Lacunar lesion burden predicts cognitive impairment and disability in CADASIL

Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) is caused by mutation of the *NOTCH3* gene and is considered a model of 'pure' vascular dementia. MRI scans from patients with CADASIL show white matter hyperintensities, lacunar lesions and cerebral microhemorrhages, but the clinical importance of these lesions is unclear. By collecting data from 147 consecutive patients enrolled in a two-center prospective cohort trial, Viswanathan and co-workers assessed the relationship of these MRI markers with cognitive impairment and disability in CADASIL.

Multivariate analysis demonstrated that cognitive function, as assessed by either the Mattis Dementia Rating Scale or the Mini-Mental State Examination, was independently associated with age and volume of lacunar lesions only. Neither white matter hyperintensities nor cerebral microhemorrhages were found to be independently associated with cognitive function. Stepwise logistic regression was also performed to determine independent predictors of functional disability in CADASIL. The maximally adjusted model revealed increased volume of lacunar lesions, number of cerebral microhemorrhages and age, as well as high systolic blood pressure, to be independent predictors of a poor functional outcome as assessed by the modified Rankin scale. A similar analysis using the Barthel index to assess disability revealed increased volume of lacunar lesions, increased age and presence of cerebral microhemorrhages to be independent predictors of a poor outcome.

The authors conclude that among the lesions visible on conventional MRI, overall lacunar lesion burden is the most important predictor of cognitive impairment and disability in patients with CADASIL.

Original article Viswanathan A *et al.* (2007) Lacunar lesions are independently associated with disability and cognitive impairment in CADASIL. *Neurology* **69:** 172–179

Does diabetes mellitus protect against migraine?

Diabetes mellitus (DM) could affect the incidence of headache through mechanisms such as altered vascular reactivity and induction of diabetic neuropathy, but studies to date have produced conflicting results. Aamodt and colleagues have now performed a large cross-sectional study in an unselected study population and have demonstrated an inverse relationship between migraine and DM.

The study population comprised 51,249 inhabitants of Nord-Trøndelag county in Norway, aged ≥20 years, who had completed two questionnaires (including questions on DM and headache) as part of the Head-HUNT Study. Diagnosis of DM was validated by blood samples with fasting glucose, antiglutamic acid decarboxylase and C peptide, and headache (defined as headache within the previous year) was confirmed by interview diagnoses.

Multivariate analyses showed a decreased prevalence of migraine in individuals with DM—adjusted prevalence odds ratios (ORs) were 0.4 (95% CI 0.2–0.9) in those with type 1 DM and 0.7 (95% CI 0.5–0.9) in those with type 2 DM, compared with nondiabetic individuals. This relationship held true only for those aged >40 years. In patients with DM, glycated hemoglobin level >6.6% was further associated with reduced prevalence of migraine. In addition, DM duration ≥13 years was associated with a reduced OR for all headache types (0.6, 95% CI 0.4–0.9; compared with DM duration ≤3 years). There were no obvious associations between DM and nonmigrainous headache or between headache frequency and DM.

The reasons for these results remain unexplained, but the authors believe that DM could induce pathophysiological changes that help protect against migraine.

Original article Aamodt AH *et al.* (2007) Headache prevalence related to diabetes mellitus: the Head-HUNT Study. *Eur J Neurol* **14:** 738–744

A technique for *in vitro* amplification of PrP^{Sc} and detection of vCJD infectivity

The potential for transmission of variant Creutzfeldt–Jakob disease (vCJD) via blood products means that there is a need for reliable methods of detecting infectivity in asymptomatic individuals. A recent paper has reported that protein misfolding cyclic amplification (PMCA) and a conformation-dependent immunoassay (CDI) could form the basis of a