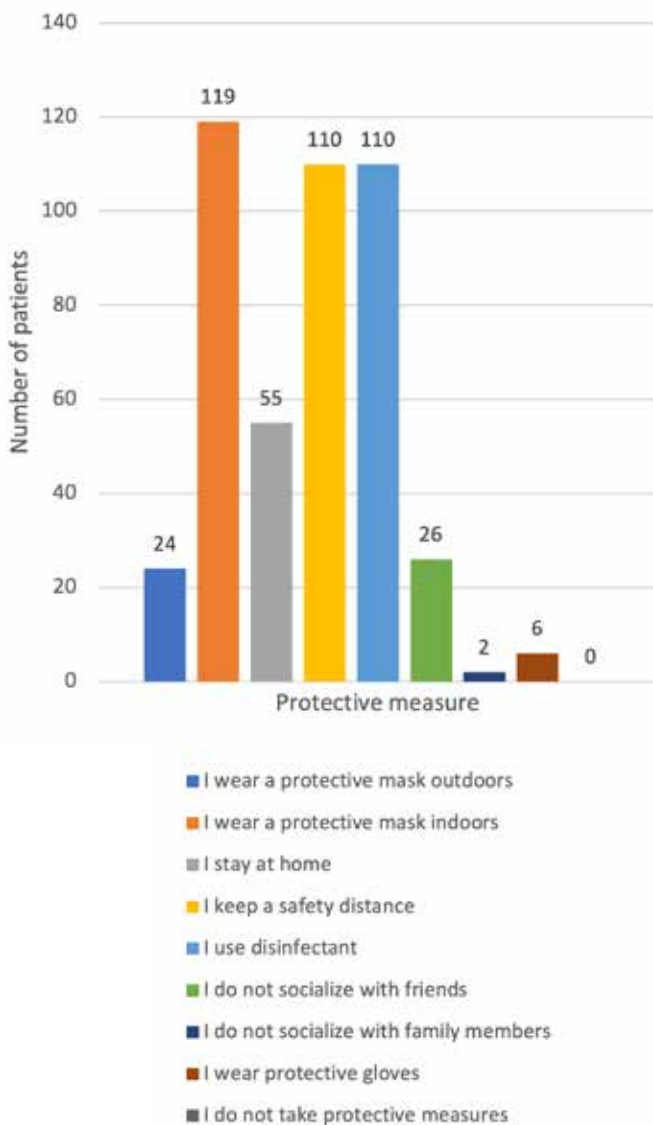


Figure 1. Protective measures against SARS-CoV-2 infection.

Of the 125 patients, 26 (21%) were infected by SARS-CoV-2, which included 2 (7.7%) who required hospitalization and 9 (35%) who reported worsening of IRD symptoms. Meanwhile, 15 (12%) patients were both vaccinated and infected and 19 (15%) reported exacerbation of the disease during the pandemic.

Complications of SARS-CoV-2 infection included hyposmia/anosmia (16.0%), fatigue (14.4%), and ageusia (14.4%) (Figure 2). The most common combinations of symptoms/signs were ageusia, headache, anosmia, myalgia, non-productive cough, and fatigue.

The disease activity score (DAS-28) was calculated for the RA and PsA patients. The mean DAS-28 score of the RA and PsA groups was 3.100 ± 1.292 . The mean DAS-28 score was higher in the RA group than the PsA group (3.252 ± 1.209 vs. 2.927 ± 1.376 , respectively, $p = 0.274$; $t = 1.101$), and significantly higher in women than men (3.362 ± 1.297 vs. 2.641 ± 1.167 , respectively, $p = 0.017$). The DAS-28 score was negatively correlated with education level ($r = -0.287$; $p = 0.011$) and positively correlated with erythrocyte sedimentation rate ($p < 0.001$; $r = 0.480$), C-reactive protein ($p = 0.020$; $r = 0.299$), leucocyte count ($p = 0.002$; $r = 0.323$), and platelet count ($p = 0.034$; $r = 0.210$). The average DAS-28 score was significantly higher in patients who reported worsening of IRD symptoms during the pandemic (4.152 ± 1.421 vs. 2.886 ± 1.163 , respectively, $p < 0.001$).

