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CORRESPONDENCE

# COVID-19 infection in patients with systemic lupus erythematosus: Data from the Asia Pacific Lupus Collaboration

As COVID-19 ravages healthcare systems worldwide, cases of infection among patients with systemic lupus erythematosus (SLE) are increasingly reported. While there had been 2 reports on incident hospitalized cases from the US and France,[1,2] there have been no reports of SLE patients with COVID-19 infection from the Asia Pacific region.

The Asia Pacific Lupus Collaboration (APLC) patient cohort comprises 3375 patients from 25 centers in Australia, China, Hong Kong, Indonesia Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Sri Lanka, Taiwan, Thailand.[3] On 3 June, principal investigators of APLC centers were asked to respond to a brief email questionnaire regarding current or historical COVID-19 cases in their cohorts. Patients and the public were not involved in the conduct of this research. Table 1 describes the number of COVID-19 patients, number of SLE patients and the prevalence of hydroxychloroquine use. In total, only 3 cases of COVID-19 were reported. Here, we briefly describe their clinical course.

Patient 1 was a 58-year-old Japanese woman with stable SLE, maintained on prednisolone monotherapy (5 mg daily) without hydroxychloroquine. Her daughter was diagnosed with COVID-19 infection and the patient was found to be positive for SARS-CoV-2 on screening. Although she was asymptomatic, her clinical course was complicated by severe thrombocytopenia (nadir $5 \times 10^9$/L) which required intravenous immunoglobulin and prednisolone 20 mg daily. The thrombocytopenia was attributed to SLE flare as its severity was assessed to be out of proportion to her asymptomatic COVID-19 infection. In addition, hypocomplementemia was observed. Platelet count eventually improved and she was discharged.

Patient 2 was a 32-year-old Filipino woman with active lupus nephritis who was treated with hydroxychloroquine, mycophenolate mofetil and prednisolone 30 mg daily. She resided 5 hours away from her lupus center and had a history of poor treatment adherence. During the pandemic, only phone consultations were performed, during one of which she informed her rheumatologist that she had been initiated on hemodialysis at a local hospital for deteriorating renal function. Subsequently, her rheumatologist was informed that she had passed away from COVID-19 pneumonia at the provincial hospital. Details surrounding her COVID-19 infection were not accessible.

Patient 3 was a 29-year-old Filipino woman with SLE (on hydroxychloroquine, azathioprine and low-dose prednisolone), hypertensive heart disease and chronic kidney disease who presented with bilateral COVID-19 pneumonia and peripheral edema. Concurrently, she was found to have active lupus nephritis which required increase in prednisolone to 50 mg daily. She was discharged when pneumonia and lupus nephritis improved.

In summary, we report three cases of COVID-19 infection in SLE patients from the Asia Pacific, of which one was fatal. Notably, all three patients had active SLE which required escalation of treatment just before, or during treatment for COVID-19 infection, in contrast to reports from France.[2] Importantly, patient 2 could not directly access her rheumatologist during the pandemic and only phone consultations were used. Further research on the impact of reduced care access and the utility of alternative care models, such as teleconsultation, is needed for patients with SLE.

While the incidence of COVID-19 in SLE is unknown, 16 (4%) of the 450 patients in the Colombia Lupus Cohort developed symptomatic COVID-19 infection.[1] Based on a report censored on 15 April in Hong Kong, none of the 1016 COVID-19 cases had a history of SLE.[4] In this report, we describe only 3 cases identified among our 3375 SLE patients. Although we did not systematically capture infection rates in a protocolized manner, the low number of COVID-19 infections, at ~ 0.1% of the APLC cohort, does not suggest a major burden of COVID-19 among SLE patients. Possible reasons accounting for this included the low background prevalence of COVID-19 in the region compared with other parts of the world at the time of the report and increased measures taken by SLE patients to avoid infections. We eagerly await data from other SLE cohorts.

Data used for reporting in the manuscript will not be shared.

**TABLE 1** Number of COVID-19 cases and systemic lupus erythematosus (SLE) patients in the Asia Pacific Lupus Collaboration

| Center | No. of patients with COVID-19 | Total number of SLE patients in cohort | Proportion of anti-malarial users at last visit (%) |
|---|---|---|---|
| Monash Health, Melbourne, Australia | 0 | 310 | 85.2 |
| Royal Adelaide Hospital and Flinders Medical Centre, Adelaide, Australia | 0 | 60 | 88.5 |
| St. Vincent's Hospital, Melbourne, Australia | 0 | 48 | 85.4 |
| Liverpool Hospital, Sydney, Australia | 0 | 40 | 85.0 |
| Peking University First Hospital, Beijing, China | 0 | 183 | 82.0 |
| People's Hospital Peking University Health Science Center, Beijing, China | 0 | 98 | 96.9 |
| Queen Mary Hospital, The University of Hong Kong, Pok Fu Lam, Hong Kong | 0 | 211 | 64.2 |
| Padjadjaran University/ Hasan Sadikin General Hospital, Bandung, Indonesia | 0 | 269 | 35.3 |
| Tokyo Women's Medical University, Tokyo, Japan | 0 | 137 | 23.4 |
| University of Occupational and Environmental Health, Japan | 0 | 13 | 23.1 |
| Keio University, Tokyo, Japan | 1 | 84 | 25.0 |
| Hanyang University Hospital for Rheumatic Diseases, Republic of Korea | 0 | 51 | 86.3 |
| University of Malaya, Kuala Lumpur, Malaysia | 0 | 176 | 84.1 |
| Greenlane Clinical Centre, Auckland District Health Board, Auckland, New Zealand | 0 | 26 | 100.0 |
| Middlemore Hospital, Auckland, New Zealand | 0 | 40 | 90.0 |
| North Shore Hospital, Waitemata District Health Board, Auckland, New Zealand | 0 | 55 | 81.2 |
| University of Santo Tomas Hospital, Manila, Philippines | 1 | 206 | 88.8 |
| University of The Philippines, Philippines | 1 | [a] | [a] |
| National University Hospital, Singapore | 0 | 273 | 91.2 |
| Tan Tock Seng Hospital, Singapore | 0 | 58 | 89.7 |
| Singapore General Hospital, Singapore | 0 | 30 | [a] |
| Teaching Hospital, Kandy, Sri Lanka | 0 | 83 | 77.1 |
| Chang Gung Memorial Hospital, Taiwan | 0 | 298 | 66.8 |
| Taichung Veterans General Hospital, Taiwan | 0 | 303 | 90.4 |
| Chiang Mai University Hospital, Chiang Mai, Thailand | 0 | 323 | 19.8 |

[a]New APLC centers, pending full data.

## CONFLICT OF INTEREST

The authors declare no competing interests.

## AUTHOR CONTRIBUTIONS

AL, RKR, EM and CJC contributed to the conception or design of the work. All authors contributed to the acquisition, analysis and interpretation of data. CJC, RKR and AL drafted the work. All coauthors revised it critically for important intellectual content. Final approval of the version published was obtained from all authors. All authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

## ETHICS APPROVAL

Principal Investigators of individual centers obtained valid written informed consent in accordance with local authority regarding ethical conduct of human research, which conformed to the provisions of the Declaration of Helsinki. In addition, Monash University ethics approval has been obtained to store the pooled database, perform analyses and subsequently publish the findings.

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