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IN BRIEF

NEURO-ONCOLOGY

MRI can help to stratify patients with glioblastoma

MRI can be used to identify biochemically distinct subtypes of glioblastoma, new work has shown. In 121 patients at a single institution, quantitative analysis of the shape, texture and edge sharpness of lesions identified three phenotypic clusters in which different molecular pathways were enriched. The clusters were validated in a second cohort of 144 patients from multiple institutions. The imaging approach provides a noninvasive technique for patient stratification and therapeutic optimization.

Original article Itakura, H. *et al.* Magnetic resonance image features identify glioblastoma phenotypic subtypes with distinct molecular pathway activities. *Sci. Transl. Med.* doi:10.1126/scitranslmed.aaa7582

NEUROCRITICAL CARE

Does autophagy protect against ischaemia?

The brain can be protected by ischaemic preconditioning, in which mild transient ischaemia protects against subsequent, more severe ischaemic attacks. A new study suggests that the protective effect in hippocampal CA1 cells is attributable to activation of Akt-induced autophagy. Experiments in oxygen glucose deprivation and bilateral carotid artery occlusion models of ischaemia provided *in vitro* and *in vivo* evidence that preconditioning increased Akt phosphorylation and expression of microtubule-associated protein light chain 3, a marker of autophagy. Inhibition of autophagy blocked the protective effects of preconditioning.

Original article Gao, C. *et al.* Ischemic preconditioning mediates neuroprotection against ischemia in mouse hippocampal CA1 neurons by inducing autophagy. *PLoS ONE* doi:10.1371/journal.pone.0137146

MULTIPLE SCLEROSIS

Response to vitamin D reduced in multiple sclerosis

Patients with multiple sclerosis (MS) respond abnormally to vitamin D supplementation, according to a new study. Levels of 25-hydroxyvitamin D were measured after vitamin D supplementation in 27 women with MS. After the possible confounding factors of BMI, adherence to medication and contraceptive use had been taken into account, the increase in levels in response to supplementation was 16.7 nmol/l lower in people with MS than in healthy controls.

Original article Bhargava, P. *et al.* Multiple sclerosis patients have a diminished serologic response to vitamin D supplementation compared to healthy controls. *Mult. Scler.* doi:10.1177/1352458515600248

BRAIN IMAGING

From lesion mapping to network mapping

Network effects that underlie the same manifestations of diverse focal lesions can be identified with a lesion mapping approach that requires no specialized imaging, a new study has shown. Connectome data were used to determine the functional connectivity of lesioned brain regions in patients with peduncular hallucinosis. Overlap in connectivity between patients indicated shared disruption of networks that underpinned their symptoms. The approach identified further network effects in central poststroke pain, auditory hallucinosis and subcortical aphasia.

Original article Boes, A. E. *et al.* Network localization of neurological symptoms from focal brain lesions. *Brain* doi:10.1093/brain/aww228