

# Seizures in older adults: Assessment and support in the ED

By Cathy Sendeki, BSN, RN, GNC(C)

The incidence of new onset seizures increases after the age of 60. According to Ontario data, nearly 25% of new cases of epilepsy occur in this age group (Epilepsy Ontario, 2012). The prevalence of seizures increases from 5.3 per 1,000 population aged 46–64 to 6.9 after the age of 65 (Theodore, 2006). This increase, in conjunction with the growing population of aging “boomers”, means we can expect to treat more seniors with this diagnosis. Some aspects of seizures in this population are unchanged from what is experienced by younger adults, but there are some specific concerns to be appreciated with older adults.

Seizures occurring at any age can be classified as partial, also termed focal, or generalized, and further delineated as simple or complex. Complex seizures are accompanied by a change in level of consciousness (LOC) ranging from unawareness of the episode to a prolonged post-ictal period of drowsiness or altered LOC. During simple seizures, the person remains aware during the event. Another consideration in understanding seizures is that they may be provoked or epileptic. Provoked or reactive seizures occur in response to an abnormality, for example metabolic abnormalities such as hypoglycemia or hyponatremia, uremia or hepatic encephalopathy, alcohol or benzodiazepine withdrawal, central nervous system (CNS) infection such as encephalitis, or with the use of some medications. Provoked seizures may be caused by a structural abnormality such as a tumour or subdural bleed. The term “epilepsy” generally refers to two or more unprovoked seizures occurring more than 24 hours apart. In seniors, the majority of new onset epileptic seizures are due to a previous stroke. New onset seizures are also associated with degenerative neurological conditions such as Alzheimer’s disease, but in approximately half of the cases, a cause is not found.

As with many conditions, older adults often present atypically. Partial seizures are most common in older adults and are less likely to progress to generalized motor activity, as the neural connections of older adults are not as readily stimulated as those in younger subjects. In younger adults, an aura may be identified. This is less likely in older adults, although some note dizziness or poorly defined muscle cramps prior to these episodes. Seizures may present as episodic confusion, drowsiness or clumsiness rather than overt motor symptoms. Unusual sensations of movement, especially to the face, may be reported by patients; one described the sensation “of my nose being tweaked.” The post-ictal phase is often prolonged, lasting from several hours up to two weeks (Abdulla, & Austin, 2013). Todd’s Paralysis, characterized by unilateral weakness, is also more frequent with older adults, usually following partial or generalized seizures. These symptoms mimic a stroke, but resolve within 48 hours.

Convulsive and nonconvulsive status epilepticus may occur. Convulsive status epilepticus is treated as for younger adults, with a benzodiazepine such as Lorazepam to stop the seizure, and anti-epileptic medication to provide ongoing stabilization. In older adults, comorbidities often affect the outcome. For example, cardiac function may be adversely affected by prolonged seizure activity and hypotension may result from medications given. Non-convulsive status epilepticus (NCSE) can occur in elderly patients who may present with confusion, psychosis, lethargy or even coma. This may also present as a more focal disturbance such as aphasia or neglect. The majority of cases of NCSE occur with acute medical conditions such as organ failure, drug toxicity, and alcohol or benzodiazepine withdrawal. Acute or remote stroke or dementia may also contribute (Boggs, 2016).

Clearly, seizures can be difficult to identify in the older adult population. Is the mental clouding due to delirium? Are the myoclonic movements described by companions associated with a vasovagal episode? Is the aphasia due to a TIA? Are tremors due to fever? Or could seizures account for the changes? Understandably, the diagnosis of a seizure disorder in this population is often delayed, up to two years (Abdulla, & Austin, 2013). One source cites 15% of conditions initially diagnosed as strokes being found, on further investigation, to be seizures (Huff, 2002).

Of course, the identified acute illness requires treatment, but unusual or ongoing symptoms may require further investigation. In the ED, appropriate blood work includes electrolytes, glucose, magnesium, renal and liver function tests. An ECG is needed, with monitoring of those with ongoing concerns about cardiac status. A CT head scan will help to identify acute structural changes or previous strokes. If seizure activity persists, an electro-encephalogram (EEG) may help to elucidate the cause, but in older adults, the results tend to be non-specific and an EEG done when seizure activity is not present will often not be diagnostic. Magnetic Resonance Imaging (MRI) may provide more information, but is seldom available during the ED presentation. History is vital, but not always available. Was this a witnessed episode? Have similar symptoms been observed before? Are there signs commonly associated with generalized seizures such as incontinence or bites to the lateral aspect of the tongue or inner cheek?

Treatment will depend on the cause and severity of the seizures, the effect on the patient’s quality of life, and the side effects of the required medications. Medication is generally prescribed for epileptic seizures, as this is effective for approximately 70% of these patients. Anti-epileptic medication may be prescribed for provoked seizures until the causative abnormality is resolved, for example infectious encephalitis.


