Prevalence and clinical features of COVID-19 in a large cohort of 199 patients with sarcoidosis

Sirs,

COVID-19 is responsible for a major health crisis worldwide. Sarcoidosis is a granulomatous disease affecting the lungs, the lymphatic nodes but also the nervous system, the eyes and the heart. A comparative cohort study showed that patients with rheumatic disease and COVID-19 infection were more likely to require mechanical ventilation but had similar mortality and hospitalisation rates compared to patients without rheumatic disease (1), but to date, there is no data on clinical features in sarcoidosis. We report our experience on clinical presentation and outcome of COVID-19 among patients with sarcoidosis in Paris-Ile de France.

From May, 1st 2020 to 27Th May, six weeks after the pandemic peak in France, we systematically contacted by telephone patients followed in Pitié-Salpêtrière Hospital (Paris, France) for sarcoidosis. A definite COVID-19 was defined by the presence of symptoms suggesting SARS-CoV-2 infection with positive nasopharyngeal PCR or serology or by the presence of specific symptoms occurring after pandemic onset in France with a definite contact with a SARS-CoV2 infected person. We retrospectively collected severity of COVID-19 infection, therapeutic management and outcomes.

A total of 199 patients diagnosed with sarcoidosis were included. Among them, eight (4%) patients were diagnosed with COVID-19 including five (62.5%) men with a mean age of 50.6 (±8.3) years. The main features of sarcoidosis included involvement of lungs (80%), lymph nodes (50%), heart (25%), central nervous system (25%) and eyes (37.5%). All patients had at least one comorbidity [hypertension (25%), diabetes (37.5%), overweight (87.5%)] and half had two or more comorbidities. Demographic and clinical features of patients COVID-19 positive were similar to those of sarcoidosis patients COVID-19 negative (Table I). The administration of hydroxychloroquine or the use of immunosuppressant were not correlated with symptomatic COVID-19.

The main symptoms of COVID-19 in this cohort of sarcoidosis patients are listed in Table II. Specific treatments for COVID-19 consisted in lopinavir/ritonavir and pristinamycin (n=1), hydroxychloroquine (n=1), azithromycin (n=1) and withdrawal of immunosuppressant (n=2). Three patients required admission to hospital [66.6% of male gender, mean age of 55 (6.4) years], one required mechanical ventilation, one high flow nasal cannula and one died (stage 4 sarcoidosis pulmonary involvement).

All hospitalised patients presented pulmonary sarcoidosis (stage II/III for one and stage IV for one), one of them had cardiac sarcoidosis and none had neurological sarcoidosis. All of them had two or more comorbidities. None of them was an active smoker. At the onset of COVID-19, two patients were receiving corticosteroids [mean dose of 8.5 (7–10) mg/day], one mycophenolate mofetil and one leflunomide. None was receiving hydroxychloroquine.

Table I. Clinical characteristics of sarcoidosis patients without and with COVID-19.

	Patients without COVID-19 (n=191)	Patients with COVID-19 (n=8)	*p*
Age (mean, SD)	53.5 (14.2)	50.6 (8.3)	0.4
Male gender, n (%)	81 (42.4)	5 (62.5)	0.54
Involvement of Sarcoidosis			
Lung involvement, n (%)	137 (71.7)	6 (80)	0.93
Stage of pulmonary involvement II/III, n (%)	82 (42.9)	4 (50)	0.76
Stage of pulmonary involvement IV, n (%)	5 (2.6)	1 (12.5)	0.24
CV (%), mean (SD)	79.0 (38)	89.4 (33.3)	0.74
CPT (%), mean (SD)	77.1 (33.7)	79.6 (23.4)	0.79
DLCO (%), mean (SD)	65.3 (31.0)	60.8 (30.5)	
Lymph nodes, n (%)	89 (46.6)	4 (50)	0.93
Cardiac, n (%)	32 (16.7)	2 (25)	0.64
Neurological, n (%)	67 (35.1)	2 (25)	1
Ophtalmological, n (%)	76 (39.6)	3 (37.5)	1
Other comobidities			
One or more other comorbidity, n (%)	116 (60.7)	8 (100)	0.43
Hypertension, n (%)	58 (30.4)	3 (37.5)	1
Diabetes, n (%)	39 (20.4)	3 (37.5)	0.41
Cardiac failure, n (%)	9 (4.7)	0 (0)	1
Chronic respiratory disease (Chronic obstructive lung disease or asthma), n (%)	27 (14.1)	0 (0)	0.6
Malignant tumour, n (%)	23 (12.0)	0 (0)	1
Body Mass Index (mean, SD)	27.6 (6.8)	27.2 (3.16)	0.7
Smoking habits			
Ex-smoker, n (%)	46 (24.1)	0 (0)	0.36
Daily smoker, n (%)	40 (20.1)	2 (25)	0.69
Treatments			
NSAID, n (%)	11 (5.2)	2 (25)	0.12
ACE inhibitors or ARBs, n (%)	42 (22)	3 (37.5)	0.43
HMGCoa reductase inhibitors, n (%)	32 (16.8)	1 (12.5)	1
hydroxychloroquine, n (%)	27 (14.3)	0 (0)	0.6
corticosteroids, n (%)	127 (66.5)	5 (71.4)	1
corticosteroids dosage, mg/day mean (SD)	7 (3.8)	6.75 (2.4)	
Immunosuppressants, n (%)	91 (47.6)	3 (37.5)	1
Methotrexate, n (%)	41 (21.5)	1 (12.5)	1
Mycophenolate mofetil, n (%)	25 (13.1)	1 (12.5)	1
Azathioprin, n (%)	3 (1.6)	0 (0)	1
TNF inhibitors, n (%)	11 (5.7)	1 (12.5)	0.41
IL-6 inhibitors, n (%)	4 (2.1)	0 (0)	1

