Epilepsy in Older Adults

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Case Presentation

A 75-year-old man with hypertension, hyperlipidemia, and recent transient ischemic attack (TIA) presented to the neurology clinic with the chief complaint of worsening memory. The patient's family was concerned because despite a slow decline in his memory over the past 6 months, he recently has been found "staring quietly out the window." These new periods were associated with momentary lapses in attention lasting between 1 and 2 min at a time and occurring sporadically anytime of the day. There was no convulsive activity that was noted during these episodes of staring, and the patient was amnestic for the events. These newer spells affecting his memory began approximately 4 weeks after the patient had been discharged from the hospital for a TIA. There were no new medications that were begun other than low-dose aspirin. His current medications included hydrochlorothiazide and atorvastatin. There was no family history of any similar type of spells. Prior to the patient's admission to the hospital for a possible stroke which presented with changes in speech, there had been no other similar problems in the past. The patient denied smoking but occasionally enjoyed one mixed drink every week. The patient is a retired attorney who loves to do crossword puzzles and read books. His wife in particular is quite concerned that his short-term memory has significantly worsened since the onset of these events.

His neurological examination was otherwise normal. Magnetic resonance imaging of the brain was unrevealing. His EEG is displayed in Fig. 21.1.

The patient's wife has two specific questions: What are these episodes? And does my husband have Alzheimer's disease?

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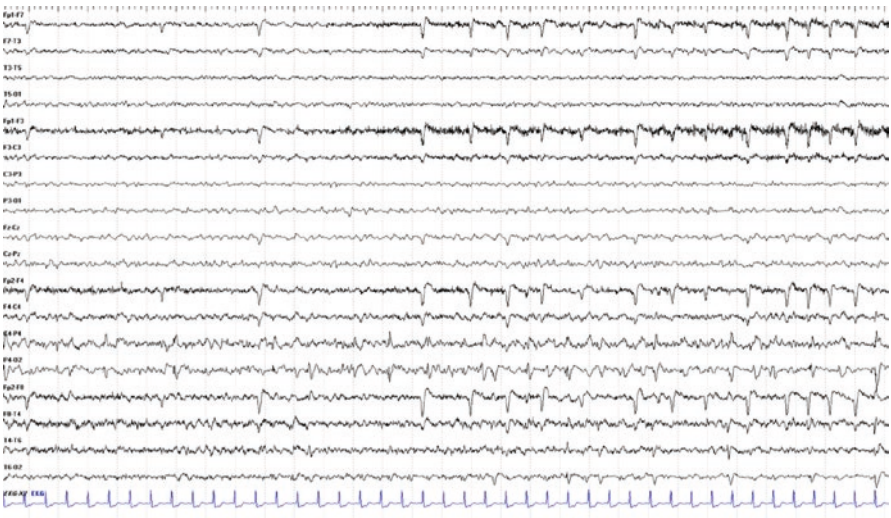

Fig. 21.1 EEG of the patient having a staring event during the EEG. There are frequent sharp waves at the F7 electrode that evolves into an electro clinical. The EEG clinched the diagnosis (partial seizure = focal seizure; simple partial = focal aware, GTC and partial seizure = focal to bilateral tonic-clonic and focal seizure)

Clinical Questions

1. How common are seizures in older adults?
2. Can seizures in older adults present with cognitive difficulties, and how do seizures vary between older and younger adults?
3. What should occur during an evaluation of seizures in older adults?
4. Are there any differences in the treatment of seizures in older adult as compared to younger adults?
5. Is there a correct choice of antiseizure drug in the older adult?

