symptom duration of 6 (range 4-10) days were treated. Mean oxygen saturation was 86% (range 76-95%) before initiating therapy. Mean ferritin was 1297 µg/L (range 347 – 2734), mean IL-6 112 ng/L (range 2.2 – 607.4) and CRP 82.4 mg/L (range 36.4 – 125). In all patients we were able to prevent them from intubation and mechanic ventilation, none of our patients died. Five patients did not need to be referred to the intensive care unit at all, while 9 patients received noninvasive ventilation and high-flow nasal oxygen support. All patients showed typical imaging features of COVID-19 pneumonia at baseline (BL) according to the Radiological Society of North America (RSNA) chest CT classification system. The mean of the global chest CT severity score at BL was 13 (range 7-20) and decreased to 6 (range 0-16) within 1 month which corresponded to a mean reduction of 58%. Chronic fibrotic pulmonary changes were not seen in any patient at BL and after 1 month mild changes were observed in 6 patients. One patient experienced lower abdominal pain, urinary tract infection, gastrointestinal bleeding due to antrum ulcers Forrest III, in another patient atrial fibrillation, urinary tract infection and apoplexy were observed.

Conclusion: In our case series, all patients treated with the combination tocilizumab and anakinra recovered fast and sustained without major infectious side effects, indicating that early interruption of cytokine release might be very effective and safe in preventing patients from mechanical ventilation, death and long-term damage.

Image 1: Chest CT of a patient with active COVID-19 infection before and one month after treatment with a combination of tocilizumab and anakinra

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POS1210

PREVALENCE OF COVID-19 AMONG PATIENTS WITH RHEUMATIC DISEASES: AN OBSERVATIONAL SURVEY DURING THE TWO WAVES IN ITALY

S. Fasano¹, I. Pantano¹, D. Mauro¹, D. Capocotta², D. Iacono¹, E. Gaggiano¹, M. D. Pasquale¹, G. Rozza¹, C. Di Vico¹, A. Ruggiero¹, E. Tirri², F. Ciccio¹.

¹University of Campania L. Vanvitelli, Rheumatology Unit, Department of Precision Medicine, Naples, Italy; ²Ospedale S. Giovanni Bosco, U.O.S.D. di Reumatologia, Naples, Italy

Background: The new coronavirus 2 (SARS-CoV-2) disease 2019 (COVID-19) is a source of concern for the management of patients suffering from rheumatic and musculoskeletal diseases (RMDs) treated with immunomodulatory therapies (1).

Objectives: We aimed to analyze the prevalence of SARS-CoV-2 infection in patients with RMDs living in Italy.

Methods: During the first wave (March-May 2020) and during the second wave (October-December 2020) of COVID-19, we conducted a survey to investigate the incidence of SARS-CoV-2 infection in patients with RMDs followed at the Rheumatology Unit of the University of Campania, Italy. The demographic data, medication use, the frequency of respiratory symptoms and the incidence of COVID-19 confirmed by nasopharyngeal swab were collected with questionnaires administered by phone. The prevalence of COVID-19 of our cohort was compared to that of the general population (2).

Results: During the first wave, we collected data from 900 patients with RMDs (Table 1): 320 patients with rheumatoid arthritis (RA), 295 patients with spondyloarthropathies (SpA), 283 patients with systemic lupus erythematosus (SLE), 2 patients with vasculitis. 546 (60%) were treated with bDMARD/tsDMARDs. Overall, a total of 11/900 (1%) cases were tested for COVID-19 due to compatible

symptoms. 2 (0.2%) adult patients treated with bDMARDs were registered as swab test positive by PCR for COVID-19. 2 patients without confirmed COVID-19 developed pneumonia that required admission to hospital. No deaths occurred among the patients with confirmed COVID-19.

During the second wave, data were collected from 470 patients who accepted to take part of the study (Table 1). 49 presented with symptoms that were compatible with COVID-19. 139 patients were tested whereas 30 patients (6%) had a swab confirmation of SARS-CoV-2 infection. Among them, 16 (53%) were treated with bDMARDs and a patient was treated with tofacitinib. we found no increase in COVID-19 prevalence in patients treated with bDMARD/tsDMARDs ($p>0.05$). A patient with SLE developed pneumonia that required admission to hospital and died.

