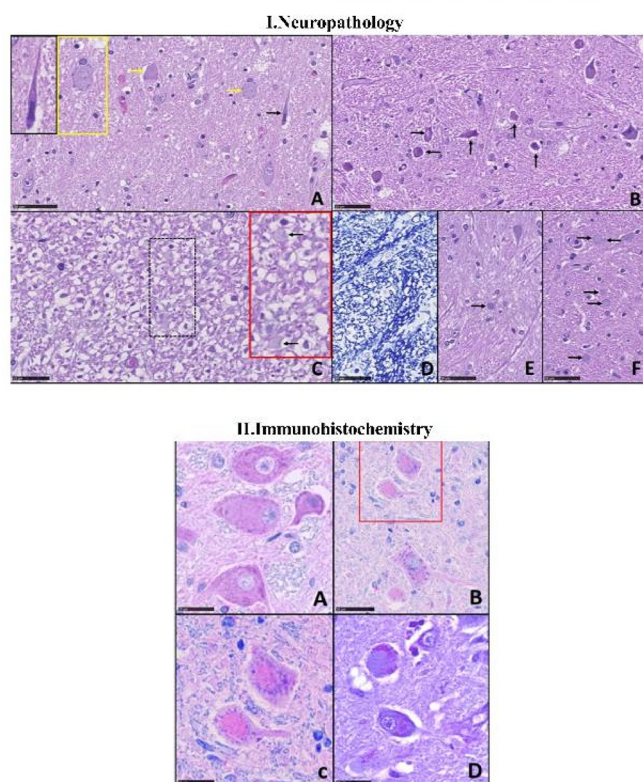




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functional correlate, we studied the blink reflex (BR) in 11 COVID-19 patients, admitted to our Intensive Care Unit (ICU), and compared data both with healthy subjects and non COVID-19 ICU patients. BR assesses a ponto-medullary circuitry partly involving the reticular formation (RF) close to the respiratory nuclei; RF itself modulates the activity of the respiratory centers. An extensive neurological examination, comprising the corneal and glabellar reflexes, was also performed.

Results

Autopsies showed a high percentage of neuronal damage and a higher number of CA in the medulla oblongata of COVID-19 patients; immunohistochemistry revealed the presence of SARS-Cov-2 virus in the brainstem (Fig. 1). Neurophysiologically, the medullary RII component of the BR was selectively impaired in COVID-19 and, clinically, the glabellar reflex severely impaired or absent.

Conclusions

Our findings provide the neuropathological, neurophysiological and clinical evidence of SARS-Cov-2-related brainstem involvement, suggesting a neurogenic component of respiratory failure.

doi:10.1016/j.jns.2021.117805

117806

Neurologic disease and COVID-19: A comparative study between first and second wave hospitalized patients in Brescia, Lombardia, Italy

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Background and aims

Neurological disorders have been variably associated with SARS-CoV-2 infection. The aim of this study is to compare clinical and laboratory characteristics and outcomes of neurological patients admitted during the first and second waves of COVID-19 pandemic in a neuro-COVID unit.

Methods

In this retrospective study, we included all adult inpatients with confirmed COVID-19, admitted to a Neuro-COVID Unit during the first (February 21–May 31, 2020) and the second (February 21–May 31, 2020) pandemic wave. Demographic, clinical and laboratory data were extracted from medical records and compared by Mann-Whitney *U* test, χ^2 test or Fisher's exact test where appropriate.

Results

191 patients were included in this study, 112 admitted during the first wave and 79 throughout the second spreading. Second wave patients exhibited a lower qSOFA score on admission ($0.59 + 0.7$ vs $0.88 + 0.7$, $p = 0.010$), resulting in a less oxygen support needed. Steroid treatment was adopted in about 4% of patients admitted during the first wave, but in 53% of second outbreak, adjusted for disease severity ($p = 0.001$). The incidence of cerebrovascular diseases was significantly lower in the second outbreak ($n = 28$, 34.6% vs $n = 73$, 65.2%, $p = 0.001$) with a less severity outcome (mean NIHSS score $1.8 + 4.4$ vs $9.36 + 7.3$, $p < 0.000$) and a lower in-hospital mortality rates ($n = 12$, 14.8% vs $n = 35$, 31.3%, $p = 0.009$).

Conclusions

Second wave COVID-19 patients admitted with neurological diseases exhibited a lower incidence and a reduced severity of cerebrovascular disease compared to those of the first outbreak, with less systemic inflammatory response and in-hospital mortality. Longitudinal studies are warranted in order to understand the impact of early immunomodulator treatments in neurological COVID-19 patients.

doi:10.1016/j.jns.2021.117806

117807

Spectrum, risk factors and outcomes of neurological complications of COVID-19

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Background and Aims

SARS-CoV2 is associated with neurological and psychiatric complications including cerebrovascular events, encephalopathy and peripheral nerve disease. Detailed clinical data is lacking, hampering prediction modelling and targeted therapeutic interventions.

Methods

We conducted a UK-wide cross-sectional surveillance study of 267 adult hospitalised patients with SARS-CoV2 infection and neurological and psychiatric complications. Detailed demographic and clinical data was provided by reporting physicians from multiple specialities. A priori clinical case definitions were used, with cross-specialty adjudication for discrepant cases.

Results

Cerebrovascular events were most frequent ($n = 131$), followed by delirium ($n = 28$), central inflammatory ($n = 25$), psychiatric ($n = 25$), and other encephalopathies ($n = 17$), including a severe encephalopathy ($n = 13$) not meeting delirium criteria; and peripheral nerve disease ($n = 41$). COVID-19 associated strokes were younger and had more conventional risk factors compared to pre-pandemic normative data. 27% of strokes occurred in patients under 60 years old: these had delayed onset from respiratory symptoms, higher rates of multi-vessel occlusion (31%) and systemic thrombotic events. Cases with severe encephalopathy were younger and had a greater usage of intensive care compared to delirium. In a multivariable model, increasing age, pre-admission frailty and admission white cell count were more predictive of negative outcomes than diagnostic group.

Conclusions

COVID-19-associated stroke is more likely to affect younger patients with conventional risk factors, and with a distinct phenotype suggestive of systemic coagulopathy. There is consensus recognition of severe encephalopathy atypical for delirium occurring in patients with severe COVID-19. Overall, pre-morbid factors have the greatest effect on outcome. These findings will inform mechanistic studies and patient stratification in future clinical trials.

doi:10.1016/j.jns.2021.117807

117808

Guillain-barré syndrome and COVID-19: An observational multicenter study

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