

Immune-mediated central nervous system disease in 48 COVID-19 patients

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Abstract

To summarise and discuss current knowledge about SARS-CoV-2-associated infectious/immune-mediated central nervous system (CNS)-disease.

Altogether 28 articles were found, which reported 48 patients with SARS-CoV-2-associated infectious/immune-mediated CNS-disease. Age ranged from 22 to 79y. There was male preponderance. There were 14 patients with infectious CNS-disease (meningitis (n = 1), encephalitis (n = 5), meningo-encephalitis (n = 5), myelitis (n = 3)), and 34 patients with parainfectious CNS-disease (encephalopathy (n = 18), autoimmune encephalitis (n = 11), acute, disseminated, encephalomyelitis (n = 3), acute, haemorrhagic, necrotizing encephalopathy (n = 2)). The cerebrospinal fluid (CSF) was tested for SARS-CoV-2 in 40 patients and was positive for the virus in 4 patients with infectious CNS-disease but was negative for the virus in all patients with parainfectious CNS-disease. Immune-modulating treatment may be more effective than virostatics/antibiotics for SARS-CoV-2-associated infectious/parainfectious, non-vascular, non-hypoxic CNS-disease. In patients with autoimmune encephalitis plasmapheresis may be beneficial. Twenty-two patients recovered, 2 did not, and 6 patients died.

SARS-CoV-2 can cause infectious/immune-mediated CNS-disease. The CSF is positive for virus-RNA in only few patients with infectious CNS-disease but negative for virus-RNA in immune-mediated CNS-disease, suggesting an immune-mediated pathophysiological mechanism. The outcome of SARS-CoV-2-associated infectious/immune-mediated CNS-disease is favourable in the majority of cases but can be fatal in single cases.

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Biography

Professor received his MD from klinikum Landstrasse, Messerli Institute. He completed his postdoctoral studies in St. Louis University School of Medicine/Liver Centre, St. Louis/MO, USA. He studied particularly in fatty liver disease, viral hepatitis, inflammatory bowel diseases (crohn's and

chronic ulcerative colitis) biology and therapeutics for 20+ years, during which time he has authored more than 100 peer-reviewed research articles and one book chapter and one book/published in NY 2008 and 2009.