

Clinical manifestation and diagnosis of epilepsy in the elderly

Ilo E LEPPIK MD

University of Minnesota, Minnesota, USA

The demographic trends clearly show that the population of the world is aging, and by 2025 in many developed countries the proportion of the population older than 60 years will be more than 30%.¹ The incidence of a “first” seizure is 52 to 59 per 100,000 in persons 40 to 59 years of age, but rises to 127 per 100,000 in those 60 and older.² Thus, epilepsy will become a common problem in the elderly. Epilepsy and use of antiepileptic drugs (AEDs) is even greater in nursing homes in the USA. Overall, approximately 10% of nursing home residents are being treated with AEDs; approximately 7% are receiving these at the time of admission and, surprisingly, approximately 3% have AEDs added after admission.³ A seizure or epilepsy indication is given for most cases. But use of AEDs does not necessarily indicate the extent of epilepsy in this population because treatment criteria may differ. In younger adults, treatment is usually not initiated after a single convulsion. Proper diagnosis is essential, but is complicated by many factors. However, elderly persons are often placed on AEDs after a single event, which may or may not have been an epileptic seizure.

A major issue is that elderly are not a homogeneous group, and must be further divided into young-old (65-74 years), middle-old (75-84 years) and oldest-old (85 and older). Many elderly are generally healthy, even in their later years. On the other hand, some elderly have medical problems, and some, especially in nursing homes, are frail. Thus, to add precision to treatment and research in the elderly, the categorization in Table 1 has been proposed.⁴

Just as research in persons up to age 18 cannot be properly interpreted without using subcategories such as newborn, infant, etc., studies of elderly should specify clearly what population is being evaluated. Clearly, drug side effects, efficacy, absorption and other factors will differ greatly between a 93-year-old healthy person as compared with a 68-year-old frail person. Studies should be designed with specific populations, and reports should specify the populations studied.

The diagnosis of a seizure in the elderly requires a thorough evaluation of the complete medical condition of the person. The most difficult step in evaluating a presumed seizure is determining if it was an epileptic seizure, a non-epileptic seizure (secondary to a systemic condition), or other event (behaviors mistakenly interpreted as seizures).

Most events associated with loss of consciousness and unusual body movements in the elderly are not epileptic seizures. A cardiac event leading to decreased CNS perfusion resulting in an anoxic or hypoxic convulsion must be excluded in the diagnostic evaluation. An electroencephalogram with one channel recording an electrocardiogram is highly recommended to detect arrhythmias. Micturition syncope or cough syncope may also present as a seizure in an elderly person with prostate or pulmonary disease.⁵ Use of antihypertensive medication in excess may provoke syncope, resulting in a seizure. Obtaining a careful history of events surrounding the episode is crucial to identifying the nature of the spell. This should

Table 1: Proposed division of elderly

65-74 Years	75-84 years	85 years and older
Young-old healthy	Middle-old healthy	Oldest-old healthy
Young-old with multiple medical problems	Middle-old with multiple medical problems	Oldest-old with multiple medical problems
Young-old frail	Middle-old frail	Oldest-old frail

include a complete history of non-prescription drugs and herbal remedies, as substances such as *ma huang*, ginkgo and others may provoke seizures. A major cause of epilepsy in elderly is stroke, so an evaluation for cerebrovascular disease is appropriate.

Most epileptic seizures in the elderly are partial with secondary generalization. While generalized tonic-clonic seizures are obvious, many elderly may have partial seizures that are not recognized as epileptic events, and may be misdiagnosed. Non-convulsive status epilepticus can present as a prolonged confusional episode resembling transient global amnesia. The differential diagnosis of any person presenting with a sudden change in mental status should include epilepsy.

For example, a typical case is a 76-year-old man in good health except for some recent memory loss. He had a nocturnal generalized tonic-clonic seizure four years ago. Evaluation was negative (CT normal, no EEG), and he was given phenytoin 300 mg HS. He did not like to take it because it "made me tired" and he cut back to 200 mg HS, then discontinued it two years ago. His daughter began to notice that he would sometimes "look like he was mildly confused" up to 30 minutes at a time, and would not recall conversations during these periods, even though he was normal at other times. Although these episodes concerned the family, no one, including the physician, paid much attention to these events for two years. A recent second nocturnal generalized tonic-clonic seizure brought him to my attention. Cryptogenic epilepsy, with complex partial seizures and secondarily generalized tonic-clonic seizures, was diagnosed by history and EEG findings.

In summary, evaluation of a suspected seizure should begin with a thorough history of activities and conditions preceding the event, a review of all prescription and non-prescription pharmacologically active substances, and a compilation of medical conditions. Physical examination should include determination of patterns of injury (any fractures, abrasions, and bruises), carotid auscultation, and central nervous system functioning. Preliminary diagnostic evaluation should include laboratory testing to exclude metabolic or toxic causes, electrocardiogram, and structural studies of the CNS (preferably MRI). If a suspicion of epileptic seizures is uncovered, an EEG, preferably prolonged (and including photic stimulation and hyperventilation with EKG monitoring), should be done. A diagnosis of epilepsy can be made and treatment started, in my opinion, if evidence

for a CNS lesion (post-stroke, tumor, encephalomalacia) can be made in the context of a single epileptic seizure.

REFERENCES

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