Diagnostic Discussion

1. Age in of itself is a risk factor for developing a first seizure and recurrent seizures or epilepsy. For people over age 60 years, the risk of a first seizure (1.27 in 1000) is almost twice as high as the risk in adults under age 60 years (0.52–0.59 in 1000). Seizure recurrence rates are also higher in adults over age 60 years (79% at 1 year and 83% at 3 years) compared with those under age 60 years (38–40%) [1].
2. Acute symptomatic seizures are more common in older adults, and focal impaired awareness seizures are the most common seizure type, followed by generalized tonic-clonic seizures (Fig. 21.2). Seizure presentation is also different in adults over age 60 in some very important ways. Auras are reported less often by older

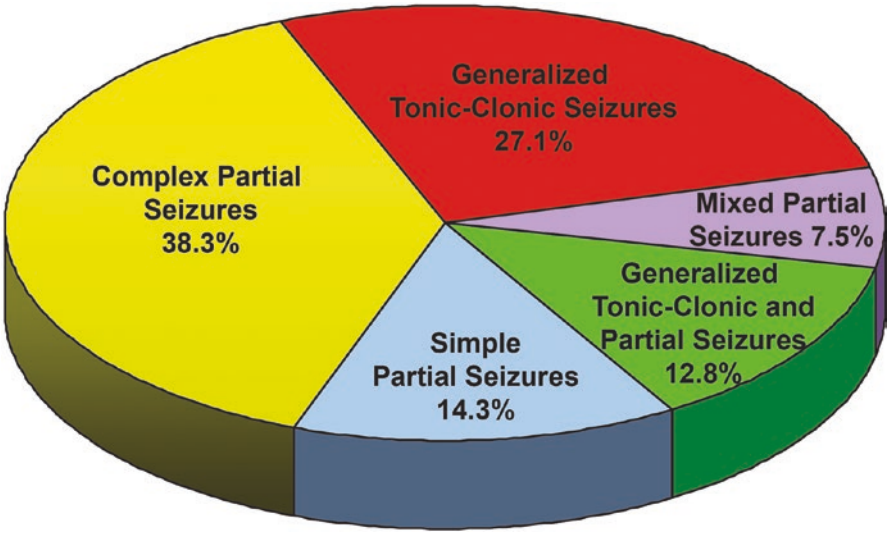

Fig. 21.2 Frequency of seizure types in older adults

individuals, and when they are, they tend to be nonspecific. When auras are appreciated, older people describe a nonspecific feeling of dizziness before a seizure event and have a greater tendency to have amnesia around the event. This may occur in patients with or without comorbid mild cognitive impairment, Alzheimer's disease, or dementia that is common in the elderly population. Auras may be reported less frequently because they are not able to be remembered or because of the seizure type or location of seizure onset. Typical auras present in younger adults with temporal lobe epilepsy, often described as a déjà vu, experiential, abdominal sensation, and fear or panic, are often not reported by older adults [2].

Older adults often have more extratemporal lobe epilepsies in the frontal and parietal lobes and less often arise from temporal lobe foci. Individuals with focal impaired awareness seizures tend to present with altered responsiveness, episodes of subtle staring, and confusion. The subtle presentation makes signs and symptoms associated with epileptic seizures difficult to tease out from other conditions. This is a hallmark of epilepsy and seizures that occur in older individuals. For example, older individuals who are hospitalized for urinary tract infections, pneumonia, or other medical conditions independent of preexisting seizures often have altered cognition, staring, or confusion. These patients with focal seizures might be literally staring us in the face, but because they have other conditions that present in a similar way, their seizures may go unrecognized [2].

The postictal state, the time that it takes for a person to recover after a seizure, is prolonged in approximately 14% of older individuals with epilepsy and may

last as long as 24 h. Todd's paralysis, a postictal state that appears as localized paralysis and lasts for 15–24 h, occurs more frequently [2, 3]. Seizures can be more injurious in older individuals with epilepsy because of the relative frailty of older people. For example, falls from seizures in older people are more likely to lead to fracture because of the higher incidence of osteoporosis, and this, in turn, leads to higher levels of functional dependence and institutionalization. As discussed, amnesia around the time of a seizure and afterward is more common, and less recall means there is less reporting of seizures to family members and healthcare professionals, ultimately leading to a delay in diagnosis and incomplete treatment [4].

