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manifestations with neuronal loss in the frontal lobe, basal ganglia, hippocampus, cerebellum were present. In most of cases the arteriolosclerosis with perivascular rarefaction was present. The reactive astrogliosis with positive astrocytic marker GFAP was seen in all cases but showed variable degrees. The perivascular activation of microglia and the microglial nodules with CD68 positive cells were in the cortex, basal ganglia, hippocampus, brainstem, but less in cerebellum. And perivascular infiltration by CD3 was most pronounced in the brainstem.

Conclusions

Thus, the morphological changes of the CNS associated with COVID-19 include ischemic infarction with encephalolysis, astrogliosis, microgliosis, perivascular infiltration by CD3 in different regions of the brain.

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119838

Muscle manifestations and CK levels in COVID infection: Results of a large cohort of patients inside a pandemic COVID-19 area

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Background and aims Objective

to investigate both muscular manifestations and CK levels in a large cohort of patients with COVID-19 infection and to determine whether hyperckemia is associated with morbidity and mortality.

Methods

Data of 615 patients discharged from ASST Ovest Milanese (Milan, Lombardy, Italy) with final diagnosis of COVID-19 infection were retrospectively extracted from electronic medical records from 21 February to 1 May 2020. Patients were descriptively analyzed with respect to the following variables: sex, age, muscular manifestations (myalgia and/or arthralgia), fatigue, respiratory involvement (SARS pneumonia or respiratory failure) and history of falls. Association between patients' characteristics and CK levels was investigated. In addition, the proportion of patients who died following access to the ER was calculated. Finally, the effect of CK levels and other patients' features on mortality was estimated using a logistic regression model.

Results

176 (28.6%) patients had raised serum CK levels. CK levels were significantly associated with history of falls, male gender, SARS pneumonia, respiratory failure and in-hospital death. No correlation was found between hyperckemia and muscular manifestations.

Conclusions

Our study provides preliminary evidence that hyperckemia is associated with respiratory failure and fatal outcome in patients with COVID-19 infection. In these patients, among other testing, CK dosage is recommended.

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Asymptomatic peripheral neuropathy in patients with SARS-CoV-2 infection

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Background and aims

Several neurological complications related to SARS-CoV-2 infection have been reported. The involvement of peripheral nervous system (PNS) consists in the development of immune-mediated neuropathies such as Guillain-Barré Syndrome. In this study we aim at assessing the presence of asymptomatic abnormalities in peripheral nerves conduction during the acute phase of COVID-19 and, their correlation with blood circulating inflammatory markers.

Methods

Thirty-nine patients with COVID-19 were assessed by electroneurographic study of lower limbs and blood tests within one week of hospital admission (T0) and after 30 ± 10 days (T1).

Results

Electroneurographic changes were found at least on one nerve at T0 in 12 patients, consisting of axonal or demyelinating changes. Two biological markers were found to be significantly correlated with the presence of neuropathic changes: Reactive Protein C and lymphocyte count. Patients with pathological electrophysiology at T0 showed significant improvement of electrophysiological parameters at T1. The improvements in electroneurographic data were significantly correlated with the trend of laboratory parameters, in particular with fibrinogen, D-Dimer, ferritin, C Reactive protein and lymphocytes. None of the patients with neuropathic changes developed clinical evidence of a full-blown peripheral neuropathy over time.

Conclusions

Our study shows that asymptomatic alterations of the PNS can be found during the acute phase of COVID-19. These alterations significantly improve after 20–40 days from the acute phase of infection and that the improvement correlates significantly with the trend of laboratory parameters. Further studies are needed to evaluate possible long-term neurological complications and the predictive value of subclinical damage of PNS in the acute phase of infection.

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119840

Neurocovid: Can CSF immune reactivity give new insight on neurological manifestations in COVID-19 patients?

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Background and aims

Neurological manifestations have been increasingly associated with COVID-19, but there is little evidence of a direct viral