Green tea extract improves glycated hemoglobin levels

Green tea is believed to have several beneficial effects on health including antioxidant activity and an ability to reduce blood cholesterol. Findings from a new study suggest green tea also has beneficial effects on glycemic abnormalities in patients with impaired glucose tolerance.

Fukino and colleagues conducted a randomized, controlled, crossover study in Japan to investigate the effects of green tea extract on parameters of glucose metabolism in people with elevated blood glucose levels. A total of 60 individuals were randomly allocated to one of two groups—each participant consumed a packet of green tea extract that contained 544 mg polyphenols daily for 2 months before or after a 2-month nonintervention period. Biomarkers of glucose and lipid metabolism were measured in both groups.

A significant reduction in glycated hemoglobin levels was observed in both groups during consumption of the green tea extract. A nonsignificant trend for reduced diastolic blood pressure was also apparent. Other parameters of glucose metabolism were not significantly changed.

One important feature of this study is that individuals were permitted to continue their normal consumption of green tea in addition to taking the green tea extract. The authors speculate that this additional consumption might account of the lack of significant change in other indices of glucose metabolism. Importantly, however, this study demonstrates that an increase in polyphenol consumption that corresponds to approximately three cups of green tea can reduce glycated hemoglobin levels in patients with impaired glucose tolerance, who are at risk of diabetes.

Original article Fukino Y *et al.* (2008) Randomized controlled trial for an effect of green tea-extract powder supplementation on glucose abnormalities. *Eur J Clin Nutr* **62:** 953–960

Nonalcoholic fatty liver disease is a risk factor for CKD in patients with type 2 diabetes

The proportion of patients with type 2 diabetes who are on dialysis is steadily increasing. Early treatment of chronic kidney disease (CKD) delays the onset of end-stage renal disease in these individuals; therefore, the identification of risk factors for CKD is imperative. Targher *et al*. investigated whether nonalcoholic fatty liver disease (NAFLD), which is thought to affect 70–75% of patients with type 2 diabetes, is a risk factor for CKD in this population.

The authors enrolled 1,827 outpatients from the Valpolicella Heart Diabetes Study who had type 2 diabetes, normal or near-normal kidney function and no overt proteinuria at baseline. During 6.5 years of follow-up, 547 of the 1,760 participants who attended routine medical examinations developed incident CKD. Patients with NAFLD, as diagnosed by patient history and liver ultrasonography, were at increased risk of developing CKD (hazard ratio 1.69; $P<0.001$). Adjustments for confounders such as sex, age, BMI, waist circumference, blood pressure, smoking, glycosylated hemoglobin level, blood lipids, baseline estimated glomerular filtration rate, microalbuminuria and medication use did not substantially modify the correlation (hazard ratio 1.49; $P<0.01$).

CKD and NAFLD share many risk factors; however, the data suggest that NAFLD confers an additional risk of CKD, beyond that which would be expected from the common risk factors alone. Systemic release of pro-inflammatory mediators from the liver (e.g. C-reactive protein, fibrinogen and plasminogen activator inhibitor 1) and worsening of insulin resistance could be among the major underlying mechanisms by which NAFLD, especially in its necro-inflammatory form, increases the risk of CKD.

Original article Targher G *et al.* (2008) Increased risk of CKD among type 2 diabetics with nonalcoholic fatty liver disease. *J Am Soc Nephrol* **19:** 1564–1570