3. For the older population, the most common mimic of a seizure is syncope when consciousness is lost though may also appear to reflect a TIA when focal features are evident. The presence of post-ictal confusion and lethargy or cognitive changes is a fundamental element of history-taking for older individuals to separate a seizure from syncope or a TIA. Therefore, the evaluation of the older adult suspected of seizures is to obtain a carefully detailed history and physical examination. Enlisting family members and observers is important in providing an accurate history since the patient is often amnestic for recurrent events. It is important to inquire about recent changes in medications as well as investigate other systemic illnesses like infections and other common conditions that can cause seizures in older adults. The diagnostic evaluation with brain MRI, EEG, and laboratory testing is similar to that of younger aged patients with seizures to assess for systemic illnesses. In some cases, tilt table testing and event monitoring may be helpful to assist cardiac evaluation for abnormalities responsible for syncope [5, 6].
4. The considerations in the treatment of an older adult with seizures have to do with the many comorbidities that occur, including Alzheimer's disease and dementias, TIA and stroke, brain tumor, and other age-specific conditions seen in the elderly. Oftentimes, the situation is complicated by complex polypharmacy adding to altered memory and changes in mental status. For this reason, when starting ASM, many of which have cognitive side effects, it is critical to keep in mind the interactions and adverse effects that can occur. Older adults are more susceptible to cognitive side effects from medication. Tolerability is often dictated by a narrower therapeutic window due to normal metabolic changes that occur with aging (e.g., slower hepatic metabolism, decreased protein binding, and delayed renal clearance). Older adults are also prone to noncompliance with treatment because of memory dysfunction and other cognitive deficits and/or multiple sensory deficits (seeing, hearing, sensorimotor issues that may be present (e.g., difficulty reading the drug bottle label or trouble remembering to take medication as scheduled)). Drug bioavailability may also be influenced by other medications with similar metabolic clearance or protein binding. Specifically, anticoagulants (e.g., warfarin) and some of antihypertensives and statins can also have interactions with ASM. Complicating matters further, the serum levels that

we often check in younger adults may not be applicable to older adults because these come from studies of younger populations excluding older adults during regulatory trials.

5. Although studies have been done comparing certain ASM to assess which drug is best suited to older adults, results have shown that literally any ASM is appropriate for an older adults if one remembers the adage of "Start low and go slow" relative to initiation and titration.

A study of effective doses of ASM in older adults showed that many achieve freedom from seizure at doses lower than typically found to be effective in younger people. Older adults are also less likely to have epilepsy resistant to medical treatment. A tip in tripping elderly patients is to start the ASM dose low—half to two-thirds of initial dose recommended in younger adults—and go slow with longer periods of time in between dosage increases. This often allows for a lower total effective dose and is also far less likely to cause intolerable side effects. Use as few doses of ASM per day as possible, because the less often a drug is taken, the less often it can be forgotten. Remember that drug levels considered standard in younger individuals may not apply to older adults, and stay vigilant for clinical signs of clinical toxicity and least encountered side effects. Evaluate and reevaluate the medication regimen, and continue only those drugs for which a clear need can be established. This is done to potentially lessen the greater tendency toward polypharmacy. This is common in older adults and may be further complicated during and by treatment with ASM. Consider tapering and discontinuing ASM after a stroke or other acute symptomatic precipitating event to minimize the consequences of polypharmacy, and limit the cost of added medication in an older individual.

Clinical Pearls

1. Seizures are very common in older adults and may present with complaints of memory loss and recurrent subtle or vague spells.
2. Evaluation of the older adult with seizures is facilitated by speaking with family members to obtain an accurate history given the patients is often amnestic for seizures after they occur.
3. Diagnostic testing is similar to that of a younger adult and is etiology specific. Due to its greater frequency, additional studies such as tilt table testing may be required in order to differentiate between syncope and seizures.
4. "Start low and go slow" when selecting an ASM in older adults as oftentimes doses used for younger adults are excessive for aging patients.
5. Be aware of the numerous drug interactions that can occur between ASM and other medications used for comorbid conditions that are commonly seen in older adults.

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