DIABETES

Cerebral microvascular disease independently predicts renal failure in patients with type 2 diabetes

The presence of cerebral microvascular disease is predictive of renal morbidity in patients with type 2 diabetes, say researchers in Japan.

Previous studies have suggested that glomerular filtration rate correlates negatively with the resistance of the interlobular renal arteries in patients with type 2 diabetes, and that small vessel disease in the kidney might increase the risk of developing impaired renal function. No methods are currently available, however, to accurately evaluate small vessel disease in the kidney. As the vascular beds of the kidney and brain have similar hemodynamic properties, Takashi Uzu *et al.* hypothesized that silent cerebral infarction (SCI)—small vessel disease in the brain—might indicate the presence of small vessel disease in the kidney.

Uzu *et al.*'s study included 608 patients with type 2 diabetes admitted to hospital in Japan for control of blood glucose or investigation of diabetic

complications. Exclusion criteria included cerebrovascular disease, cardiovascular disease and overt proteinuria and/or impaired renal function at baseline.

Patients underwent MRI of the brain at admission and were followed up with physical examinations and biochemical measurements (including measurements of albuminuria and estimated glomerular filtration rate) at least once every 6 months for an average of 7.5 years.

At baseline, 177 patients (29%) had SCI. Patients with SCI at baseline were more likely to die or progress to end-stage renal disease during follow-up than patients without SCI at baseline (hazard ratio 2.44, 95% CI 1.36–4.38; $P < 0.0001$). In addition, patients with baseline SCI were more likely to reach the secondary renal end point of any dialysis or doubling of serum creatinine (hazard ratio 4.79, 95% CI 2.72–8.46; $P < 0.0001$).

Although brain MRI seems to be useful for predicting renal function decline in

patients with type 2 diabetes, the authors acknowledge that cheaper and more convenient strategies are needed.

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Original article Uzu, T. *et al.* Cerebral microvascular disease predicts renal failure in type 2 diabetes. *J. Am. Soc. Nephrol.* 21, 520–526 (2010)