**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-procession, 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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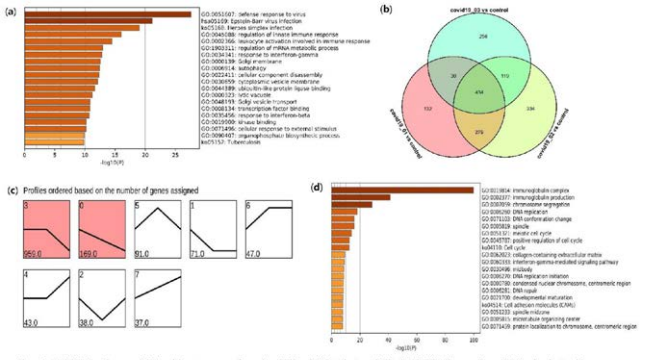


Figure 1: (a) KEGG pathway and GO enrichment were performed on DEGs of SLE patients and HCs. (b) VENN diagram showe DEGs of patients with COVID-19 and HCs. Among them, covid19-01 represents moderate patients, covid19-02 represents severe patients, covid19-03 represents remission patients, and control 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 BEHÇET'S SYNDROME

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**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 ± 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 9patients and resumed after a median time of 5 days from negativation. 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 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≥1) | 5 (41.7%) | 4 had disease relapse | 24 (66.7%) | 0.176 |
| Immunomodulating therapy | | | | |
| 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 REUMAVID STUDY (PHASE 1)

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**Background:** The COVID-19 pandemic has impacted the wellbeing of patients with Rheumatic and Musculoskeletal Diseases (RMDs).
**Objectives:** The aim is to assess emotional well-being and its associated factors in patients with RMDs during the first wave of the COVID-19 pandemic.
**Methods:** REUMAVID is an international collaboration led by the Health & Territory Research group at the University of Seville, together with a multidisciplinary team including patient organisations and rheumatologists. This cross-sectional study consisting of an online survey gathering data from patients with a diagnosis of 15 RMDs in Cyprus, France, Greece, Italy, Portugal, Spain, and the United Kingdom. 1,800 participants were recruited by patient organisations. Data was collected between April and July 2020. Participants were divided into two groups: 1) Participants with poor wellbeing (World Health Organization-Five Wellbeing Index (WHO-5) ≤ 50), 2) Participants with good wellbeing (WHO-5 >50). The Mann-Whitney and $\chi^2$ tests were used to analyse possible relations between sociodemographic characteristics, lifestyle, and outdoor contact with wellbeing during the first wave of the COVID-19 pandemic. Univariate and multivariate binary logistic regression was used to determine the impact of the independent variables associated with poor wellbeing.
**Results:** 1,777 patients with 15 different RMDs were included. The mean age was 52.7, 80.2% female, 48.7% had a university degree, and 69.7% were married or in a relationship. The most frequent diagnoses were inflammatory arthritis (75.4%). 49.0% reported poor wellbeing. 57.7% of patients who belonged to a patient organisation reported good wellbeing (vs 46.3% who did not, p<0.001). Those who reported poor wellbeing had higher disease activity (51.4% vs 41.3%, p<0.001), a higher risk of anxiety (54.3% vs 41.7%, p<0.001) and depression (57.0% vs 42.1%, p<0.001), and poorer self-perceived health (53.0% vs 41.8%, p<0.001), compared to those who did not. A higher proportion of those who engaged in physical activity presented good wellbeing (54.0% vs 46.5%, p=0.012). 57.4% of the patients who were unable to attend their appointment with their rheumatologist reported poor wellbeing, compared to 48.2% who did attend (p=0.027). Patients who did not walk outside (56.2%) or who lacked elements in their home to facilitate outside contact (63.3%) experienced poor wellbeing (p<0.001). The factors associated with poor wellbeing were lack of elements in the home enabling contact with the outside world (OR=2.10), not belonging to a patient organisation (OR=1.51), risk of depression (OR=1.49), and not walking outside (OR=1.36) during the COVID-19 pandemic (Table 1).
**Conclusion:** Almost half of the patients with RMDs reported poor emotional wellbeing during the first wave of the COVID-19 pandemic. The lack of elements in the home that facilitate outdoor contact, not belonging to a patient organisation, the presence of anxiety, and not walking outside during the pandemic increase the probability of poor emotional well-being. These results highlight the importance of environmental factors and the role of patient organisations in addressing the effects of the pandemic and its containment measures.

