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Febrile Seizures in COVID-19 Patients Are Multifactorial

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Letter to the Editor

We read with interest the article by Cadet et al[1] about a retrospective multi-center database study on the frequency, characteristics, and treatment of febrile seizures in children infected with SARS-CoV-2. Included were 44 children with febrile seizures and concomitant SARS-CoV-2 infection.[1] It was found that 0.5% of the pediatric COVID-19 patients experienced febrile seizures, that the majority of these patients have no coinfections, and that 9% of them required intensive care unit service.[1] It was concluded that pediatric COVID-19 can be associated with febrile seizures and that 0.5% of the pediatric patients with COVID-19 develop febrile seizures.[1] The study is valuable but raises concerns that require discussion.

A limitation of the study is that 14 of the included patients had infections with agents other than SARS-CoV-2. One had enterovirus infection, 4 otitis media, 1 pneumonia, 3 urinary tract infections, and 7 nonspecific infections.[1] Three patients even had sepsis.[1] These 14 subjects should be excluded from the evaluation because it cannot be excluded that infectious agents other than SARS-CoV-2 were responsible for febrile seizures.

A second limitation attributable to the study design is that no systematic workup for the cause of febrile seizures had been carried out. Because pediatric COVID-19 patients may manifest in the central nervous system with encephalitis, meningitis, ventriculitis, acute disseminated encephalomyelitis, multiple sclerosis, or neuromyelitis optica,[2,3] it is crucial that these differential diagnoses of seizures were excluded before attributing febrile seizures to SARS-CoV-2.

Only 5 patients received antiseizure drugs and 11 patients received benzodiazepines. We should know if benzodiazepines were administered as an antiseizure treatment or for sedation or as an anxiolytic agent. We should be informed why 28 patients did not require antiseizure medication.

Because febrile seizures can be the initial manifestation of a genetic epilepsy,[4] it is worthwhile to know in how many of the included patients the family history was positive for epilepsy.

We do not agree with the statement that the cause of neuro-COVID can be classified into 3 categories.[1] The vascular endothelial injury is usually attributed to immune-mediated conditions, such as endothelialitis or vasculitis.[5] Therefore, neuro-COVID either stems from the direct viral attack or immune-mediated phenomena.

It is reported that 30 patients had simple febrile seizures and 3 a status epilepticus. We should be informed if the remaining 11 patients had complex febrile seizures.

It would be also interesting to know how many of the 8854 patients screened had seizure in the absence of fever.

Overall, the interesting study has some limitations and inconsistencies that call the results and their interpretation into question. Clarifying these weaknesses would strengthen the conclusions and could add value to the study. Febrile seizures attributable to COVID-19 may be less common than anticipated.

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