COVID-19 and Behçet’s disease: clinical case series

We read with interest the study of Monti et al., the first rheumatic disease cases with COVID-19. In detail, the authors described the clinical course of COVID-19 in a series of 11 patients with rheumatoid arthritis, one with psoriatic arthritis and one with spondyloarthritis treated with immunosuppressive targeted therapies. Here, we describe the main characteristics of four patients with Behçet’s disease (BD) with COVID-19.

Data on patients with systemic autoimmune diseases with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection are currently lacking. Data from the first 110 patients included in the COVID-19 Global Rheumatology Alliance and the European League Against Rheumatism (EULAR)–COVID-19 Database have been recently published.

Here we describe, to our knowledge, the first single-centre experience of COVID-19 in patients who fulfilled the international criteria for BD, including clinical characteristics, antiviral and immunomodulatory treatment, and outcomes. All patients gave informed consent for publishing their clinical data. We used nasopharyngeal swabs samples for all diagnoses, amplifying the betacoronavirus E gene and the specific SARS-CoV-2 RdRp gene by PCR.

On 16 April 2020, 2135 consecutive patients with SARS-CoV-2 infection had been admitted to Hospital Clinic de Barcelona, Barcelona, Catalonia, Spain. We admitted 238 (11%) into intensive care units and we discharged 1481 (67%) with supervised outpatient care. Of all patients, four (0.19%, 95% CI 0.05–0.48) had BD (table 1), of whom three were admitted to the hospital. Two of the patients were nurses and had had contact with patients with COVID-19. Only one of the patients with BD had comorbidities, and in all of them, disease activity, measured with patients with COVID-19. Only one of the patients with BD had comorbidities, and in all of them, disease activity, measured with Behçet’s Disease Activity Index (BDAI) at the time of first COVID-19 symptoms, was low (BDAI score of <3). Three patients had upper respiratory infection and one had viral pneumonia. No patient required admission to the intensive care unit or invasive and non-invasive mechanical ventilation. In other words, the severity of COVID-19 infection was mild in all cases.

Anti-SARS-CoV2 treatment (hydroxychloroquine, lopinavir-boosted ritonavir and azithromycin) was administered to the three patients admitted to the hospital on the day of diagnosis. Due to diarrhoea, protease inhibitors were discontinued in two of them. In all patients, COVID-19 resolved without complications. Regarding BD status, one patient presented with a flare during COVID-19 (patient 2) and another patient presented with it after 15 days of COVID-19 resolution (patient 4). In both cases, BD activity improved with colchicine.

Our case series of patients with BD deserves some comments. First of all, patients with BD accounted for 0.19% of patients with COVID-19 who required admission to Hospital Clinic de Barcelona. Of the first 110 patients included in the COVID-19 Global Rheumatology Alliance and the EULAR–COVID-19 Database, 7% had vasculitis. Unfortunately, the authors have not described in detail the type of vasculitis. Second, people on immunosuppressive treatment are more prone to infections. However, no specific data exist to suggest that medication-induced immunosuppressed state predisposes patients to SARS-CoV-2 infections or to more severe forms of COVID-19. Of note, all patients with BD had a COVID-19 clinical picture resembling the general population, and the severity of COVID-19 infection was mild in all cases. Two of our patients were receiving immunosuppressive agents at COVID diagnosis. Third, colchicine is the drug of choice to treat COVID-19.

Table 1 Demographics, clinical characteristics at admission, laboratory features, treatment and outcomes of four patients with BD and COVID-19

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age (years)</th>
<th>Gender</th>
<th>Comorbidities</th>
<th>BD manifestations</th>
<th>Vascular manifestations</th>
<th>Neurological manifestations</th>
<th>IMT before admission</th>
<th>Duration of symptoms (days)</th>
<th>Clinical manifestations (at admission)</th>
<th>Laboratory results</th>
<th>Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40</td>
<td>Female</td>
<td>None</td>
<td>Oral aphthosis</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>6</td>
<td>Fever (39°C)</td>
<td>Ferritin 1350 NGD</td>
<td>MTX stopped</td>
</tr>
<tr>
<td>2</td>
<td>51</td>
<td>Female</td>
<td>Breast cancer</td>
<td>None</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>4</td>
<td>Fever (38.5°C)</td>
<td>C reactive protein 1.39 NGD</td>
<td>COL 2.5 mg/day</td>
</tr>
<tr>
<td>3</td>
<td>37</td>
<td>Female</td>
<td>None</td>
<td>None</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>2</td>
<td>Fever (38.5°C)</td>
<td>LDH 198 NGD</td>
<td>COL 1 mg/day</td>
</tr>
<tr>
<td>4</td>
<td>47</td>
<td>Female</td>
<td>None</td>
<td>None</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>7</td>
<td>Fever (38.5°C)</td>
<td>Ferritin 295 NGD</td>
<td>Lopinavir</td>
</tr>
</tbody>
</table>

**Laboratory results**

- White blood cell count (×10⁹/L): 10000, 2340, 6250, 2240 NGD
- Lymphocyte (×10⁹/L): 3200, 870, 1380, 780 NGD
- Platelets (×10⁹/L): 685000, 158000, 330100, 158000 NGD
- LDH (U/L): 207, 168, 155, 168 NGD
- C reactive protein (mg/dL): 2.7, 0.4, 0.91, 0.4 NGD
- Ferritin (ng/mL): 295, 152, 130, 295 ND
- D-dimer (ng/mL): 357, 400, 800, 400 ND
- Procalcitonin (ng/mL): 0.05, <0.03, ND, 0.05 ND

**Treatments**

- MTX stopped COL stopped PDN, AZA, COL None
- Lopinavir/ritonavir Yes Yes Yes No
- Hydroxychloroquine Yes Yes Yes No
- Azathioprine Yes Yes Yes No
- Corticosteroids Same dose No Same dose No
- Tocilizumab No No No No
- LMWH No No No No
- Others Ceftriaxone No Ceftriaxone No

**Admitted to an intensive care unit**

- No No No No

**Length of hospital stay (days)**

- 8 6 6 8 No hospital admission

**Length of home hospitalisation (days)**

- 18 – 8 15

**Correspondence**

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choice for the prevention of recurrent mucocutaneous lesions of BD.\(^4\) Due to its anti-inflammatory properties by preventing the activation of pro-IL-1β into active IL-1β, it could be established as a treatment for patients with COVID-19.\(^5\) Two of our patients had been treated with colchicine at COVID-19 diagnosis. The potential protective role of disease-modifying antirheumatic drugs and immunomodulatory agents in COVID-19 infection is unknown. By generating information such as what we have presented here, the management and prognosis of patients with BD and SARS-CoV-2 might be improved.

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