Lacking distinct prevalence data between first and second waves, we found no differences in total COVID-19 prevalence between general population living in Campania (215.752/5.802.000; 3.7%) and patients with RMDs (32/900; 3.5%). However, we had a significant increase in COVID-19 prevalence in our cohort during the second wave compared to the first. Nevertheless, no increase in mortality or hospitalization was recorded, confirming the safety of immunomodulatory therapies in patients with RMDs.

Conclusion: In this cohort of patients with RMDs in a geographical region with a high prevalence of COVID-19, the risk of SARS-CoV-2 infection does not appear different from that observed in the general population.

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Table 1. Demographics and clinical characteristics of 900 patients with rheumatic diseases during the COVID-19 Pandemic.

	First wave	Second wave
Women, n	660 (73 %)	366(77%)
Age, years, median (range)	56 (54-57)	53 (51-55)
Rheumatoid Arthritis	320 (35.5%)	143 (30%)
Spondyloarthritis	295 (32%)	110 (23%)
Systemic Lupus Erythematosus	283 (31%)	217 (46 %)
Vasculitis	2 (0.2%)	1 (0.2%)
Prior ILD	56 (6%)	22 (4.6%)
Smokers	220 (24%)	118 (25%)
Hydroxychloroquine	215 (23%)	155 (32%)
Steroids	337 (37%)	194 (41%)
Prednisone equivalent dose, median (range)	5 (0-75)	5 (0-50)
bDMARD/tsDMARDs	546 (60%)	247 (52%)
csDMARDs	387 (43%)	185 (39%)
Angiotensin-converting enzyme (ACE) inhibitors	178 (19.8%)	101 (21%)
Angiotensin II receptor blockers (ARBs)	153 (17%)	61 (13%)
Fever	64 (7%)	30 (6.3%)
Cough	83 (9%)	36 (7%)
Shortness of breath	34 (3%)	15 (3%)
Sore throat	32 (3%)	11 (2.3%)
Rhinorrhoea	36 (3%)	11 (2.3%)
Headache	5 (0.5%)	2 (0.4%)
Anosmia	10 (1%)	24 (5%)
Myalgia	2 (0.2%)	1 (0.2%)
Gastrointestinal symptoms	24 (2.6%)	3 (0.6%)
Pneumonia	2 (0.2%)	2 (0.4%)
Admission to hospital	2 (0.2%)	9 (1.9%)
Swab confirmation of SARS-CoV-2 infection	2	30

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POS1211

IDENTIFICATION OF COMMON FUNCTIONAL PATHWAYS IN PATIENTS WITH LUPUS AND COVID-19 BY TIME-SERIES ANALYSIS

Y. Li^{1,2,3}, S. X. Zhang^{1,2,3}, J. Qiao^{1,2,3}, Q. Wang^{4,5}, S. Song^{1,2,3}, R. Zhao^{1,2,3}, Y. Zhang^{1,2,3}, T. Cheng^{1,2,3}, M. J. Chang^{1,2,3}, G. Y. Liu¹, J. Luo¹, P. F. He⁶, X. Li^{1,2,3}. ¹The Second Hospital of Shanxi Medical University, Department of Rheumatology, Taiyuan, China; ²Shanxi Li Xiaofeng Medical Groups, Department of Rheumatology, Taiyuan, China; ³Ministry of Education, Key Laboratory of Cellular Physiology at Shanxi Medical University, Taiyuan, China; ⁴Shanxi Medical University, Basic Medical College, Taiyuan, China; ⁵Shanxi Medical University, Medical Data Sciences, Taiyuan, China

Background: Systemic lupus erythematosus (SLE) is a chronic autoimmune disorder characterized by abnormal activity of the immune system, producing the autoantibodies directed against nuclear and cytoplasmic antigens¹. Infection is known as one of the common trigger factors for SLE. Coronavirus disease in 2019 (COVID-19), a severe acute respiratory syndrome, is now spreading rapidly throughout the world². Though previous studies have addressed the susceptibility of lupus patients to the virus but how patients with SLE deal with COVID-19 is unclear up until now.

Objectives: To clarify the common pathogenesis of SLE and COVID-19, and find the appropriate treatment for Lupus and prevent COVID-19.

