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IN BRIEF

NEUROMUSCULAR DISEASE

Splicing modifiers alleviate spinal muscular atrophy in mice

Spinal muscular atrophy (SMA), the leading genetic cause of infant mortality, is caused by mutation of the *SMN1* gene. The *SMN1* paralogue *SMN2* produces insufficient levels of functional SMN protein to prevent the progressive loss of α motor neurons that characterizes SMA. However, recent research has shown that *SMN2* splicing modifiers, which can be administered orally, increase the production of full-length *SMN2*, and improve motor function and longevity, in a mouse model of severe SMA.

Original article Naryshkin, N. A. *et al.* *SMN2* splicing modifiers improve motor function and longevity in mice with spinal muscular atrophy. *Science* doi:10.1126/science.1250127

MIGRAINE

Peripheral nerve stimulation in chronic migraine—high patient satisfaction shadowed by adverse events

A new study has shown that peripheral nerve stimulation (PNS) of the occipital nerves effectively alleviates chronic migraine over 1 year. PNS provided good or excellent headache relief in patients with pharmacologically intractable chronic migraine, although the high rate of adverse events remains a concern: 70% of the 157 patients experienced at least one adverse event, and almost half of these events required surgical intervention or hospitalization.

Original article Dodick, D. W. *et al.* Safety and efficacy of peripheral nerve stimulation of the occipital nerves for the management of chronic migraine: long-term results from a randomized, multicenter, double-blinded controlled study. *Cephalalgia* doi:10.1177/0333102414543331

MULTIPLE SCLEROSIS

Unique serum protein signature precedes MS onset

Expression of proteins involved in inflammation and lipid transport is altered before the onset of symptoms in multiple sclerosis (MS), according to new research. Longitudinal proteomic analysis of serum samples from a population-based incident MS cohort revealed specific proteomic changes in 100 participants who went on to develop MS compared with 100 matched healthy controls. These presymptomatic alterations in the serum proteome could aid our understanding of the pathogenesis of MS.

Original article Wallin, M. T. *et al.* Serum proteomic analysis of a pre-symptomatic multiple sclerosis cohort. *Eur. J. Neurol.* doi:10.1111/ene.12534

EPILEPSY

Antiepileptic drugs associated with abnormalities of bone health and mineral metabolism

Long-term treatment with antiepileptic drugs (AEDs) might have an adverse effect on bone health. Hamed *et al.* analyzed bone mineral content and markers of bone metabolism in 75 patients with epilepsy (mean duration of AED treatment: 10.57 years) and 40 healthy controls. Patients with epilepsy had an increased risk of osteoporosis and osteopenia of the lumbar spine and femoral neck. Notably, 93% of epilepsy patients, but only 30% of controls, had vitamin D deficiency or insufficiency.

Original article Hamed, S. A. *et al.* Bone status in patients with epilepsy: relationship to markers of bone remodeling. *Front. Neurol.* doi:10.3389/fneur.2014.00142