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Calorie restriction prevents enteric neurodegeneration and restores cardiac ischemic tolerance in aged mice
PJ Johnson1,2, JN Peart1, N Blanch2, J Headrick1
1 Heart Foundation Research Centre, Griffith University, Gold Coast, QLD, Australia
2 School of Pharmacy, Griffith University, Gold Coast, QLD, Australia

Background – Long-term calorie-restriction (CR) with optimal nutrition is known to protect against many aging-related disorders. However, the effects of shorter duration CR, and the mechanisms responsible, are not well characterised.

Objective – To investigate the effects of CR on two important deficits associated with aging - 1) decreased cardiac ischemic tolerance; and 2) degeneration of enteric nerves that regulate intestinal motility.

Design – 3 groups of mice were compared: mature ad libitum-fed (MA, 14 weeks old), aged ad libitum-fed (AA, 48 weeks) and aged calorie-restricted (ACR, 48 weeks), which consumed a 40% calorie-restricted (but not nutrient-deficient) diet from 34-48 weeks of age. Immunohistochemical methods were used to measure density and proportions of different neurochemical classes of enteric neurons. For studies of ischemic tolerance, isolated perfused mouse hearts were subjected to 25min ischemia followed by 45min reperfusion. End-diastolic (EDP) and left ventricular developed pressures (LVDP) were measured, and perfusate was assayed for LDH and troponin as indices of myocardial damage. Results indicate means ± s.e.m.

Outcomes – Myenteric neuron density decreased by 35% in AA compared to MA mice, predominantly due to a loss of excitatory cholinergic neurons. This loss was completely reversed in aged CR mice. AA hearts displayed a significantly greater post-ischemic contractile dysfunction (EDP, 43±2 mm Hg; LVDP, 25±3%) compared to younger MA hearts (EDP, 21±2 mmHg; LVDP, 57±4%). In contrast, ACR hearts recovered similarly to MA hearts (EDP, 7±1 mm Hg; LVDP, 60±3%). LDH and troponin release was significantly elevated in AA mice, but not in the ACR group.

Conclusions – Calorie restriction for 14 weeks prevented enteric neurodegeneration and restored cardiac ischemic tolerance in aged mice. Understanding the mechanisms responsible for these effects will assist in the development of therapies to treat aging-related disease.

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Market research: Australian general practitioners talk about nutrition
F Bakas, M Riley
Dairy Australia, Melbourne VIC 3006

Background – General medical practitioners (GPs) in Australia are seen by up to 85% of the population at least once a year (1). They have potential to be an important source of diet and nutrition advice for the population.

Objective – To determine the extent of diet and nutrition advice given by GPs, and to what type of patients.

Design – Cross-sectional survey conducted in April 2007 of 98 randomly selected GPs working in metropolitan Melbourne and Sydney. Face to face interviews were conducted by independent interviewers who follow the international code of good marketing practice.

Outcomes – The mean percentage of consultations during which GPs stated that they give diet and nutrition advice was 34% (95% CI 29% - 38%), ranging from 2% to 100%. When asked the most common conditions where diet and nutrition was discussed in their practices, the most frequently nominated conditions were obesity (95% of GPs), type II diabetes (82%), hypercholesterolemia (74%), type I diabetes (72%), hypertension (61%), osteoporosis (60%), and allergies (16%).

Conclusion – These findings indicate that metropolitan GPs discuss diet and nutrition with many of their patients, most often in relation to chronic disease. They are in a position to provide useful dietary advice and appropriate referral.

Reference