Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Odds Ratios (OR) of the neurological variables for the development of severe pneumonia in patients with COVID-19.

Variable	Simple logistic regression			Multiple logistic regression		
	OR	IC	P	OR	IC	P
Age <40 yo	0.10	0.03 – 0.28	0.001	0.01	0.02 – 0.35	0.001
Age 40 - 59 yo	1.39	0.49 – 3.98	0.530			
Age 50 - 59 yo	1.20	0.38 – 3.73	0.746			
Age 60 - 69 yo	2.72	0.85 – 8.65	0.090			
Age ≥70 yo	11.37	2.42 – 53.36	0.002	9.88	1.70 – 57.27	0.011
Female genre	1.87	0.84 – 4.15	0.124			
Headache	0.71	0.25 – 2.03	0.530			
Drowsiness	3.80	1.65 – 8.74	0.002	5.74	1.86 – 17.70	0.002
Dizziness or vertigo	1.25	0.53 – 2.96	0.600			
Encephalopathy	5.04	0.54 – 46.86	0.154	15.15	0.79 – 288.53	0.071
Delirium	2.40	0.21 – 27.46	0.479			
Convulsives crisis	0.57	0.05 – 6.58	0.659			
Cerebral stroke	0.00	0.00 – 0.00	1.000			
Anosmia	2.78	1.04 – 7.44	0.041			
Dysgeusia	0.47	0.18 – 1.18	0.108	0.26	0.07 – 0.86	0.028
Distal paresthesias	0.46	0.11 -1.92	0.293			
Myalgia	1.14	0.49 – 2.66	0.757			
Myopathy or hypotrophy	1.17	0.07 – 19.37	0.909			

* Multiple logistic regression analysis performed with Wald's step-forward method.

Estimated Odds Ratios (OR) of the neurological variables for intubation in patients with COVID-19

Variable	Simple logistic regression			Multiple logistic regression		
	OR	IC	P	OR	IC	P
Age <40 yo	0.20	0.07 – 0.54	0.002	0.15	0.04 – 0.58	0.006
Age 40-49yo	1.74	0.60 – 5.01	0.301			
Age 5-59yo	0.98	0.30 – 3.20	0.981			
Age 60-69yo	1.69	0.55 – 5.12	0.354			
Age ≥70yo	3.71	1.22 – 11.31	0.021	4.64	1.10 – 19.54	0.036
Female genre	2.18	0.95 – 5.01	0.066			
Headache	0.57	0.19 – 1.64	0.301			
Drowsiness	3.54	1.48 – 8.45	0.004	4.40	1.45 – 13.37	0.009
Dizziness or vertigo	1.04	0.42 – 2.53	0.928			
Encephalopathy	7.87	0.84 – 73.40	0.070	25.64	1.47 – 444.83	0.026
Delirium	3.70	0.32 – 42.36	0.292			
Convulsives crisis	0.00	0.00 – 0.00	1.000			
Cerebral stroke	0.00	0.00 – 0.00	1.000			
Anosmia	3.90	1.22 – 12.50	0.022			
Dysgeusia	0.25	0.10 – 0.66	0.005	0.11	0.03 – 0.40	0.001
Distal paresthesias	0.74	0.17 – 3.05	0.678			
Myalgia	1.36	0.55 – 3.32	0.498			
Myopathy or hypotrophy	1.80	0.10 – 29.67	0.681			

* Multiple logistic regression analysis performed with Wald's step-forward method.

Estimated Odds Ratios (OR) of the neurological variables for death in patients with COVID-19.

Variable	Simple logistic regression			Multiple logistic regression		
	OR	IC	P	OR	IC	P
Age <40 yo	0.23	0.07 – 0.73	0.013	0.28	0.78 – 1.06	0.062
Age 40-49yo	1.31	0.41 – 4.17	0.645			
Age 5-59yo	0.45	0.09 – 2.19	0.328			
Age 60-69yo	2.31	0.73 – 7.32	0.153			
Age ≥70yo	3.94	1.29 – 12.02	0.016	4.24	1.06 – 16.91	0.040
Female genre	2.66	1.04 – 6.81	0.040			
Headache	0.28	0.17 – 1.66	0.544			
Drowsiness	2.14	0.84 – 5.45	0.110			
Dizziness or vertigo	1.13	0.42 – 3.01	0.801			
Encephalopathy	14.09	1.49 – 132.96	0.021	19.95	1.57 – 252.45	0.021
Delirium	1.52	0.13 – 17.52	0.737			
Convulsives crisis	0.00	0.00 – 0.00	0.999			
Cerebral stroke	0.00	0.00 – 0.00	0.999			
Anosmia	2.04	0.62 – 6.65	0.237			
Dysgeusia	0.37	0.14 – 0.99	0.050	0.18	0.05 – 0.63	0.007
Distal paresthesias	0.72	0.14 – 3.68	0.701			
Myalgia	1.00	0.37 – 2.63	1.000			
Myopathy or hypotrophy	0.00	0.00 – 0.00	0.999			

* Multiple logistic regression analysis performed with Wald's step-forward method.

pneumonia [(67.4 vs. 35.2%; p = 0.002) and (84.8 vs. 66.7%; p = 0.041); respectively]. By simple and multiple logistic regression analysis, it was found that the neurological manifestations associated with severe pneumonia, risk of intubation and death were: anosmia, somnolence, encephalopathy and age over 70 years, in contrast to neurological manifestations with a protective effect against severe pneumonia, intubation and death were: dysgeusia and age under 40 years.

