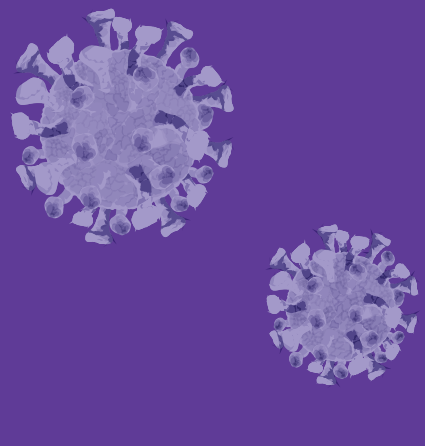


COVID-19 and Epilepsy

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COVID-19 Infection in People with Epilepsy

- ◆ It is unclear whether people with epilepsy (PWE) are more likely to contract COVID-19, as prevalence in the general population is difficult to determine. In addition, epilepsy is not a single disorder, and case numbers may be confounded by the number of PWE living in long-term care homes where prevalence is expected to be higher.

- ◆ Patients with underlying neurological diseases, including epilepsy, are at greater risk of developing COVID-related neurological complications.

- ◆ A recent cohort study suggests that PWE who contract COVID-19 are at higher risk for severe complications (i.e. mechanical ventilation, admission to the ICU, or mortality within 2 months of a COVID-19 diagnosis) than COVID-19 patients without epilepsy. However, comorbidities may mediate this relationship. Factors such as hypertension, older age, diabetes, and cardiac or respiratory disease are risk factors for severe COVID-19 and also for epilepsy. Regardless, the presence of comorbid conditions may place PWE at greater risk of serious disease if infected with COVID-19.

- ◆ Evidence from the Canadian Paediatric Surveillance Program (CPSP) suggests that epilepsy is associated with increased risk of severe COVID-19 among children hospitalized with SARS-CoV-2 infection.

- ◆ Studies of small groups of patients have suggested mortality may be higher in PWE, but findings are inconsistent and have yet to be confirmed in larger studies. However, such findings highlight the importance of strategies to prevent COVID-19 infection in PWE.

COVID-19 Pandemic, Mental Health and Epilepsy

- ◆ The pandemic has created new barriers to epilepsy care (e.g., difficulty obtaining anti-seizure drugs (ASDs), visiting the pharmacy, and/or contacting neurologists). It has been suggested that epilepsy monitoring unit admissions declined by almost 25% in 2020, partly due to patient reluctance for elective admissions and fear of contracting COVID-19.

- ◆ Reports of an increased number of seizures during the pandemic are associated with increased stress levels and changes to ASD regimens.

- ◆ PWE report increased depression, anxiety, social isolation, and poorer quality of sleep since the onset of the pandemic. Anxiety and stress have been related to PWE worrying about contracting COVID-19 and lack of ability to receive care and/or obtain treatment.

- ◆ PWE seeking mental health support are encouraged to use telehealth services when possible (call Health Connect Ontario at 811).

Vaccine Hesitancy

- ◆ Vaccine coverage is lower among PWE. Studies show greater levels of vaccine hesitancy among PWE and among those with depression or anxiety.

- ◆ The primary concern among patients and caregivers appears to be a worsening of seizures. Other concerns include the speed of vaccine development, potential long-term side effects, interactions with ASDs and lack of safety data in PWE.

- ◆ Vaccination decisions may be especially complex in patients with Dravet syndrome, in whom childhood vaccination can coincide with initial seizure onset and carries a risk of increased seizures. Prior association of seizures with other vaccines correlates with unwillingness to receive a COVID-19 vaccine.

- ◆ Neurologists and epileptologists are considered a trusted information source and thus **clinicians should be prepared to advise patients on vaccine safety and efficacy.**

Vaccine Safety

- ◆ To date, vaccine safety studies in people with epilepsy are largely survey-based cross-sectional studies that utilize a variety of vaccines and thus high-quality evidence is lacking. However, a **recent systematic review suggests that vaccines are well-tolerated in this population** (Lin et al., 2022).

- ◆ **Most side effects reported in PWE are mild and transient** (e.g. fever, fatigue, headache and soreness at injection site). Studies suggest **side effects are seen in 20% - 33% of patients**, which is consistent with the general population. Although rare, there have been reports of seizure worsening and status epilepticus (SE) following vaccination. Poorly controlled epilepsy may be associated with seizure worsening.

- ◆ **In patients with Dravet syndrome, where immune-related pathways may trigger seizure onset, the expert consensus remains in support of vaccination;** however, prophylactic measures such as antipyretics

and bridge ASDs may be used. In a study of 120 Dravet syndrome patients (83% of whom received the Pfizer-BioNTech vaccine), the most commonly reported side effects were lethargy and soreness at injection site. 13% of patients who received a COVID-19 vaccination reported increased seizure activity with no reports of SE (Hood et al., 2022).

Drug Interactions with COVID-19 Treatments

- ◆ **Certain ASDs and treatments should not be co-administered with the oral anti-viral drug Paxlovid (nirmatrelvir/ritonavir)** due to induction of hepatic enzymes. These include carbamazepine, phenobarbital and phenytoin. Potential interactions may also occur with cannabidiol, lamotrigine, and valproic acid. Using more than one ASD may increase the risk of drug interactions.

- ◆ Individuals taking **Paxlovid with benzodiazepines** (e.g. diazepam, clobazam, and clonazepam) should be monitored closely by a physician as co-administration may increase blood levels.

- ◆ **Drug interactions may lead to toxicity, therapeutic failure, increased potential of**

adverse effects and increased seizure frequency.

- ◆ Visit the **University of Liverpool's COVID-19 interaction checker** for more information on drug interactions.

Other Safety Recommendations

- ◆ To minimize the potential exacerbation of seizures in PWE during the pandemic, health care providers should ensure that PWE **adhere to ASD regimens** and consider a 3-month prescription for ASDs.

- ◆ PWE should have an **emergency care plan** (i.e., have rescue medications on hand).

- ◆ PWE should **remain isolated** from close contacts of those who have tested positive for COVID-19 and symptomatic individuals where possible.

Disclaimer: This handout summarizes recent studies on epilepsy and COVID-19; however, there is insufficient evidence in this population to draw conclusions. The information presented is current to September 2022 and will be updated as more evidence becomes available. This information is not intended to be taken as medical advice.



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