ACE: angiotensin-converting enzyme; ARB: angiotensin II receptor blocker; COVID-19: Coronavirus disease 2019; IL6: interleukin 6; NSAID: non-steroidal anti-inflammatory drug; SD: standard deviation; TNF: tumour necrosis factor.

Table II. Clinical characteristics and outcome of COVID-19 in sarcoidosis patients.

Symptoms of COVID-19	Patients with COVID-19 (n=8)
Asthenia, n (%)	5 (62.5)
Fever, n (%)	5 (62.5)
Cough, n (%)	7 (8.5)
Rhinorrhoea, n (%)	2 (25)
Anosmia, n (%)	4 (50)
Dysgueusia, n (%)	5 (62.5)
Headaches, n (%)	4 (50)
Myalgia, n (%)	4 (50)
Shortness of breath, n (%)	3 (37.5)
Chest pain, n (%)	4 (50)
Diarrhoea, n (%)	4 (50)
Cutaneous lesions, n (%)	3 (37.5)
Duration of symptoms, mean (SD) days	21 (11.3)
Chest findings: extension of GGO and/or consolidation	
<10%	1 (14.3)
10-25%	1 (14.3)
25-50%	2 (28.6)
Treatments	
Hydroxychloroquin, n (%)	1 (12.5)
Antibiotic therapy, n (%)	2 (25)
Antiviral therapy, n (%)	1 (12.5)
Tocilizumab, n (%)	0 (0)
Increase or initiation of corticosteroids, n (%)	0 (0)
Withdrawal or decrease of immunosuppressants, n (%)	2 (25)
Outcomes	
Admission to hospital, n (%)	3 (37.5)
Admission to Intensive care, n (%)	2 (25)
Invasive ventilation, n (%)	1 (12.5)
Oxygen therapy, n (%)	2 (25)
High flow nasal canula, n (%)	1 (12.5)
ECMO, n (%)	0 (0)
Death, n (%)	1 (12.5)
Discharged, n (%)	7 (87.5)

COVID-19: Coronavirus disease 2019; ECMO: extracorporeal membrane oxygenation; SD: standard deviation.

The prevalence of infected patients in our cohort (4%) is consistent with previous data on patients with other inflammatory and autoimmune disorders (1). The rate of hospitalisation and death reached 37.5% and 12.5% respectively, which is dramatically higher than the rate in patients aged 50 to 59 years-old in the general population in France (3.5% and less than 1%, respectively) (2). This may be explained by the high prevalence of comorbidities associated with COVID-19 severity in sarcoidosis patients, including a diabetes rate (37.5%) three times higher than that of the general population in France (3, 4). Our results are consistent with those of previous studies showing that the use of systemic corticosteroids is a risk factor for a severe course of COVID-19 [corticosteroid therapy in 71.4% of COVID-19 patients with sarcoidosis in our study compared to 6% among ambulatory patients and 29% among hospitalised ones in the cohort of COVID-19 patients with immune-mediated inflammatory disease reported by Haberman *et al*.] (4, 5).

In conclusion, the rates of hospitalisation and mortality appeared to be higher than in the general population.

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