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IN BRIEF

DIABETES

Methylglyoxal modification of Na_v1.8 causes hyperalgesia

Elevated levels of methylglyoxal—a precursor of advanced glycation end products—in patients with diabetes mellitus induce hyperalgesia in diabetic neuropathy through post-translational modifications of the voltage-gated sodium channel Na_v1.8 in nociceptive neurons, suggests a new study. Patients with type 2 diabetes mellitus who had pain had significantly higher levels of plasma methylglyoxal than healthy controls or those with type 2 diabetes mellitus but no pain. Similarly, exogenous methylglyoxal increased the thermal and mechanical hyperalgesia in mice with induced diabetes; these effects were blocked by scavenging methylglyoxal with a synthetic peptide. Methylglyoxal induced changes in gating properties of Na_v1.8, whereas it failed to induce hyperalgesia in Na_v1.8-knockout mice. These data indicate that methylglyoxal is an important therapeutic target for the treatment of painful diabetic neuropathy.

Original article Bierhaus, A. *et al.* Methylglyoxal modification of Nav1.8 facilitates nociceptive neuron firing and causes hyperalgesia in diabetic neuropathy. *Nat. Med.* doi:1038/nm.2750

SURGERY

Long-term maintained weight loss after gastric bypass

A meta-regression analysis of data from 22 reports with a total of 4,206 patients who had Roux-en-Y gastric bypass (RYGB) surgery shows that weight loss is maintained for >2 years after surgery. RYGB surgery was previously reported to have short-term (<2 years) efficacy in individuals with morbid obesity. The follow-up times of the reports involved in the new study ranged from 2 to 12.3 years (mean of 3.6 years). The pooled percent mean excess weight loss was 66.5% and was maintained over time, indicating that RYGB surgery is as efficacious for weight loss in the long-term as it is in the short-term. Further research will be needed in order to shed light on the efficacy of RYGB surgery in long-term reduction of comorbidities.

Original article Attiah, M. A. *et al.* Durability of Roux-en-Y gastric bypass surgery: a meta-regression study. *Ann. Surg.* doi:10.1097/SLA.0b013e3182565712

PITUITARY FUNCTION

ACTH link to central hypothyroidism in Cushing disease

In 149 newly diagnosed patients with pituitary microadenoma, Mathioudakis *et al.* report significantly increased prevalence of central hypothyroidism (18%) in patients with ACTH-secreting microadenomas compared with those with non-ACTH-secreting tumours (0–1%). The researchers investigated whether the link between ACTH secretion and central hypothyroidism was related to hypercortisolism in these patients. To their surprise, no correlation was found between the levels of cortisol (in urine and saliva) and free T₄ or TSH levels in the patients with ACTH-secreting tumours. They suggest that patients with ACTH-secreting pituitary microadenomas should be tested for central hypothyroidism. However, thyroid hormone replacement therapy should be withheld until after pituitary surgery, as thyroid function usually recovers after treatment of Cushing disease.

Original article Mathioudakis, N. *et al.* ACTH-secreting pituitary microadenomas are associated with a higher prevalence of central hypothyroidism compared to other microadenoma types. *Clin. Endocrinol. (Oxford)* doi:10.1111/j.1365-2265.2012.04442.x