COVID-19 infection in a northern-Italian cohort of systemic lupus erythematosus assessed by telemedicine

The COVID-19 pandemic deeply affected northern-Italian regions.[1] Lombardy and Emilia-Romagna had the highest cumulative incidence with 627.1 and 470.53 cases/100 000 inhabitants respectively on 16 April 2020 according to Italian 'Istituto Superiore di Sanità' (ISS). While a mild course has been reported in patients with chronic arthritis treated with targeted immunosuppressive agents,[2] few and controversial data are available about COVID-19 in systemic lupus erythematosus (SLE).[3 4] To this purpose, since 6 April 2020, given the mobility restriction imposed nationwide, we initiated a telemedicine project aimed at ensuring regular follow-up, starting from SLE patients.[5] During the visit, we conducted a survey to investigate any COVID-19 related symptoms that occurred since 15 February 2020 and the results of available nasopharyngeal swabs. The survey was addressed to patients coming from Lombardy and Emilia-Romagna. We evaluated 165 patients (112 females, 84%, median age 52.5 years, range 25–81; median disease duration 13 years, range 1–53). Among them, 127 (77%) were on hydroxychloroquine (HCQ), 93 (56%) on prednisone (in 88≤7.5 mg/day), 41 (25%) on mycophenolate mofetil (MMF) and 12 (7%) on other immunosuppressants (methotrexate, cyclosporine or azathioprine). In all cases, treatment was ongoing for more than 6 months. Among them, 12 patients (7.2%) developed COVID-19: four patients (2.5% of the total population) had swab-confirmed COVID-19 and eight (4.8%) had clinical-COVID-19 (at least three out of four symptoms among fever, dyspnoea, cough and dysgeusia/anosmia plus established contact with a COVID-19 patient, no swab performed). Cohort characteristics and therapies are reported in table 1.

Table 1 Demographic data, clinical characteristics and treatment of the patients with confirmed and clinical-COVID-19

	Confirmed COVID-19	Clinical-COVID-19
Patients, n (% of total cohort)	4 (2.5)	8 (5)
Female, n (% of the group)	4 (100)	7 (87.5)
Median age in years (range)	52.5 (27–53)	34 (25–59)
Median disease duration in years (range)	21.5 (14–29.75)	11 (5–20)
Comorbidities, n (%)		
Hypertension	2 (50)	2 (25)
Diabetes	0 (0)	0 (0)
Cardiovascular disease	1 (25)	0 (0)
Obesity	0 (0)	0 (0)
Smoking, n (%)		
Active	1 (25)	0 (0)
Previous	0 (0)	2 (25)
Therapy, n (%)		
Hydroxychloroquine	3 (75)	7 (87.5)
Glucocorticoids (≤7.5 mg/day)	1 (25)	3 (37.5)
Mycophenolate	3 (75)	3 (37.5)
Azathioprine	0 (0)	1 (12.5)
Cyclosporine	0 (0)	1 (12.5)
Symptoms, n (%)		
Fever	3 (75)	8 (100)
Non-productive cough	2 (50)	8 (100)
Sputum production	1 (25)	4 (50)
Rhinorrhea	3 (75)	4 (50)
Sore throat	2 (50)	4 (50)
Fatigue	2 (50)	6 (75)
Arthromyalgia	2 (50)	5 (62.5)
Anosmia/dysgeusia	2 (50)	4 (50)
Dyspnoea	1 (25)	6 (75)
Headache	2 (50)	6 (75)
Diarrhoea	2 (50)	3 (37.5)
Nausea/vomiting	1 (25)	2 (25)
Chest X-ray performed, n (%)	2 (50)	2 (25)
Chest X-ray pathological findings, n (%)	1 (25)	0 (0)
ICU admission, n (%)	1 (25)	0 (0)

Among the four confirmed patients only one, a 27-year-old woman, needed intensive care for the development of acute respiratory distress syndrome. She has severe SLE (end-stage renal disease on haemodialysis) and was on MMF (2 g/day), HCQ (200 mg/day) and oral prednisone (7.5 mg/day) before COVID-19. MMF was withdrawn at COVID-19 diagnosis, and after deterioration, methylprednisolone (1 mg/kg/day for 5 days then tapered) and non-invasive ventilation were initiated with prompt amelioration and discharge from intensive

care unit (ICU) within 6 days. All three remaining patients with confirmed and eight with clinical-COVID-19 had a milder disease course with full recovery in a median time of 22 days (range 7–36). Except for the previously described patient, dyspnoea was reported as mild and transitory, not requiring any support therapy or life-style change. Three patients with confirmed COVID-19 and seven with clinical-COVID-19 were on HCQ. We did not record any inappropriate drug discontinuation or modification. Of note, seven patients with SLE (4%) did not develop symptoms despite established contact with a COVID-19 patient.

In our cohort, we found an incidence of 2.5% of confirmed COVID-19. Despite possible bias in swab prescription, it should be noted that this frequency is higher than that reported by the Italian ISS in the same areas (0.76% in Lombardy and 0.47% in Emilia Romagna).[6] By considering patients with clinical-COVID-19, the incidence in our cohort would be much higher, although the different testing strategies applied in our regions could have equally increased the rate of missed diagnosis in the general population.

The disease course was generally mild and self-resolving, although a severe course is possible. Interestingly, COVID-19 occurred despite long-standing HCQ therapy. The role of HCQ on COVID-19 is a matter of debate.[7] Even if our data do not suggest that HCQ may exert a protective action against the infection, we cannot draw any conclusion, since the concomitant use of other immunosuppressive therapies could have influenced the incidence and course of COVID-19 in our cohort.

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