Review article

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# From here to epilepsy: the risk of seizure in patients with Alzheimer's disease

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Epileptic Disorders

# Association between seizures and Alzheimer's disease

- Major aetiologies of seizures in the elderly are cerebrovascular diseases, toxic and metabolic disorders, neoplasia and dementia
- A relationship between sporadic forms of Alzheimer's disease and seizures has long been established, with a 2- to 6-fold increase compared to age-adjusted patients without dementia
- Rare autosomal dominant forms of Alzheimer's disease (presenilin-1, presenilin-2 and amyloid precursor protein mutations) also carry an important risk of seizure

# Pathophysiology

- Mouse model studies emphasize a putative role of amyloid-beta in seizure generation, possibly by a direct excitatory effect rather than neurodegeneration
- Imbalance in neuronal networks, mainly by amyloid-beta-induced aberrant network and hyperexcitability are suggested

# Treatment management

- Seizure treatment for subjects with Alzheimer's disease have mainly been extrapolated from management of seizures in elderly patients
- Very few studies have compared antiepileptic drugs in patients with Alzheimer's disease
- It seems that more recent molecules like lamotrigine and levetiracetam have a better benefit/risk profile, as they have less/no interactions with other medications