Conclusions

The presence of anosmia, drowsiness, and encephalopathy is associated with greater severity of the disease and with intubation requirements and death, while dysgeusia has a protective effect against severity, intubation and death associated, acting as prognostic factors and severity of the disease.

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119900

Subclinical myopathic changes in COVID-19

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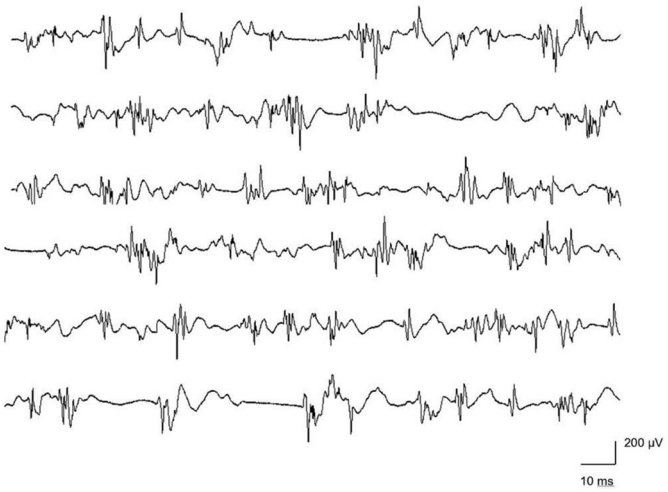
Background and aims

Coronavirus disease 2019 (COVID-19) is associated to neuromuscular symptoms in up to 10.7% of hospitalized patients. The prevalence and the characteristics of intensive care unit acquired weakness (ICUAW) in patients affected by COVID-19 have been extensively assessed, although no distinctive pattern was found. ICUAW has been described as a potential confounding factor during the identification of severe acute respiratory syndrome coronavirus 1-related myopathy. In order not to incur this potential bias, we focused on a subset of non-severe cases. Our aim was to precisely assess the extent of primary neuromuscular involvement with neurophysiological investigation in COVID-19 patients.

Methods

From April through May 2020 a total of 70 patients were hospitalized in the Internal Medicine Ward of the Fondazione IRCCS Ospedale Maggiore Policlinico in Milan, Italy. After excluding patients who underwent invasive ventilation and steroid treatment, 12 patients were evaluated. Neurological examination, nerve conduction studies (NCS) and concentric-needle electromyography (EMG) were performed.

# - Gender - Age (year)	Past medical history	Medications	Symptoms	Respiratory support	Time to EMG-ENG (days)	COVID19 treatment	Myopathic electrophysiological findings	Blood tests (obtained before EMG-ENG)						
								CPK (U/L)	LDH (U/L)	ALT (U/L)	CRP (mg/dL)	D-dimer (µg/L)	Fibrinogen (µg/dL)	Ferritin (µg/dL)
1 - F - 77	Hypertension, cholangiocharcinoma, dyslipidemia	Atenolol, hydrochlorothiazide, simvastatin	Cough, fever, diarrhea	-	32	Remdesivir, Hydroxychloroquine	-	20	159	23	1.60*	4250*	525*	1600*
2 - M - 53	Colelitiasis, dyslipidemia	Pantoprazole, simvastatin	Conjuntivitis, fever	-	18	-	-	144	446	370*	0.19	1208*	508*	754*
3 - F - 79	Hypertension	Telmisartan, hydrochlorothiazide	Dyspnea, fever, diarrhea	NIMV	46	Hydroxychloroquine	Trapezius, iliopsoas	21	627	88*	0.70*	784*	596*	1337*
4 - M - 68	Hypertension	Ramipril	Dyspnea, cough, fever	NIMV	18	-	Trapezius, iliopsoas	21	204	20	1.50*	3184*	500*	1102*
5 - M - 39	-	-	Cough, fever	-	6	Remdesivir		76	176	22	3.60*	609*	643*	474*
6 - F - 74	Hypertension	Captopril	Cough, fever conjuntivits	Low-flow O2	29	Hydroxychloroquine	Trapezius	100	258	17	0.48	5124*	379*	242
7 - M - 74	Prostate cancer, TIA, dyslipidemia	Aspirin, simvastatin, bromazepam	Cought, fever	-	31	-	-	24	147	21	0.08	4968*	596*	1580*
8 - F - 76	-	-	Dyspnea, fever, diarrhea	Low-flow O2	8	Remdesivir	-	72	303	23	3.92*	1165*	441*	1062*
9 - F - 56	Breast cancer, dyslipidemia	Simvastatin	Cough, fever	-	5	-	-	58	187	71*	8.75*	2561*	857*	297
10 - F - 79	-	-	Dyspnea, cough	NIMV	15	Remdesivir	Trapezius, iliopsoas	52	244	17	3.75*	4626*	518*	953*
11 - M - 77	AF, hypotiroidism, hypertension	Levothyroxine, dabigatran, furosemide, metoprolol	Dyspnea, diarrhea	Low-flow O2	6	-	Trapezius, iliopsoas	59	241	50	0.30	743*	355*	292
12 - F - 76	T2DM, glaucoma, hypertension	Telmisartan, timolol, insuline	Dyspnea, cough, fever	NIMV	48	Tocilizumab, Hydroxychloroquine	Trapezius, deltoid	72	588	58	5.60*	1618*	507*	1111*



