

Immune-mediated neurological syndrome in SARS-CoV-2 infection: a review of literature on autoimmune encephalitis in COVID-19

ABSTRACT

Abstract Introduction The novel Coronavirus Disease 2019 (COVID-19) is an infection caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which has been spreading rapidly amongst humans and causing a global pandemic. The notorious infection has shown to cause a wide spectrum of neurological syndrome, including autoimmune encephalitis. **Objective** Here, we systematically review the literature on autoimmune encephalitis that developed in the background of SARS-CoV-2 infections and also the possible pathophysiological mechanisms of auto-immune mediated damage to the nervous system. **Methodology** An exhaustive search was made in Medline/PubMed, Embase, Scopus and other medical databases, and 28 relevant published articles were selected according to the strict inclusion criteria. **Results** Autoimmune encephalitis can occur via three possible proposed pathophysiological mechanism and can manifest during or after the acute infection period. It is more common in adult but can also occur in the paediatric patients. There were various spectra of autoantibody panels reported including antineuronal antibody, anti-gangliosides antibody and onconeural antibody. Majority of the patients responded well to the immunomodulating therapy and achieved good recovery. **Conclusion** In conclusion, SARSCoV-2 infection can induce various spectrum of autoimmune encephalitis. It is a major concern since there is very limited long-term study on the topic. Hence, this review aims to elucidate on the potential long term complication of SARS-CoV-2 infection and hopefully to improve the management and prognosis of COVID-19.