

In conclusion, the authors state that, in general, widespread evidence exists identifying specific risk factors for a first ischemic stroke, and that this information enables strategies to be formulated for stroke risk reduction.

Original article Goldstein LB *et al.* (2006) Primary prevention of ischemic stroke: a guideline from the American Heart Association/American Stroke Association Stroke Council. *Stroke* 37: 1583–1633

Adjunctive levetiracetam is safe and effective for pediatric partial seizures

Partial seizures are the most common seizure type in children. New antiepileptic drugs are needed because current treatments are often inadequate, or have intolerable adverse effects. Levetiracetam has shown efficacy and favorable tolerability as an adjunctive therapy in adults with treatment-resistant partial seizures, and Glauser *et al.* have now tested its usefulness in pediatric patients.

This randomized, placebo-controlled trial enrolled children (aged 4–16 years) with treatment-resistant partial seizures. In total, 101 patients included in the analysis were treated with levetiracetam and 97 were treated with placebo; baseline demographics were similar between the two groups.

Treatment with levetiracetam resulted in a significant reduction over placebo (–26.8%) in weekly partial-onset seizure frequency ($P=0.0002$). During the treatment period, the median change in seizure frequency from baseline was –1.6 seizures/week in the levetiracetam group and –0.7 seizures/week in the placebo group ($P=0.003$). Overall, a $\geq 50\%$ reduction from baseline in weekly partial seizure frequency was experienced by 44.6% of levetiracetam-treated patients compared with only 19.6% of placebo patients. Seven levetiracetam-treated patients (6.9%) and one placebo patient (1.0%) remained seizure-free during treatment. Levetiracetam treatment was generally well tolerated, and showed a similar pattern of treatment-emergent adverse events to placebo.

The authors conclude that levetiracetam might offer clinicians an additional option for managing children with epilepsy.

Original article Glauser TA *et al.* (2006) Double-blind placebo-controlled trial of adjunctive levetiracetam in pediatric partial seizures. *Neurology* 66: 1654–1660

Axonal loss in multiple sclerosis is independent of plaque formation

Multiple sclerosis (MS) has long been considered a demyelinating disease, with the accumulation of plaque in the brain and spinal cord appearing to parallel disease progression. More recently, axonal loss has also been recognized as a feature of the disease, but the relationships between axonal loss, plaque formation and demyelination are unclear.

In a postmortem study of 55 patients with MS (mean age 57.5 years), DeLuca *et al.* investigated the nature of axonal loss in relation to plaque formation. They carried out histological staining for axons and myelin in sections of the cerebrum, brainstem and spinal cord, and obtained measures of relative plaque load in the corticospinal and sensory tracts.

There was a significant decrease in axonal density at all levels of the corticospinal tract in patients with MS compared with controls. Axonal loss was symmetric, with small axons being preferentially lost, and there was no evidence that plaque load correlated with axonal density or total number of axons. Similar patterns of axonal loss were found in the upper region of the sensory tract, and although plaque load seemed to correlate with total axon number in the upper cervical cord, this correlation disappeared after adjustment for age, sex and disease duration.

The authors conclude that the lack of evidence for a correlation between plaque load and axonal loss in the spinal cord indicates that demyelination might not be the primary cause of axonal loss in this region. They suggest that parallel mechanisms of axonal loss might operate, which could explain the clinical variability seen in patients with MS.

Original article DeLuca GC *et al.* (2006) The contribution of demyelination to axonal loss in multiple sclerosis. *Brain* 129: 1507–1516

Reduced Alzheimer's disease risk in individuals who adhere to a Mediterranean diet

Studies have shown that diet might be important in causation and prevention of Alzheimer's disease (AD), but most have investigated individual dietary components rather than the effect of composite dietary patterns. The Mediterranean