Methods: The transcription profile of SLE (GSE38351) and COVID-19 (GSE161778) were obtained from the Gene Expression Omnibus database (GEO). R package was used to find differentially expressed genes (DEGs) between lupus patients and HCs. After background adjustment and other pre-processing, DEGs were extracted from the peripheral blood of patients with COVID-19 at three different disease progression (moderate, severe and remission status). The Short Time-series Expression Miner (STEM) was used to cluster and compare average DEGs with coherent changes. The different expression patterns of time-series genes (TSGs) were also compared among these patients. GO and KEGG pathway enrichment analysis of TSGs and DEGs were performed by Metascape.

Results: Compared with HC, patients with SLE expressed 977 DEGs, which were mainly associated with defense response to virus, Epstein-Barr virus infection and response to interferon- γ (INF- γ) (Figure 1a). As for COVID-19 patients, there were 1584 DEGs obtained when compared with those of HCs ($P < 0.05$) (Figure 1b). Gene landscapes suggested the signatures of COVID-19 patients gradually changed during the disease progression, and gradually converge to HCs signatures. Time-series genes in the three stage of disease had different expression patterns and functions. A total of 959 TSGs in profile 3 showed a stable-stable-decreasing expression trend and significantly associated with INF signaling pathway (Figure 1c, 1d). Interestingly, patients with SLE and COVID-19 shared common pathways such as INF- γ related functional pathway.

Conclusion: INF- γ is an important common node of SLE and COVID-19. Controlling the production of INF- γ not only has therapeutic effect on SLE patients, but also may prevent COVID-19.

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Figure 1: (a) KEGG pathway and GO enrichment were performed on DEGs of SLE patients and HCs. (b) VENN diagram shows DEGs of patients with COVID-19 and HCs. Among them, covid19-01 represents moderate patients, covid19-02 represents severe patients, covid19-03 represents remission patients, and control represents HCs. (c) Expression patterns of time-series genes in COVID-19 and HCs. The colored profiles represent significant profiles. Colored in red represented statistically significant ($P < 0.05$). (d) KEGG pathway and GO enrichment results of the significant stable-stable-decreasing expression trend TSGs.

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POS1212 SARS-CoV-2 INFECTION AMONG PATIENTS WITH BEHCET'S SYNDROME

I. Mattioli¹, A. Bettio¹, M. L. Urban¹, E. Silvestri¹, D. Malandrino¹, A. Palermo¹, F. Fagni¹, D. Prisco¹, G. Emmi¹. ¹*University Hospital Careggi, Department of Experimental and Clinical Medicine, Florence, Italy*

Background: Studies on SARS-Cov-2 in Behçet's syndrome (BS) patients are limited to two small case series from European centres.[1,2]

Objectives: We aimed to assess the prevalence of SARS-CoV-2 infection among Italian BS patients referring to Careggi University Hospital (Florence, Italy) and to evaluate the possible association between BS disease activity and treatment and the risk of Sars-CoV-2 infection among patients with BS.

Methods: A survey was conducted among 335 subjects diagnosed with BS and followed at Careggi University Hospital. Moreover, we conducted a case-control study. Cases were described in term of SARS-CoV-2 manifestation and prognosis, changes in disease activity, and in pharmacological therapies. Sars-CoV-2 negative controls matched 1:3 by sex, age and disease duration $\pm$ 5 years were randomly selected.

Results: Out of 335 BS patients, 12 declared to have/have had SARS-CoV-2 infection (3.6%). Eight were females (median age of 40 years), with a median duration of BS disease of 6 years; five had active disease. Nine patients reported fever, 9 myalgia/arthralgia, 5 gastrointestinal symptoms, 5 anosmia/ageusia, 5 cough, 3 headache, 3 fatigue, 2 breathlessness, panic attacks and dizziness (one each). Before infection, patients were treated with corticosteroids, colchicine, hydroxychloroquine (HCQ), traditional DMARDs [azathioprine (n patients = 4), methotrexate (n=1)], and biologics DMARDs [adalimumab (n=6), infliximab (n=2), secukinumab (n=1), and canakinumab (n=1)]. Therapy was suspended for a median time of 33 days in 9 patients and resumed after a median time of 5 days from negatigation. Regarding SARS-CoV-2 treatment, most patients started or increased corticosteroids, whereas heparin and antipyretic drugs were used in 4 and 5 patients, respectively. Cases were comparable to controls in terms of disease manifestations, activity, and immunomodulating therapy, with the only exception of corticosteroids, whose daily dose was significantly higher in cases (Table 1).

