Epilepsy and COVID-19’s Double-Edged Sword
More Severe Disease and Delayed Epilepsy Care

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Very early into the COVID-19 pandemic, it became clear that people with preexisting medical conditions, including people with epilepsy, were at greater risk of more severe consequences from COVID-19.1,2 In this issue of Neurology®, 2 studies address the increased risks associated with COVID-19 for people with epilepsy and the effects the shutdown had on providing epilepsy care.3,4

In a thoughtful study of >200,000 adults (>20 years of age) who had PCR SARS-CoV-2 testing in The Republic of Korea, Yoo et al.3 found that people with epilepsy did not have a higher risk of acquiring SARS-CoV-2 infections (1.84% vs 2.12%; odds ratio [OR] 0.86, 95% CI 0.67–1.11) but those who developed COVID-19 infections had a higher risk of developing serious complications, including intensive care unit admission, mechanical ventilation, and death (18.06% vs 9.72%; OR 2.05, 95% CI 1.04–4.04). Mortality was higher but not significantly so (9.72% with and 6.48% without epilepsy; OR 1.55, CI 0.65–3.70).

The effect sizes reported by Yoo et al.3 are comparable to those from a meta-analysis of studies done during the early part of the COVID-19 pandemic that suggested that severe outcomes were more common in people with than without epilepsy.2 The study enrolled adults and was performed prior to the availability of any vaccines (January 1–June 4, 2020). A study in children (<21 years of age) and slightly later in the pandemic (March 15, 2020, through December 15, 2020) but still before availability of vaccines found that 21.5% of children hospitalized for PCR-positive COVID-19 developed neurologic involvement during their hospitalization (neuro-COVID).5 Those with neuro-COVID were more likely to be admitted to the intensive care unit, to require mechanical ventilation or extracorporeal membrane oxygenation, had longer lengths of stay, and were more likely to die or have other serious posthospitalization outcomes. Children at greatest risk for neuro-COVID during admission had preexisting neurologic conditions, the most common of which was epilepsy: 16% with neuro-COVID had epilepsy vs 3% without neuro-COVID.

The reasons people with epilepsy have more severe COVID-19 outcomes are unclear. One factor may be the interaction of drugs used to treat seizures (and other neurologic and non-neurologic conditions) with the medications used to treat COVID-19.6,7

In addition to the fact that people with epilepsy may face more severe disease if they have COVID-19, the pandemic has other adverse effects on their care. In a study of tertiary epilepsy centers in the United States, Ahrens et al.4 found that video-EEG admissions and epilepsy surgeries declined by about 23% in the summer of 2020 as compared to 2019. Hospital beds usually assigned to patients with epilepsy were filled with patients with COVID-19 and epilepsy monitoring units were closed. Early in the pandemic, these decisions appeared justified, as epilepsy video-EEG monitoring admissions are frequently considered “elective” and the risks of infection and severe morbidity and death were, at the time, alarmingly high. Some of the decisions were driven by the need to make space for extremely ill patients who could only be cared for in the hospital. But many restrictions were imposed as a reaction to the unknowns of COVID-19. The consequences of these changes may not be readily apparent. We may never
know, for example, how many patients died of sudden unexpected death in epilepsy or injured themselves during a seizure while awaiting admission for epilepsy surgery during the pandemic. We are just starting to measure the health costs of these measures. Hopefully we will learn from the experience to ensure that pandemic precautions in the future do not create greater risks and harms to patients with epilepsy (or other disorders requiring urgent care) than the next pandemic disease itself.

As a result of the pandemic, we all went through a crash course in telemedicine. Telehealth visits greatly increased during the pandemic, as reported by Ahrens et al.⁴ In some ways, this may have improved access to care, as transportation is a frequent barrier to care for people with epilepsy. The extent to which telehealth visits can provide the same level of care and meet the same needs of patients as traditional in-person visits remains to be seen. The data presented by Ahrens et al.⁴ suggest that there may have been important compromises for patients who required hospital-based procedures.

As the pandemic has evolved from an acute to a chronic situation, we have learned that we need to be wiser about counterbalancing the benefits of medical therapies and evaluations for other medical conditions such as epilepsy (EEG monitoring, surgeries) against the risks and consequences of infection. The pandemic pushed telehealth rapidly to emerge as a valuable component in health care delivery. Regulators and administrators must recognize that it is here to stay, but it cannot replace all care. Robust uptake of primary preventive measures, especially vaccination, can provide the needed balance. If we could address the health literacy (or illiteracy) in the United States and elsewhere that moves so many to avoid well-vetted and safe primary prevention methods, vaccination in particular, perhaps we could manage the ongoing and future outbreaks more effectively.

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**References**
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