Co-administration of gut hormones suppresses appetite

After eating, the levels of the gut hormones glucagon-like peptide 1 (GLP-1) and peptide YY (PYY) are increased. Both hormones inhibit food intake when administered alone; however, the effects of co-administration are unknown.

Neary *et al.* found that co-administration of synthetic human GLP-1 ($GLP\text{-}1_{7–36}$) and PYY ($PYY_{3–36}$) in lean mice caused a significant reduction in feeding when compared with either hormone alone. A similar effect was observed in genetically obese *ob*/*ob* and *db*/*db* mice, their wild-type littermates, and in rats feeding in the dark. This result was not the consequence of behavioral changes; however, the number of c-*fos*-positive neurons in the hypothalamic arcuate nucleus was significantly increased.

They then assessed the effect of co-administration of these synthetic hormones in humans, in a randomized, double-blind, controlled study of 10 healthy volunteers. After an overnight fast, participants received $GLP\text{-}1_{7–36}$ and $PYY_{3–36}$, either alone or in combination. Following infusion, a preweighed buffet meal was served; participants then had unlimited access to food for the next 24 h. Co-administration resulted in a 27% reduction in energy intake at the buffet and cumulative eating was also reduced. Plasma GLP-1 and PYY levels were significantly increased by co-administration of the synthetic hormones. Additionally, 90 min after infusion, fasting insulin levels increased while glucose levels decreased.

The authors conclude that $GLP\text{-}1_{7–36}$ and $PYY_{3–36}$ have additive effects on appetite suppression and propose that co-administration of these hormones might provide a novel therapy for type 2 diabetes.

Vicky Heath

Original article Neary NM *et al.* (2005) Peptide $YY_{3–36}$ and glucagon-like peptide-$1_{7–36}$ inhibit food intake additively. *Endocrinology* [doi:10.1210/en.2005-0237]

Continuous subcutaneous insulin infusion improves glycemic control and quality of life in type 1 diabetes

The value of continuous subcutaneous insulin infusion (CSII) in the treatment of type 1 diabetes remains controversial. In the randomized, controlled, crossover 5-Nations trial, CSII was compared with multiple daily insulin injections (MDI) based on neutral protamine Hagedorn, in 272 patients with type 1 diabetes. Participants were assigned to one of two study groups (CSII then MDI, or MDI followed by CSII), and glycemic control and effects on quality of life (QoL) were assessed.

CSII was associated with significantly lower HbA_{1c} and a reduction in mean blood glucose levels and blood glucose fluctuations, compared with MDI ($P<0.001$ for all variables). There was a decrease in the incidence of mild and severe hypoglycemic events (incidence ratios 1.12 and 2.16, respectively). Patients receiving CSII reported improvements in QoL-related issues, including treatment satisfaction, treatment impact, lifestyle flexibility, perception of mental health and reduction in diabetes-related worry. An association of CSII with inflammation and pain at the infusion site (~8% of patients) did not affect patient preference, and the majority of patients who experienced CSII would recommend it over MDI.

The use of CSII is associated with significant clinical and QoL benefits over MDI in patients with type 1 diabetes. The relative benefits of this regimen over long-acting insulin-analog-based MDI regimens (glargine and detemir), however, remain to be established.

Carol Lovegrove

Original article Hoogma RPLM *et al.* (2005) Comparison of the effects of continuous subcutaneous insulin infusion (CSII) and NPH-based multiple daily insulin injections (MDI) on glycaemic control and quality of life: results of the 5-nations trial. *Diabet Med* [doi:10.1111/j.1464-5491.01738.x]

Decreased risk of diabetes in coffee and tea drinkers

Previous studies have shown that consumption of coffee and tea reduces the risk of diabetes. Caffeine in tea and coffee can cause an increase in energy expenditure that might help control body weight, thereby reducing the risk of diabetes.

In a prospective, cohort study, Greenberg *et al*. used data from the First National Health and Nutrition Examination Survey Epidemiologic Follow Up Study. A total of 7,006 individuals aged between 32 and 87 years and