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Cognition and dementia in older patients with epilepsy

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Abstract

With advances in healthcare and an ageing population, the number of older adults with epilepsy is set to rise substantially across the world. In developed countries the highest incidence of epilepsy is already in people over 65 and, as life expectancy increases, individuals who developed epilepsy at a young age are also living longer. Recent findings show that older persons with epilepsy are more likely to suffer from cognitive dysfunction and that there might be an important bidirectional relationship between epilepsy and dementia. Thus some people with epilepsy may be at a higher risk of developing dementia, while individuals with some forms of dementia, particularly Alzheimer's disease and vascular dementia, are at significantly higher risk of developing epilepsy. Consistent with this emerging view, epidemiological findings reveal that people with epilepsy and individuals with Alzheimer's disease share common risk factors. Recent studies in Alzheimer's disease and late-onset epilepsy also suggest common pathological links mediated by underlying vascular changes and/or tau pathology. Meanwhile electrophysiological and neuroimaging investigations in epilepsy, Alzheimer's disease, and vascular dementia have focused interest on network level dysfunction, which might be important in mediating cognitive dysfunction across all three of these conditions. In this review we consider whether seizures promote dementia, whether dementia causes seizures, or if common underlying pathophysiological mechanisms cause both. We examine the evidence that cognitive impairment is associated with epilepsy in older people (aged over 65) and the prognosis for patients with epilepsy developing dementia, with a specific emphasis on common mechanisms that might underlie the cognitive deficits observed in epilepsy and Alzheimer's disease. Our analyses suggest that there is considerable intersection between epilepsy, Alzheimer's disease and cerebrovascular disease raising the possibility that better understanding of shared mechanisms in these conditions might help to ameliorate not just seizures, but also epileptogenesis and cognitive dysfunction.

Figures

Figure 1 Trajectories of cognitive decline with...

Figure 2 The intersections of Alzheimer's disease,...

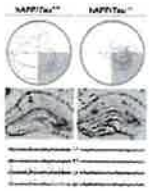

Figure 3 Mouse model of Alzheimer's disease...

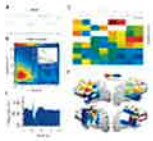

Figure 4 Hippocampal interictal epileptiform discharges couple...

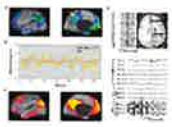

Figure 5 Default mode network and epilepsy....

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Sen A, Husain M.

Brain. 2018 Aug 1;141(8):e61. doi: 10.1093/brain/awy163.

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Late onset epilepsy and Alzheimer's disease: exploring the dual pathogenic role of amyloid-β.

Costa C, Romoli M, Calabresi P.

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