Epilepsy and COVID-19's Double-Edged Sword: More Severe Disease, Delayed Epilepsy Care

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Very early into the SARS-CoV-2 pandemic, it became clear that people with pre-existing medical conditions, including people with epilepsy, were at greater risk of more severe consequences from COVID-19 infections.\(^1,^2\) In this issue of NEUROLOGY, two studies address the increased risks associated with COVID-19 infections for people with epilepsy and the impact the shutdown had on providing epilepsy care impact of COVID on people with epilepsy. \(^3,^4\)

In a thoughtfully study of over 200,000 adults (>20 years) who had PCR COVID-19 testing in The Republic of Korea, Yoo et al.\(^3\) found that people with epilepsy did not have a higher risk of acquiring COVID-19 infections (1.84% versus 2.12%, odds ratio (OR)=0.86, 95% C.I., 0.67-1.11) but that they had a higher risk of developing serious complications, including ICU admission, mechanical ventilation, and mortality (18.06% versus 9.72%; OR=2.05, 95% C.I. 1.04-4.04). Mortality was higher but not significantly so (9.72% with and 6.48% without epilepsy, OR=1.55, C.I. 0.65 – 3.70).

The effect sizes reported by Yoo and colleagues 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 with.\(^2\) Yoo et al.’s 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 pre-availability of vaccines, found that 21.5% of children hospitalized for PCR-positive COVID-19 infections developed neurological involvement during their hospitalization (“neuro-COVID”).\(^5\) Those with neuro-COVID were more likely to be admitted to the ICU, require mechanical ventilation or ECMO, had longer lengths of stay, and were more likely to die or have other serious post-hospitalization outcomes. Children at greatest risk for neuro-COVID during admission had pre-existing neurological conditions, the most common of which was epilepsy: 16% with neuro-COVID had epilepsy versus 3% without neuro-COVID.

The reasons people with epilepsy have more severe COVID outcomes is unclear. One factor may be the interaction of drugs used to treat seizures (and other neurological and non-neurological conditions) with the medications used for COVID-19 infections.\(^6,^7\)

While people with epilepsy may face more severe disease if they have COVID-19, the pandemic has additional adverse effects on the care of patients with epilepsy. In a study of tertiary epilepsy centers in the United States, Ahrens et al., found that video-EEG admissions and epilepsy surgeries declined by about 23% in the summer of 2020 as compared to 2019.\(^4\) 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 admission 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 SUDEP 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 significantly increased with the pandemic as reported by Ahren et al. 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. Ahrens et al.’s data suggests there may have been significant compromise for patients who required hospital-based procedures.

As the pandemic has evolved from an acute to a chronic situation, and likely not the last of its kind, 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 healthcare 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 US 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.

References:
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