As with many conditions in older adults, the ED visit may not provide the definitive diagnosis. Some conditions such as an intracranial bleed may be ruled out; other investigations are needed to rule out or identify others, such as Holter monitoring to detect cardiac dysrhythmias. If the patient has had a single identified seizure of unknown cause, medication will not likely be prescribed. If further seizures occur and are affecting the patient's quality of life, medication is indicated and is generally effective in preventing further seizures.

The choice of medications for treating epilepsy in older adults must include appreciation of the anticipated side effects. Lower doses than those prescribed for younger adults may be effective in controlling seizures, and doses should be titrated to effect rather than serum levels. First generation anti-epileptics such as Phenytoin and Carbamazepine are often sedating. For seniors with some cognitive impairment or gait instability, these medications may make day-to-day life much more difficult. They may increase hepatic clearance of other medications being taken, thereby decreasing their effect. Second-generation medications such as Gabapentin and Lamotrigine are better tolerated and have fewer drug interactions, but are more costly. For patients with Alzheimer's disease, Levetiracetam may be better tolerated, but long-term results are not yet known. Long-term use of anti-epileptic medications is a risk factor for osteoporosis; adequate calcium and Vitamin D are recommended.

ED nurses can contribute to obtaining an accurate history and by maintaining an index of suspicion for seizure activity. Does the medication reconciliation include benzodiazepines? Are there concerns with compliance resulting in withdrawal? Are there new prescriptions such as Tramadol, Ampicillin, or tricyclics that may lower the seizure threshold?

We need to help these patients and those caring for them with safety issues. If this person is not allowed to drive, what alternatives are available? A referral to an occupational therapist may be indicated, or information about available modes of

transportation. Personal alarms may be helpful, as some are programmed to activate if the wearer falls, or does not indicate at intervals that he is, in fact, well. These patients are at increased risk of drowning in even a shallow amount of water and need to have adequate supervision for their safety when bathing or swimming. They need to avoid falls from heights such as ladders, particularly as more severe injuries are likely with increasing age, and patients should be counselled about injury prevention measures such as hip protectors. Helmets are available to decrease the likelihood of head injury. Some manufacturers of hip protectors also offer head protectors with accessories such as a sun hat or toque to cover the appliance.

For most older adults, a new diagnosis of a seizure disorder means they and their loved ones need to adapt to one more chronic illness. Our attention to their physical and emotional care in the ED and their education and support as they engage in their ongoing care can make a real difference in how well they manage. These patients will need to work closely with their primary caregivers; adjustments to medications may be needed, but they can be reassured that good results can generally be expected and, if side effects are intolerable, a different regimen may be better. Unfortunately, for many people, further cerebrovascular insults will occur and neurodegenerative diseases such as Alzheimer's disease will worsen, but symptom management and safety measures can help to maintain the best possible quality of life. 

### About the author



Cathy Sendeck, BSN, RN, GNC(C), has worked at Burnaby Hospital Emergency Department since 1987, in the past several years as Geriatric Emergency Nurse Clinician, as part of the Older Adult Program. Particular interests include working with persons with dementia and their care partners and embracing the challenges of dealing effectively with Elder Abuse. She enjoys being a grandma.

### REFERENCES

- Abdulla, A., & Austin, J. (2013). Identifying and managing epilepsy in older adults. *Nursing Times*, Jan. 17, 2013. Retrieved from [www.nursingtimes.net/clinical-subjects/neurology](http://www.nursingtimes.net/clinical-subjects/neurology)
- Boggs, J. (2016). Seizures and epilepsy in the elderly patient: Etiology, clinical presentation, and diagnosis. *UpToDate*. Retrieved from [www.uptodate.com](http://www.uptodate.com)
- Epilepsy Ontario (2012). All about seizures. Retrieved from [www.epilepsyont.org](http://www.epilepsyont.org)
- Fisher, R.S., et al. (2014). ILAE Official report: A practical clinical definition of epilepsy. *Epilepsia*, 55(4), 475–482. Retrieved from [www.ilae.org](http://www.ilae.org)
- Huff, J.S. (2002). Stroke differential diagnosis: Mimics and chameleons. Retrieved from [www.uic.edu/com](http://www.uic.edu/com)
- Lavoie, J.M., & Lai, J. (2013). Is this patient seizing? New onset seizures in patients with dementia. *Geriatric Grand Rounds UBC*. Retrieved from <http://www.geriatrics.med.ubc.ca/archived-rounds.php>
- Pillow, M.T., & O'Connor, R.E. (2015). *Seizure assessment in the emergency department*. Retrieved from <http://emedicine.medscape.com/article/1609294>
- Theodore, W., et al. (2006). ILAE report: Epilepsy in North America. *Epilepsia*, 47(10), 1–23. Retrieved from [www.ilae.org](http://www.ilae.org)
- Ur, R.H., & Qazi, S. (2013). Atypical manifestations of medical conditions in the elderly. *Canadian Geriatric Society Journal of Continuing Medical Education*, 3(1). Retrieved from [www.canadiangeriatrics.ca](http://www.canadiangeriatrics.ca)