# Letter to the Editor

**TO THE EDITOR**

## Neuroprotection and Parkinsonism

In a recent article, Mendis and co-workers[1] were discussing neuroprotective strategies in Parkinson's disease. They stress that no treatment at present has been shown to postpone or prevent death of neurons in the parkinsonian brain. Substances antagonising the effect of glutamate are currently being evaluated. In another chronic neurodegenerative disorder, notably amyotrophic lateral sclerosis, treatment with the sodium channel inhibitor riluzole increases survival. Most likely, this neuroprotective effect is due to decreased release of the excitatory transmitter glutamate from presynaptic nerve terminals in the brain. This made us ask whether this type of drug rescues neurons from death in parkinsonian syndromes as well.

We investigated the prevalence of parkinsonism in a population of epileptics above 50 years of age who had been treated for more than eight years with antiepileptic drugs thought to act predominantly as sodium channel inhibitors. Norwegian pharmacies were asked to present a questionnaire to all epileptics above the age of 50 years who collected antiepileptic drugs in the period from January 1, 1998 to January 1, 1999. Four hundred and ninety-six of the patients who returned the questionnaire fulfilled the criteria of inclusion. This is about 11% of the total number of patients in Norway taking the antiepileptic drugs in question. The mean age was 64.0 years, which is comparable to the average (66.4 years) in the general Norwegian population above 50 years. During the last eight years, these epileptics have taken carbamazepine, phenytoin, valproate, or lamotrigine, alone or in combination, or combined with phenobarbital, clonazepam, primidon or vigabatrin. The patients included in the study were asked whether they had ever used levodopa containing drugs or dopamine-agonists, and if so, for which condition they were treated and when it was diagnosed. Among the 496 antiepileptic drug users only one patient reported use of anti-parkinsonian drugs. He got the diagnosis "parkinsonism" at the age of 70 years. Thus, the prevalence of parkinsonism in our study was 0.20%.

Because most patients with parkinsonian syndromes at some point of time have tried anti-parkinsonian drugs, the prevalence of patients who have used such medication probably reflects the true value for parkinsonian syndromes in a population of antiepileptic drug users, and most likely overestimates the prevalence of idiopathic Parkinson's disease. Interestingly, our prevalence is considerably lower than the prevalence of parkinsonian syndromes (0.6%)[2] and even of idiopathic Parkinson's disease (0.42%)[3] reported in two general Norwegian populations above the age of 50. Based on these numbers,[2] we would have expected to find three parkinsonian patients among our group of antiepileptic drug users.

Previous experimental data have concluded that glutamate toxicity may contribute to neuronal death in parkinsonian syndromes. Antiepileptic drugs acting as sodium channel inhibitors reduce the extracellular glutamate concentration. This may decrease the level of excitotoxicity and rescue dying neurons in the parkinsonian brain. This mechanism of neuroprotection is partly similar to the action proposed for riluzole in amyotrophic lateral sclerosis.

It was recently reported that parkinsonism may protect against epilepsy.[4] Thus, we cannot exclude the possibility that nonpharmacological, disease-related factors may contribute to the low prevalence of parkinsonism in our study.

Although there may be alternative explanations to our results, and the total number of patients in our investigation is too small for definite conclusions, the data prompt the question whether antiepileptic drugs which block sodium channels have neuroprotective properties in the parkinsonian brain.

*Vidar Gundersen and Espen Dietrichs*
*Oslo, Norway*

**References**

1. Mendis T, Suchowersky O, Lang A, Gauthier S. Management of Parkinson's disease: a review of current and new therapies. Can J Neurol Sci 1999; 26: 89-103.
2. Bekkelund SI, Selseth B, Mellgren SI. Parkinson's disease in a population in Northern Norway. J Norwegian Med Ass 1989; 109: 561-563.
3. Tandberg E, Larsen JP, Nessler EG, et al. The epidemiology of Parkinson's disease in the county of Rogaland, Norway. Mov Disord 1995; 10: 541-549.
4. Vingerhoets JG, Jallon P, Galobardes B, et al. New evidences for a protective effect against epilepsy by neurodegenerative parkinsonism. Neurology 1998; 50: A141.



https://doi.org/10.1017/S0317167100000937 Published online by Cambridge University Press