**Table 1. Logistic regression for poor wellbeing WHO-5 (N=1,104)**

| | Univariate logistic analysis | | Multivariate logistic analysis | |
|---|---|---|---|---|
| | OR | 95% CI[1] | OR | 95% CI[1] |
| Patient organisation. Non-member | 1.57 | **1.30, 1.89** | 1.51 | **1.18, 1.93** |
| Disease activity (VAS ≥ 4) | 1.50 | **1.21, 1.86** | 1.16 | 0.85, 1.56 |
| Risk of anxiety (HADs, 0-21) | 1.67 | **1.38, 2.02** | 1.20 | 0.92, 1.58 |
| Risk of depression (HADs, 0-21) | 1.83 | **1.51, 2.21** | 1.49 | **1.12, 1.99** |
| Self-reported health. Fair to very bad | 1.58 | **1.30, 1.91** | 1.26 | 0.94, 1.68 |
| Change in health status. Worse | 1.27 | **1.06, 1.53** | 1.05 | 0.80, 1.38 |
| Physical activity. No | 1.35 | **1.07, 1.71** | 1.08 | 0.83, 1.40 |
| Talked with rheumatologist during the pandemic. No | 1.45 | **1.04, 2.03** | 1.04 | 0.68, 1.61 |
| Walk outside during COVID-19 pandemic. No | 1.47 | **1.19, 1.83** | 1.36 | **1.02, 1.81** |
| Element in home with outdoor contact. No | 1.93 | **1.42, 2.62** | 2.10 | **1.41, 3.15** |

[1]95% CI for test $H_0$: OR = 1

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**Disclosure of Interests:** Marco Garrido-Cumbrera: None declared, Helena Marzo-Ortega Speakers bureau: AbbVie, Biogen, Celgene, Janssen, Lilly, Novartis, Pfizer, Takeda and UCB., Consultant of: AbbVie, Celgene, Janssen, Lilly, Novartis, Pfizer and UCB, Laura Christen Employee of: Novartis Pharma AG, Loreto Carmona: None declared, José Correa-Fernández: None declared, Sergio Sanz-Gómez: None declared, Pedro Plazuelo-Ramos: None declared, LAURENT GRANGE: None declared, Dale Webb Grant/research support from: AbbVie, Biogen, Janssen, Lilly, Novartis and UCB., Shantel Irwin: None declared, Clare Jacklin Grant/research support from: has received grant funding from Abbvie, Amgen, Biogen, Eli Lilly, Gilead, Janssen, Pfizer, Roche, Sanofi & UCB, Souzi Makri Grant/research support from: Novartis, GSK and Bayer., Elsa Mateus Grant/research support from: Lilly Portugal, Sanofi, AbbVie, Novartis, Grünenthal S.A., MSD, Celgene, Medac, Janssen-Cilag, Pharmakern, GAfPA., Serena Mingolla: None declared, KATY ANTONOPOULOU: None declared, Victoria Navarro-Compán Grant/research support from: Abbvie, BMS, Janssen, Lilly, MSD, Novartis, Pfizer, Roche, and UCB.
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POS1214

## THE DYNAMICS OF INFLAMMATORY MARKERS IN COVID-19 PATIENTS TREATED WITH LEVILIMAB

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**Background:** Levilimab (LVL) is a novel anti-IL6Rmonoclonal antibody against IL6Rα. Cytokine release syndrome plays the key role in the pathogenesis of a range of life-threatening conditions including the acute respiratory distress syndrome in severely ill COVID-19 patients. Thus, the use of LVL could be considered as anti-cytokine therapy with a potency to prevent the complications and progression of respiratory failure in COVID-19.
**Objectives:** We analyzed the changes in the serum concentrations of inflammatory markers (Erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and IL-6) in patients treated with LVL or placebo as part of a phase III multicenter randomized double-blind placebo-controlled adaptive-design CORONA clinical study aimed to evaluate the efficacy and safety of LVL in subjects with severe COVID-19 (NCT04397562).
**Methods:** A total of 217 patients were enrolled in the study, 206 patients were randomized, and 204 patients received the investigational product (IP, LVL or placebo).
Study included men and non-pregnant women aged ≥18 years, hospitalized for severe COVID-19 pneumonia, receiving standard therapy according to the national guidelines. Patients with acute respiratory failure with the need in invasive respiratory support, septic shock, multiple organ failure or life expectancy