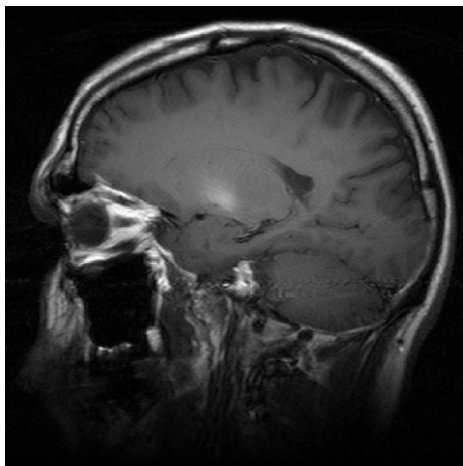


Welding, manganese, and Parkinson disease

Occupational exposure to manganese can cause parkinsonism. Recent reports suggest that manganese toxicity can occur as a result of exposure to welding fumes; welding has been proposed as a risk factor for Parkinson disease (PD). Joseph Jankovic examines the evidence for and against a relationship between welding, manganese, parkinsonism, and PD.

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Neurologic syndromes associated with welding



High T1 signal change in the globus pallidus in manganese toxicity from occupational exposure (welding).

Josephs et al. report eight welders working with inadequate ventilation, presenting with varied neurologic syndromes and pallidal MRI T1 hyperintensity, a biomarker of brain manganese accumulation. The syndromes included atypical parkinsonism, multifocal myoclonus plus mild cognitive impairment, vestibular-auditory dysfunction with truncal ataxia, and isolated mild cognitive impairment.

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The editorial by Karl Kieburtz and Roger Kurlan notes that since genetic causes appear identifiable in a minority of PD cases, there has been an extensive search for environmental causes. Two earlier articles in Neurology by Racette et al. described a potential relationship between welding and PD. Manganese, one of the metals found in welding fume, is a neurotoxicant and can lead to a neurologic syndrome with parkinsonian features, which has led to speculation that manganese exposure through welding fumes might result in PD—speculation that has prompted extensive litigation throughout the United States. Many investigators have been involved on one side or the other of this litigation, providing

expert testimony, research data, or both. Because manganese is a potential neurotoxicant and because excessive exposure can lead to neurologic disease, limiting excess exposure to manganese through any route is warranted. However, manganese-induced brain toxicity is not a good model for an environmental cause of PD. More work is needed, including rigorous case-control and cohort studies. A cohort design might be most convincing; e.g., following individuals beginning welding and non-welding occupations and systematically determining rates of parkinsonism/PD over time.

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Surgery vs corticosteroid injection for carpal tunnel syndrome

The clinical trial by Hui et al. showed that surgery results in greater sustained symptom relief than a single injection of methylprednisolone over a 20-week period.

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The editorial by Gooch and Mitten notes that the carpal tunnel syndrome affects 3 to 5% of the adult population in the United States. Although there was substantial symptomatic improvement at 6 weeks in both groups, improvement was greater in patients treated surgically. By 20 weeks, most patients treated with injection had recurrent symptoms, while most patients treated with release experienced sustained or continued improvement. Injection may be helpful in the diagnostic evaluation of patients being considered for more definitive surgical release, but carries increasing risk when used repeatedly in the chronic management of carpal tunnel syndrome.

see page 2006

When to withdraw AEDs in children with epilepsy?

Geerts et al. studied early withdrawal of AEDs in children who became seizure free within 2 months of treatment. Early withdrawal cannot be recommended as standard because half of the children recurred, whether withdrawn at 6 or 12 months; but a predictive model based on other factors may assist in deciding who (not when) to withdraw from medication.

see page 2136

Patient Page: Stopping seizure medications in children: When is it safe?

The Patient Page (online at www.neurology.org) by Spencer and Roberts provides an overview of the article by Geerts et al. The authors also provide general information about seizures and epilepsy including descriptions of various seizure types, and diagnosis and treatment.

Brain MRI findings and cognitive functioning

Mosley et al. examined the association between cerebral abnormalities on MRI and cognitive functioning in over 1500 participants of the Atherosclerosis Risk in Communities Study. Greater ventricular size and the presence of concurrent abnormalities (e.g., white matter hyperintensities and silent infarcts) were independently associated with reduced cognitive functioning.

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The editorial by David A. Drachman comments on the degree to which cognitive loss parallels the loss of brain, as demonstrated in this study. While subjects with more atrophy, or white matter changes, performed less well than those without these findings, the cognitive differences were in fact minimal, and adjustment for age, race, gender, education, alcohol or antidepressant use, or the presence of silent infarcts reduced the differences further. Even in individuals with relatively "high grade" MRI changes, (volume loss of 1.5 standard deviations from the group mean), the measured cognitive differences were all less than one third of a standard deviation. The ARIC study is notable for the disparity between the amount of brain loss, and the small and variable cognitive decline that was found. Nonetheless, the ARIC study data underscore the fact that protecting the brain from avoidable losses—those due to vascular risk factors, trauma, drugs, alcohol, etc—may preserve intellect as life expectancy increases.

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Practice Parameter: Treatment of essential tremor

Zesiewicz et al. reviewed evidence regarding initiation of pharmacologic and surgical therapies. Primidone and propranolol were found effective in reducing tremor, while topiramate, gabapentin monotherapy, alprazolam, atenolol, and sotalol were probably effective. Botulinum toxin A may reduce tremor but is associated with dose-dependent limb weakness. Deep brain stimulation reduces tremor more than available pharmacotherapies but carries a risk of major complications.

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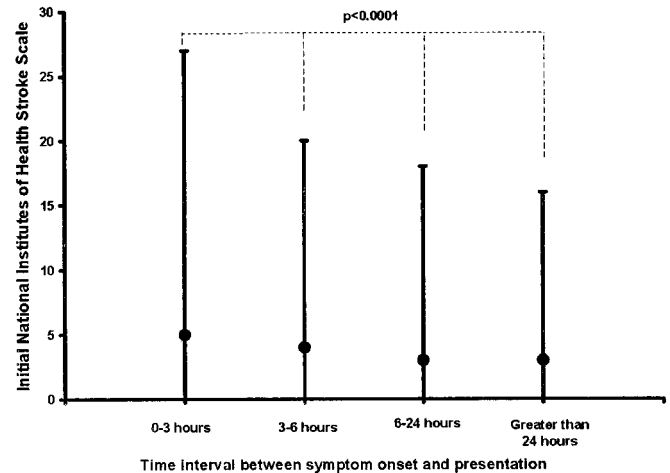
Cognitive effects of lamotrigine vs topiramate

Meador et al. directly compared the neuropsychological effects of lamotrigine and topiramate in 47 healthy vol-

unteers. At the dosages, titrations, and timeframes employed in this study, significantly better performance was present on 33 (80%) variables for lamotrigine but on none for topiramate.

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Time to hospital arrival and outcomes in ischemic stroke



Median initial NIH Stroke Scale vs time interval between symptom onset and arrival to the hospital.

Qureshi et al. studied 1590 patients with ischemic stroke admitted to 11 hospitals. A low utilization (8%) of thrombolysis was observed in the 337 patients presenting within 3 hours of symptom onset. The initial stroke severity was significantly higher with decreasing interval between symptom onset and hospital arrival.

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Higher dietary intake of fatty acids and decreased risk of Parkinson disease

In a prospective population-based study in 5,289 participants followed for on average 6 years, de Lau et al. found that higher intake of monounsaturated and polyunsaturated fatty acids was associated with a significantly decreased risk of Parkinson disease, postulated to be due to neuroprotective and antioxidant properties of unsaturated fatty acids.

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