Conclusion: Prevalence of SARS-CoV-2 infection among Italian BS patients is 3.6%, similarly to the Italian general population (4.2%). Disease activity at time of infection was not associated with an increased risk of SARS-CoV-2 infection. Most patients interrupted biologic DMARDs. However, use of DMARDs, seemed not to be associated with an increased risk of SARS-CoV-2 infection, while higher doses of corticosteroids resulted to be more common among patients with SARS-CoV-2 infection as compared to controls. No patient required hospitalization or died. Our experience shows encouraging data about BS patients who do not appear to be at greater risk of SARS-CoV-2 infection or complications than the general population.

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Table 1. Features of SARS-CoV-2+ cases and matched controls

	12 SARS-CoV-2+ CASES PRE-INFECTION	12 SARS-CoV-2+ CASES POST-INFECTION	36 CONTROLS	p- value*
Female sex	8 (66.7%)		24 (66.7%)	Matching variable
Median age	40 (IQR 31-45)		40 (IQR 32-44)	Matching variable
Median disease duration	6 (IQR 5-9)		6 (IQR 3-8)	Matching variable
Active disease (BDCAF $\geq$ 1) Immunomodulating therapy	5 (41.7%)	4 had disease relapse	24 (66.7%)	0.176
Corticosteroids –	8 (66.7%)	8 (66.7%)	12 (33.3%)	0.088
Median dosage (IQR)	5 (IQR 0-12.5)	6 (IQR 0-15)	0 (IQR 0-2.5)	0.010
Colchicine	2 (16.7%)	Continued	11 (30.6%)	0.469
HCQ	1 (8.3%)	Continued	1 (2.8%)	0.441
Traditional DMARDs	5 (41.7%)	1 interrupted	8 (22.2%)	0.263
Biologic DMARDs	10 (83.3%)	8 interrupted	27 (75%)	0.705
Disease involvement				
Mucocutaneous	5 (41.7%)		12 (33.3%)	0.731
Articular	5 (41.7%)	4 worsened	17 (47.2%)	1.000
Ocular	0		2 (5.6%)	n.a.
Vascular	0		0	n.a.
Neurological	3 (25%)		8 (22.2%)	1.000
Gastrointestinal	2 (16.7%)	1 worsened	6 (16.7%)	1.000

*p-value from Fisher exact test for unpaired data between first columns vs third columns

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POS1213 **IMPACT OF THE COVID-19 PANDEMIC AND LOCKDOWN ON WELLBEING ON PATIENTS WITH RHEUMATIC DISEASES. RESULTS FROM THE RHEUMVID STUDY (PHASE 1)**

M. Garrido-Cumbrera¹, H. Marzo-Ortega^{2,3}, L. Christen⁴, L. Carmona⁵, J. Correa-Fernández¹, S. Sanz-Gómez¹, P. Plazuelo-Ramos⁶, L. Grange^{7,8}, D. Webb⁹, S. Irwin¹⁰, C. Jacklin¹¹, S. Makri¹², E. Mateus^{13,14}, S. Mingolla¹⁵, K. Antonopoulou¹⁶, V. Navarro-Compán¹⁷ on behalf of REUMAVID working group. ¹Universidad de Sevilla, Health & Territory Research (HTR), Sevilla, Spain; ²University of Leeds, Leeds Institute for Rheumatic and Musculoskeletal Medicine, Leeds, United Kingdom; ³Leeds Teaching Hospitals Trust, NIHR Leeds Biomedical Research Centre, Leeds, United Kingdom; ⁴Novartis Pharma AG, Patient Engagement, Basel, Switzerland; ⁵Institute for Musculoskeletal Health, InMusc, Madrid, Spain; ⁶Spanish Federation of Spondyloarthritis Associations (CEADE), Presidency, Madrid, Spain; ⁷French League Against