

IN BRIEF

ALZHEIMER DISEASE**Twin peaks of microglial activation observed in Alzheimer disease**

A new longitudinal PET study indicates that the disease trajectory in Alzheimer disease (AD) includes two peaks of microglial activation in the brain. Researchers at Imperial College London, UK recruited 30 individuals — eight with mild cognitive impairment (MCI), eight with AD, and 14 healthy controls — who underwent PET scans using the tracers $^{11}\text{C}(\text{R})\text{-PK11195}$ to detect microglial activation and $^{11}\text{C}\text{-PiB}$ to track amyloid- β ($\text{A}\beta$) deposition. At baseline, the MCI and AD cohorts both exhibited elevated levels of microglial activation, which subsequently declined in the MCI group but continued to increase in the AD group. The authors suggest that the early peak of microglial activation is a protective response to limit the deleterious effects of $\text{A}\beta$ deposition, whereas the later peak represents a more damaging proinflammatory state. The findings could have implications for the development of therapies to target specific disease stages in AD.

ORIGINAL ARTICLE Fan, Z. *et al.* An early and late peak in microglial activation in Alzheimer's disease trajectory. *Brain* <http://dx.doi.org/10.1093/brain/aww349> (2017)

STROKE**Sleep-related breathing disorders after stroke are not linked to lesion location**

Sleep-related breathing disorders (SRBDs), such as apnoea and hypopnoea, afflict over 50% of patients with stroke, and were assumed to reflect the effects of the stroke lesion on specific CNS regions involved in the regulation of breathing. A study recently published in *PLOS ONE*, however, found no significant relationship between the location of the stroke lesion and the risk of developing an SRBD. The new findings contrast with several previous studies, which indicated a link between brainstem infarcts and SRBDs. The researchers did find an association between classic risk factors for SRBDs — including age, BMI and arterial hypertension — and the prevalence of SRBDs after stroke, and they propose that cerebral ischaemia could exacerbate a pre-existing susceptibility to SRBDs rather than having a direct causal role in these disorders.

ORIGINAL ARTICLE Fisse, A. L. *et al.* The association of lesion location and sleep related breathing disorder in patients with acute ischemic stroke. *PLoS ONE* **12**, e0171243 (2017)

MOTOR NEURON DISEASE**Spinal cord morphometry — a promising technique to track disease course in ALS**

Measurement of the cross-sectional area of the cervical spinal cord could aid the tracking of disease progression in amyotrophic lateral sclerosis (ALS), according to research published in *NeuroImage: Clinical*. A team at the University of Campinas, Brazil performed brain and spinal cord MRI scans at baseline and 8 months later in 27 patients with ALS and 27 healthy controls. Of the various MRI-based parameters that were assessed, cervical spinal cord area reduction was found to be the most sensitive to longitudinal changes on the ALS Functional Rating Scale-Revised, which detects clinical deterioration in patients with ALS. The researchers conclude that spinal cord morphometry could provide a useful biomarker for longitudinal change in ALS, particularly in the later stages when brain degeneration might have plateaued.

ORIGINAL ARTICLE de Albuquerque, M. *et al.* Longitudinal evaluation of cerebral and spinal cord damage in amyotrophic lateral sclerosis. *NeuroImage Clin.* <http://dx.doi.org/10.1016/j.nicl.2017.01.024> (2017)