to measure all significant variables have made interpretation of results from previous studies difficult. Researchers from Italy have now used a fully automated MRI technique to compare volumes of white matter (WM) and gray matter (GM), as well as lesion load, in a large cohort of patients with MS and a group of healthy volunteers.

Statistically significant differences were shown in all three variables—MS patients ($n = 597$) had a higher volume of abnormal WM (a measure of lesion load), less WM and less GM than healthy volunteers ($n = 104$) (all $P < 0.001$). Higher symptom scores and younger age at disease onset were associated with increased amounts of abnormal WM and atrophy of both WM and GM. Level of disability was also shown to be predicted by clinical course—patients with secondary progressive disease had more GM and WM atrophy than those with relapsing–remitting disease.

These findings suggest that a younger age at disease onset will lead to a higher level of lesion load and brain atrophy in later life. In addition, events at the beginning of the disease course might determine the later level of brain atrophy. Although further studies are needed, a change in approach, including advanced MRI measures of GM atrophy to measure irreversible neuronal deterioration, could help in predicting the course of the disease and developing future treatment.

Pippa Murdie

Original article Tedeschi G *et al.* (2005) Brain atrophy and lesion load in a large population of patients with multiple sclerosis. *Neurology* **65:** 280–285

DAs can cause sudden uncontrollable somnolence in Parkinson's disease

Recent studies have suggested that dopamine agonists (DAs), widely used in Parkinson's disease (PD) management, might increase the risk of sudden uncontrollable somnolence. Avorn *et al.* investigated the nature and frequency of such episodes, and explored possible links to medication use.

Of 1,041 recruited PD patients, 929 completed a 45–60 min telephone interview with researchers, who questioned medication use, adverse events, general sleepiness and clinical status during the 6-month period before interview. The primary endpoint was an episode of "uncontrollably falling asleep" (e.g. while driving or talking to friends).

At least one episode of uncontrollable somnolence was reported by 206 patients (22%), 24 of whom (12%) had daily episodes. Multivariate regression analyses (adjusted for various patient characteristics) showed that the use of any DA (pramipexole, ropinirole, pergolide or bromocriptine) increased the risk of uncontrollable somnolence almost three-fold compared with any other antiparkinsonian medication. DAs increased this risk even when a patient's level of overall sleepiness was taken into account. Compared with levodopa alone, individual DAs showed a dose-dependent, increased risk of uncontrollable somnolence. Furthermore, men were more than twice as likely as women to experience uncontrollable somnolence, regardless of medication.

Avorn *et al.* conclude that, although DAs have a number of advantages compared with other PD treatments, the finding that they can cause sudden uncontrollable somnolence in a dose-related manner must be taken into consideration when selecting a therapy and dosage for a particular PD patient.

Rebecca Ireland

Original article Avorn J *et al.* (2005) Sudden uncontrollable somnolence and medication use in Parkinson disease. *Arch Neurol* **62:** 1242–1248

Migraine associated with impaired insulin sensitivity

Impaired insulin sensitivity (insulin resistance) is a risk factor for vascular diseases such as stroke and hypertension—conditions that are reported to demonstrate comorbidity with migraine. Researchers in Italy recently investigated insulin sensitivity in patients with migraine. Their results indicate that insulin resistance might contribute to the increased risk of vascular disease in this patient population.

Rainero and colleagues recruited 30 migraine patients from their clinic (10 male, mean age 30 years), all of whom were nondiabetic, nonobese, and normotensive. Additionally, they recruited healthy controls matched for age and sex. Following overnight fasting, a standard oral glucose tolerance test was performed on participants, with plasma samples gathered