Results

While nerve conduction studies were unremarkable, needle electromyography showed myopathic changes in 6 out of 12 subjects. All patients were asymptomatic for muscular involvement. Clinical features and laboratory findings did not show relevant differences between patients with and without myopathic changes.

Conclusions

Our data show that in SARS-CoV-2 infection muscular involvement can occur despite the absence of clinical signs or symptoms and should be considered part of the disease spectrum. The application of muscle biopsy to unravel the mechanisms of myofiber damage on tissue specimens could help to clarify the pathogenesis and the treatment response of coronavirus-mediated injury.

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119901

Bihemispheric ischemic strokes in patients with COVID-19

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Background and aims

There is emerging evidence that COVID-19 can trigger thrombosis because of a hypercoagulable state, including large vessel occlusion ischemic strokes. Bi-hemispheric ischemic stroke is uncommon and is thought to indicate an embolic source.

Methods

We performed a retrospective cohort study at a quaternary academic medical center between March 1st and April 30th, 2020. We identified all patients with laboratory-confirmed SARS-CoV-2 infection who presented with simultaneous bi-hemispheric ischemic strokes.

Results

Of 637 COVID-19 admissions during the two-month period, 13 had a diagnosis of acute ischemic stroke, including 5 who developed with bi-hemispheric cerebral infarction. Three (60%) were female, median age was 54 (range 41–67), and all five were being managed for severe COVID-19 related pneumonia complicated by acute kidney injury and liver failure before the diagnosis of cerebral infarction was established. Five presented with elevated ferritin, lactate dehydrogenase, and interleukin-6 (IL-6) levels, and four had lymphopenia and elevated D-dimer levels. All patients underwent neuroimaging with CT for persistent depressed mentation, with or without a focal neurologic deficit, demonstrating multifocal ischemic strokes with bi-hemispheric involvement. Outcome was poor in all patients: we discharged two to a rehabilitation facility with moderate-to-severe disability, and three (60%) patients died.

Conclusions

Stroke is implicated in SARS-CoV-2 infection. Multifocal ischemic strokes with bi-hemispheric involvement should be considered in COVID-19 patients with severe infection and poor neurologic status and may be associated with poor outcomes.

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119902

The effect of COVID-19 pandemic on patients with neurological disorders consulting telemedicine OPD

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Background and aims

Electronic or telemedicine OPDs (e-OPDs) are being utilized for providing outpatient care to neurology patients during Severe Acute Respiratory Syndrome Corona virus-2 (SARS-CoV-2) or COVID-19 pandemic.

Methods

We assessed knowledge, attitude and practices of 300 neurological e-OPD patients with regard to COVID-19 pandemic and perceived effect of this pandemic on their neurological problems via questionnaire.

Results

Out of 300 patients (60% males), people between 20 and 40 years of age (35.3%) and those with seizures (28%) and strokes (17.3%) were most frequent visitors. Though 96% of all individuals were aware of the COVID-19 disease, only 34% patients fully followed disease preventive measures. Maximum numbers of patients were aware of airborne (54%) route of disease transmission and greatest number of people used face mask (88%). Follow up patients (71.3%) most frequently utilized e-OPDs and 56.1% of these patients contacted earlier than scheduled visits. 17.3% felt that there was a delay in emergency visit. The commonest reason for delay in emergencies as well as in follow-ups was government restriction (53.8% and 40.2%, respectively) and most common reason for arrival was regular follow up in 55.1% and reasons other than emergency or insistence from caregivers in 46.7% first visits. The e-OPD interaction satisfied most of the patients as well as doctors.

Conclusions

In spite of good awareness of disease, very few patients were fully following COVID-related precautions. Fear of Government was motivating factor for most patients. There was a delay in very few