Impact of COVID-19 pandemic on patients with SLE: results of a large multicentric survey from India

We have read the recent report by Mathian *et al* with great interest where they described the clinical course of COVID-19 in 17 patients with systemic lupus erythematosus (SLE).[1] The COVID-19 pandemic has caught the attention of the rheumatology fraternity due to a variety of reasons, such as the in vitro inhibition of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) by hydroxychloroquine (HCQ),[2] use of tocilizumab in the treatment of cytokine storm[3] and concerns regarding cardiac toxicity due to HCQ.[4] Patients with SLE are routinely prescribed HCQ and other immunosuppressants. The clinical picture of COVID-19 (such as pneumonia, cardiac injury, renal injury, venous thrombosis and septic shock) in patients with SLE on long-term HCQ described by Mathian *et al* intrigued the global rheumatology community.[1] We assessed the impact of the pandemic on Indian patients with SLE in a larger multicentric survey. We expected that differences in disease expression, ethnicity and treatment may possibly alter the impact of the pandemic in contrast to the aforementioned study. We included patients who had visited their rheumatologist at least once in the preceding 1 year and surveyed them telephonically.

Twenty rheumatology centres across 18 cities in India collaborated, and 845 patients (women 92%, mean (±SD) age 34.8±12 years) with SLE were surveyed. Among these, 9.7% had hypertension; 3.8% had diabetes; and 0.9% had both. At the time of the survey, 813 (96.2%) patients were on HCQ (mean (±SD) dose 257.9±99 mg per day, mean (±SD) duration 30.8±30.7 months). Two-third of patients (559) were on glucocorticoids at a mean (±SD) dose of 6.9±6.8 mg prednisolone equivalent per day.

India reported its first COVID-19 case on 30 January 2020,[5] and at the time of the completion of this 3-day survey (on 5 May 2020), there were 46 711 positive cases and 1583 deaths in the country.[6] Of the 845 patients surveyed, two had tested positive for SARS-CoV-2. A total of 17 patients reported fever (more than 100°F), cough and/or shortness of breath in the preceding 3 months. The symptoms in these patients were not attributable to SLE. Two of these 17 patients were tested for SARS-CoV-2, and one was found to be positive. The patient who tested positive had been hospitalised for 2 days at the time of the completion of the survey. Symptoms of the remaining 16 patients resolved without any complications (see online supplementary figure S1). Five patients in our cohort, of whom three were healthcare workers, had been traced as close contacts of diagnosed COVID-19 cases. Three of these patients were advised only isolation, whereas two were also tested for SARS-CoV-2. One of these two patients tested positive but remains asymptomatic. Table 1 shows the characteristics of patients with confirmed and suspected COVID-19. For clinical features of patients with confirmed COVID-19, state-wise data of patients surveyed, summary of survey findings and comparisons between groups, see online supplementary tables S1–4.

The patients were also asked if they had palpitations or other cardiac problems ever since initiation on HCQ. None of the 845 patients reported any such symptoms or instances where a symptom was attributed to HCQ by any other doctor.

While in our survey, use of various immunosuppressants by patients with SLE did not result in a high incidence of COVID-19 and a worse outcome, more extensive studies are required to answer this question satisfactorily. Another possible explanation is the fact that a majority of the patients participating were ensuring all possible measures to protect themselves from infection while being on immunosuppressants. While we must monitor all our patients closely during this pandemic, there appears to be neither rationale nor evidence for withdrawing immunosuppressant medications as a preventive strategy for COVID-19. Lack of appropriate comparator group with patients not on HCQ and a low number of either confirmed or suspected COVID-19 patients did not allow us to draw meaningful conclusions regarding the role of HCQ in COVID-19. We plan to follow-up these patients and resurvey the same cohort once the pandemic settles.

Table 1 Demographics and clinical characteristics of patients with SLE with confirmed or suspected COVID-19

	COVID-19-like clinical picture (group A)*	Contact with patient with COVID-19 (group B)*	Confirmed COVID-19 (group C)*
Number of patients	17	5	2
Age (years) (mean±SD)	29.3±7.0	33.4±10.8	34.5±13.4
Female, n (%)	17 (100)	5 (100)	2 (100)
Organ systems involved, n (%)			
Musculoskeletal	14 (82.4)	4 (80)	1 (50)
Mucocutaneous	10 (58.8)	2 (40)	1 (50)
Haematological	9 (52.9)	2 (40)	1 (50)
Renal	7 (41.2)	0	1 (50)
Neuropsychiatric	3 (17.6)	1 (20)	0
Serositis	3 (17.6)	0	0
Constitutional	2 (11.8)	0	0
Others	4 (23.5)	3 (60)	1 (50)
Comorbidities, n (%)			
Hypertension	1 (5.9)	1 (20)	1 (50)
Diabetes	1 (5.9)	1 (20)	0
Hypothyroidism	5 (29.4)	0	0
Other	1 (5.9)	0	0
Medications, n (%)			
Hydroxychloroquine	17 (100)	5 (100)	2 (100)
Dose (mg per day) (mean±SD)	258.8±79.5	300±0	300±0
Duration (months) (mean±SD)	32.6±21.6	20.4±17.7	26±31.1
Glucocorticoid	14 (82.4)	4 (80)	2 (100)
Dose (mg per day)† (mean±SD)	12.6±11.0	17.5±21.9	35±21.2
Mycophenolate	7 (41.2)	2 (40)	2 (100)
Methotrexate	3 (17.6)	1 (20)	0
Azathioprine	4 (23.5)	1 (20)	0
Rituximab	3 (17.6)	0	0
Symptoms			
Fever (>100°F)	14 (82.4)	0	0
Dyspnoea	11 (64.7)	0	1 (50)
Dry cough	10 (58.8)	0	0
Contact with patient with COVID-19	0	5 (100)	1 (50)

*Group C comprised one patient each from groups A and B.
†Glucocorticoid dose is expressed in prednisolone equivalent.
SLE, systemic lupus erythematosus.

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REFERENCES

1 Mathian A, Mahevas M, Rohmer J, *et al*. Clinical course of coronavirus disease 2019 (COVID-19) in a series of 17 patients with systemic lupus erythematosus under long-term treatment with hydroxychloroquine. *Ann Rheum Dis* 2020;79:837–9.
2 Liu J, Cao R, Xu M, *et al*. Hydroxychloroquine, a less toxic derivative of chloroquine, is effective in inhibiting SARS-CoV-2 infection in vitro. *Cell Discov* 2020;6:16.
3 Mehta P, McAuley DF, Brown M, *et al*. COVID-19: consider cytokine storm syndromes and immunosuppression. *Lancet* 2020;395:1033–4.
4 American College of Cardiology. Ventricular arrhythmia risk due to Hydroxychloroquine-Azithromycin treatment for COVID-19, 2020. Available: https://www.acc.org/latest-in-cardiology/articles/2020/03/27/14/00/ventricular-arrhythmia-risk-due-to-hydroxychloroquine-azithromycin-treatment-for-covid-19 [Accessed 10 May 2020].
5 Press Information Bureau. Update on novel coronavirus: one positive case reported in Kerala. Available: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1601095 [Accessed 10 May 2020].
6 Ministry of Health and Family Welfare. Available: https://www.mohfw.gov.in/index.php [Accessed 10 May 2020].