

CONTROVERSIES AND DIFFICULTIES OF THE THERAPEUTIC MANAGEMENT OF EPILEPTIC SEIZURES IN PATIENTS INFECTED WITH COVID-19

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Abstract

Background. The pandemic infection with coronavirus SARS-CoV2 has emerged as one of the greatest health challenges, a global concern of the 21th century. Apart from its known acute respiratory involvements, the central nervous system manifestations of COVID-19 are quite common.

Coronaviruses have neurotropic and neuroinvasive proprieties, disrupt the neuronal and glial functions, with various clinical manifestations, including: dizziness, headache, impaired/ loss of consciousness, febrile seizures, convulsions, encephalomyelitis, and encephalitis, cerebrovascular disease, ataxia.

Neuroinflammation triggered by the high levels of pro-inflammatory cytokines cause blood-brain barrier disruption, increases at pathologic levels excitatory neuromodulators (glutamate and aspartate) and reduce GABA levels, impairs the ion channels` function, and finally induces seizures (focal, generalized, or status epilepticus) .

Material and methods. An advanced search of literature using PubMed database (focusing three associated keywords: seizures, epilepsy and COVID), has revealed 175 references, respectively 8 systematic reviews.

Discussion. The possible neuroinvasive risk linked with severe SARS-CoV-2 infections can be associated with an increased risk of seizure recurrence, or the development of new onset and acute symptomatic seizures. Occurrence of de novo seizures in patients with COVID-19 (mainly elderly, during the first pandemic wave), the pathophysiological mechanisms, electroencephalographic (EEG) findings and brain imagery in patients with severe COVID-19, respectively the consequences of this catastrophic disease in people with epilepsy, are succinctly presented in this narrative review.

Telemedicine may be a helpful technologic aid that can improve access to supervised care in these difficult times. Pharmacological management of seizures / epilepsy in severe COVID-19 infected people must be tailored to the underlying pathophysiological mechanisms, require an appropriate selection and adjustment of antiepileptic drugs (AEDs), due to the potential pharmacokinetic and pharmacodynamic drug-drug interactions of the AEDs with medication used in SARS-Cov2, respectively their cardiac, hepatic, or renal adverse effects. Liverpool COVID-19 drug interactions and the Italian League Against Epilepsy offer valuable well synthesized data on specific medications. Physicians' opinions on the necessity of COVID-19 vaccination in patients with epilepsy represent also a challenging issue.

Conclusions. Clinical susceptibility, the diagnosis and therapeutical management of epilepsy / seizures in people contracting COVID-19 should be further investigated.