DISCUSSION

Of the 125 patients included in this study, 38.4% were employed. Of these, 54% felt that the SARS-CoV-2 pandemic, or the virus itself, had negatively affected their careers and two reported job losses. IRDs are among the most common causes of physical disability, contributing to socioeconomic losses and reduced productivity in the workplace. As compared to the healthy population, IRD patients work fewer hours, receive less promotions, require more sick leave, and retire earlier (9).

Furthermore, all patients met with a rheumatologist regularly and 94% adhered to medication regimens. More than half (54%) of patients had at least one cancelled

rheumatology appointment. Garrido-Cumbrera et al. reported that 58.4% of 1800 patients had at least one cancelled rheumatology appointment and 45.6% received no information about the possible impacts of SARS-CoV-2 infection on IRDs. This study also reported increased alcohol consumption and smoking, with decreased exercise and deterioration in general well-being (4). Additionally, more meetings were held via telecommunications than in-person (7).

SARS-Cov-2 vaccines were developed relatively quickly during the pandemic and became available in Slovenia at the beginning of 2021. Among the patients in the present study, 88 (70%) were vaccinated against SARS-CoV-2. The findings of this study support those of several previous reports, which concluded that vaccines were well tolerated by those with RA, PsA, or SLE and that the occurrence of serious side effects or exacerbations was rare. Furthermore, vaccination had a beneficial effect on the psychosocial well-being of patients, who reported feeling safer, had more social contacts, and visited more public places, leading to a higher QoL (10–12). Additionally, previous studies reported significantly reduced immunoglobulin G responses to vaccination in SLE patients treated with immunosuppressants. Hence, these studies proposed withholding of immunosuppressive therapy for 1 week to improve vaccine efficacy without leading to clinical flares (13).

Disease activity was determined with the DAS-28 in patients with RA and PsA. A prior study reported a significant difference in the average DAS-28 score before and after lockdowns in 85 RA patients (4.7 vs. 5.16, respectively, $p = 0.0011$) (14), indicating a shift from moderate to high disease activity. Additionally, Gica et al. found that the outbreak of a new coronavirus strain increased the prevalence of stress, anxiety, and psychosomatic problems. Furthermore, patients scored lower on tests assessing disease activity, suggesting lower QoL during the pandemic (15).

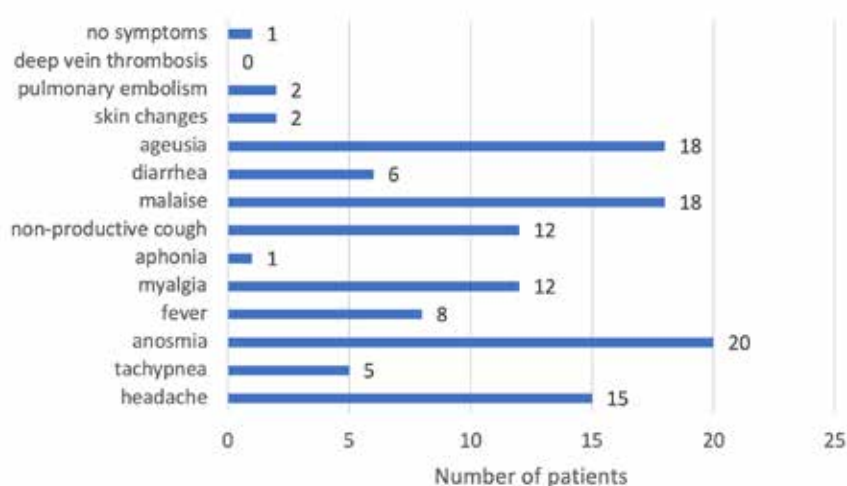


Figure 2. Signs and symptoms of SARS-CoV-2 infection.

CONCLUSIONS

IRDs affected approximately 2%–3% of the general population and posed an increased risk of more severe infections, including SARS-CoV-2. Overall, the pandemic had a negative impact on the QoL of IRD patients. Despite the restrictions on travel, patients maintained contact with their rheumatologist (in person or remotely) and had access to necessary medications. Most (70%) IRD patients were vaccinated against SARS-CoV-2 and relatively few (6%) reported worsening of symptoms. A higher proportion of patients reported worsening of symptoms after recovery from SARS-CoV-2 infection than after the vaccination. Most patients agreed with and adhered to the restrictive measures during the pandemic. Despite the restrictive measures, it is necessary to strive to maintain comprehensive and integrated healthcare and ensure uninterrupted access to healthcare services to maintain QoL of IRD patients.

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