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Review

Epileptic fits and epilepsy in the elderly: General reflections, specific issues and therapeutic implications

Rishi V.A. Sheorajpanday [a,b,1], Peter P. De Deyn [a,b,*]

[a] *Department of Neurology, ZNA - Middelheim, Lindendreef 1, 2020 Antwerp, Belgium*
[b] *Laboratory of Neurochemistry and Behaviour, Institute Born-Bunge, Department of Biomedical Sciences, University of Antwerp, Universiteitsplein 1, 2650 Edegem, Belgium*

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Abstract

Seizures and epilepsy are commonly encountered in the elderly. Diagnosis is not always straightforward as reliable history is often difficult to obtain and EEG findings can be non-specific. When to treat and how may be difficult choices as adequate studies in elderly are rather scarce. Treatment should be based on careful assessment and comparison of risk/benefit profiles of various anti-epileptic drugs (AEDs) in this specific elderly population. Since most AEDs are effective in terms of seizure control in the elderly, the choice of treatment is often determined by tolerability, pharmacokinetic profile and drug interactions of AEDs. As recently introduced AEDs have a better safety profile compared to older agents it seems logical to initiate treatment in the frail elderly patient with those more modern AEDs. In this review some distinctive clinical features of epilepsy in the elderly are discussed in three sections (general issues, special issues and selected treatment options with special reference to medicinal treatment).

Keywords: Epileptic fit; Seizure; Epilepsy; Elderly; Anti-epileptic drugs; Status epilepticus; Phenobarbital; Phenytoin; Carbamazepine; Valproic acid; Oxcarbazepine; Gabapentin; Lamotrigine; Levetiracetam; Topiramate; Pregabalin

Contents

Abbreviations: AD, Alzheimer's disease; AED(s), anti-epileptic drug(s); CBZ, carbamazepine; CNS, central nervous system; CYP, cytochrome P; GBP, gabapentin; LTG, lamotrigine; LEV, levetiracetam; OXC, oxcarbazepine; PGB, pregabalin; PB, phenobarbital; PHT, phenytoin; PRM, primidone; SE, status epilepticus; TPM, topiramate; VPA, valproate, valproic acid

* Corresponding author at: University of Antwerp, Middelheim Hospital, ZNA, Department of Neurology, Lindendreef 1, 2020 Antwerp, Belgium. Tel.: +32 3 2803124; fax: +32 3 2813748.
E-mail address: peter.dedeyn@ua.ac.be (P.P. De Deyn).
[1] Tel.: +32 3 8202620; fax: +32 3 8202618.

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1. Introduction

Seizures and epilepsy are extremely common in elderly patients, aged 60 years and over.

Seizures can be provoked by acute illnesses (“provoked” or “acute symptomatic” seizures or may present without an obvious immediate cause (“unprovoked” seizures). Epilepsy is defined as the occurrence of recurrent unprovoked seizures. Clinical presentation in elderly can be atypical leading to both under and over diagnosis. Treatment in elderly patients is complicated by age-related pharmacological changes, co-morbidity and concomitant medication. Moreover, elderly patients are not a homogeneous group, which requires an individualistic yet holistic approach. Importantly, seizures and epilepsy may have an enormous impact on psycho-social well-being. Perceived loss of control may lead to vicious circle of loss of confidence, loss of independence, depression and premature institutionalization. In this paper, some distinctive clinical features of epilepsy in the elderly based on currently available literature are reviewed. The authors selected relevant papers from an automatic PubMed search containing the terms “epilepsy” *or* “seizure” *or* “epilep*” *and* “elderly” or “aged”. For specific, not “elderly” restricted or available subtopics, additional PubMed searches were performed. The highest weight was given to randomized controlled trials, meta-analyses and systematic reviews. The paucity of well conducted clinical research on this topic necessitated the inclusion of other publications considered clinically relevant including observational studies, expert opinions and rarely case series. The results of limited data reports should be by all means interpreted with caution. For diagnostic and therapeutic recommendations including level of evidence classification, reference is made to the International League Against Epilepsy Treatment Guidelines [1], the Scottish Intercollegiate Guidelines Network (SIGN) Diagnosis and Management of Epilepsy in Adults [2] and the National Institute for Clinical Excellence (NICE) The epilepsies: diagnosis and management of the epilepsies in adults in primary and secondary care [3] guidelines.

The findings are presented in three sections, namely general issues, special issues and selected treatment options.

2. General issues

2.1. Epidemiology

The incidence of a first ever seizure is about 50–60 per 100,000 in the 40–59 age group but rises to 136 per 100,000 in those 65 years and older [4–7]. In the MESA study, the incidence of a first seizure at age 50 or older was 162 per 100,000 [8]. The annual incidence of epilepsy rises from 90 per 100,000 in people between the ages of 65 and 69 to more than 150 per 100,000 for those over 80 [4–7]. The prevalence of epilepsy in persons over 65 years is 1.5%, twice as high as the prevalence among younger adults and by the age of 80 three times that reported in children. The prevalence of epilepsy is even higher in nursing home residents, exceeding 5% [9]. The incidence of status epilepticus (SE) in elderly patients ranges from 22 to 86 per 100,000 patients [9–12]. The mortality rate from SE is substantially higher in patients aged