

Epilepsy is common in the elderly, but where does it go?

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Epidemiologic studies generally show an increase in the risk of epilepsy starting around 60–70 years of age, yet relatively little is known about the burden of epilepsy in the elderly or demographic factors associated with its occurrence. In this issue of *Neurology*®, Faught et al.¹ provide a national estimate of the incidence and prevalence of epilepsy in Medicare recipients (>65 years). This study is timely, as the dearth of knowledge about epilepsy in the elderly becomes all the more pressing with the aging of the population. This issue was raised more than once at a recent meeting of an Institute of Medicine panel on the Public Health Dimensions of the Epilepsies (Los Angeles, CA, March 21, 2011) and at the Interagency Collaboration for Research on Epilepsy meeting held at NIH (June 27, 2011).

The authors found a prevalence among seniors of 10.8/1,000 and an estimated yearly incidence of new-onset epilepsy of 2.4/1,000. Men and women had highly similar prevalence and incidence figures. Relative to Caucasians, African Americans had almost twice the prevalence (10.2 vs 18.7/1,000) and incidence rates (2.3 vs 4.1/1,000). Asians (5.5 prevalence, 1.6 incidence) and Native Americans (7.7 prevalence, 1.1 incidence), by contrast, had much lower frequencies of epilepsy than Caucasians.

In the general population, the incidence of epilepsy is often reported in the 30–80/100,000 range, more than an order of magnitude less than that reported in the elderly in this study.² Despite this, the prevalence is not dissimilar to that seen in the general population (5 to 10/1,000). Given that the incidence was so high, one would expect to see a much higher prevalence, especially in older age groups as prevalent cases accumulate over the years. In fact, the prevalence did not vary greatly with increasing age even though the incidence increased from 0.98/1,000 in people 65–69 to 3.7/1,000 in those ≥85. If elderly people with epilepsy experienced similar survival as elderly without, and if epilepsy persists as a treated condition for the remainder of the lifetime, one would expect the prevalence of epilepsy to be much

higher and to increase with age. This clearly was not what the authors found, and the pattern suggests that, as is generally the case in younger segments of the population, epilepsy is associated with increased mortality³ with incident cases falling out of the prevalence count. Excess mortality in epilepsy is largely secondary to the underlying causes of epilepsy (e.g., stroke, tumors, vascular and other dementias). People with epilepsy but without such brain conditions have only a modestly and not definitively elevated mortality rate.³ Whether there is a higher mortality associated with epilepsy in people with stroke or other brain conditions is not explicitly addressed in these studies but is likely and certainly would be consistent with patterns seen in developmental and related disabilities.⁴

An alternate possibility is that treated epilepsy in the elderly rapidly resolves and that incident cases rapidly fall out of the prevalence counts but survive. The phenomenon of epilepsy that completely resolves is certainly seen earlier in the lifespan and is even the most typical outcome of certain specific developmental epilepsy syndromes such as benign epilepsy with central-temporal spikes. The general phenomenon, however, is well-documented in epidemiologic studies in both children and adults.^{5–7} Too little is known about the epilepsies of the elderly to speculate further about why late-onset epilepsy might enter complete remission; however, based on current knowledge, this likely plays a lesser role than does increased mortality.

Related to this, however, it is widely recognized that the diagnosis of epilepsy is often fraught with error, in being underrecognized in some instances, but particularly in regards to being overdiagnosed. Overdiagnosis with later correction of diagnosis could explain some of the patterns seen in the analysis by Faught et al. There are many disorders that are mistaken for and treated as epilepsy, and there are also increasing health problems as people age. Overdiagnosis is not especially benign, most particularly because it entails unnecessary treatment of one con-

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dition and perhaps failure to treat another. In the elderly, a group already typically on multiple medications for a variety of other conditions, the iatrogenic implications cannot be ignored.⁸

As with any study that depends on administrative data, there can be substantial strengths; in this case, the large sample size and its generalizability to the target population. There are often also substantial limitations, accuracy of diagnosis based on codes being chief among them. Nonetheless, others have developed and validated algorithms for using billing codes to identify new and prevalent cases of epilepsy. Apart from accuracy of codes for identifying diagnosed epilepsy, accuracy of the medical diagnosis itself is often of concern, in any study, and careful review of medical records has revealed an overuse of this diagnosis.⁹

Given the increasing numbers of elderly in our country and the relative lack of knowledge of the diagnosis (and perhaps misdiagnosis), causes, and prognosis of epilepsy in this large segment of the population, it is perhaps time to pay more attention to this and related disorders in the elderly. Prevention, when possible; good diagnosis and differential diagnosis; and appropriate pharmacologic treatment, something that has not caught up with recent recommendations,¹⁰ all need to be emphasized in the training of physicians and other health care providers who work with the elderly.

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ence; serves on the editorial boards of *Epileptic Disorders* and *Epilepsy & Behavior*; and is past Chair of the ILAE's Commission on Classification and Terminology, current Chair of the ILAE's Task Force on Classification-Diagnostic Manual, member of the ILAE's Pediatric Commission's Task Force on Autism, member of the AES's Commission on Nonepileptic Seizures, member ad hoc Task Force of the ILAE Commission on Therapeutic Strategies, member of the AES Suicidality Task Force, and steward for the NINDS Benchmarks in Epilepsy Research.

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