

DIABETES

Could vitamin 'B' the answer?

Thiamine supplements can reverse early diabetes-induced renal damage, according to the results of a pilot study conducted by investigators at the University of Warwick, UK. Patients who received oral supplements of the vitamin for 3 months showed a significant reduction in urine albumin excretion, whereas those who received placebo showed no such decrease.

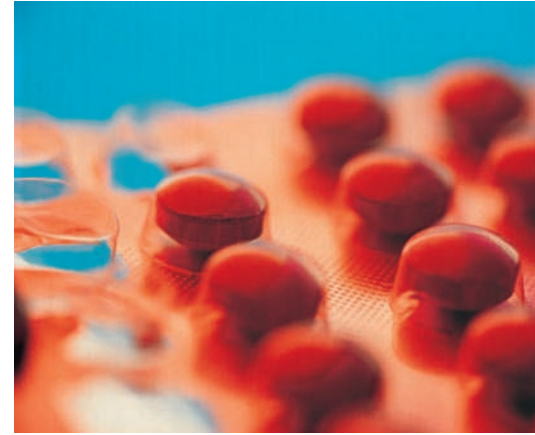
The researchers decided to conduct the study after their previous work revealed that diabetes is associated with increased thiamine clearance and reduced levels of thiamine in the plasma and glomeruli. They theorized that, by correcting this deficiency, thiamine supplementation might prevent the development of diabetic nephropathy.

The study involved 40 patients with type 2 diabetes and persistent microalbuminuria who were attending a clinic in Pakistan. The investigators assigned these individuals at random to receive either 300 mg thiamine daily (which they considered the highest dose that could be

taken chronically without adverse effects) or placebo.

After 3 months, urine albumin excretion had returned to normal in 35% of the thiamine-treated patients. Albuminuria decreased by a median of 31% from baseline in the 20 patients who received thiamine, but showed no significant decrease in the 20 patients who were given placebo. The reduction in albuminuria associated with thiamine compared favorably with decreases achieved by the best interventions currently available for the treatment of diabetic nephropathy, according to the researchers. Thiamine had no adverse effects on blood pressure, glycemic control, lipid levels or glomerular filtration rate.

"Thiamine might prevent the development of metabolic dysfunction in renal cells as a result of exposure to high glucose concentrations", explains Paul Thornalley, the senior investigator. Thiamine supplements are inexpensive, well tolerated and readily available, and no other currently



available treatment corrects thiamine deficiency in diabetes. Thornalley's team plans to conduct a follow-up study in a larger group of patients to examine the effect of thiamine on the 'harder' end point of glomerular filtration rate.

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Original article Rabbani, N. *et al.* High-dose thiamine therapy for patients with type 2 diabetes and microalbuminuria: a randomised, double-blind, placebo-controlled pilot study. *Diabetologia* 52, 208–212 (2009).