

## DIABETES

## Treatment with losartan increases risk of adverse renal outcomes

In patients with type 2 diabetes mellitus and nephropathy, treatment with the angiotensin-receptor blocker losartan increases levels of serum potassium, say the authors of a report published in *Diabetologia*. This effect is associated with a raised risk of adverse renal outcomes.

“Patients with diabetic nephropathy are at high risk of end-stage renal disease,” says corresponding author Hidde Lambers Heerspink (University Medical Centre Groningen, The Netherlands). These patients are also likely to develop hyperkalemia during renin–angiotensin–system blockade, as they have reduced kidney function. Cardiovascular risk and renal disease share many markers. “We know that increased serum potassium is associated with increased risk of cardiovascular disease,” explains Lambers Heerspink. “However, the association between increased levels of serum potassium and renal risk is unknown.”

The researchers analyzed data from 1,513 patients with type 2 diabetes

mellitus and nephropathy who were taking part in the RENAAL (Reduction of Endpoints in NIDDM with the Angiotensin II Antagonist Losartan) trial. The investigators established that treatment with losartan increased levels of serum potassium in these patients. Lambers Heerspink and colleagues then examined the effects of this increase on renal outcomes (doubling of serum creatine levels and end-stage renal disease).

The investigators found that raised levels of serum potassium ( $\geq 5.0$  mmol/l) after 6 months of treatment with losartan were associated with an increased risk of adverse renal outcomes in patients with diabetic nephropathy. These adverse effects counteracted the renal protective action of losartan. The researchers speculate that management of hyperkalemia could improve the renal protective effects of losartan in patients with diabetic nephropathy.

Although this study does provide evidence of a novel association between



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increased levels of serum potassium and adverse renal outcomes, it is a post hoc analysis of a randomized, controlled trial—a study design that has several inherent limitations. “We are now working on other studies to confirm (or refute) the results we have observed in the RENAAL trial,” concludes Lambers Heerspink.

Claire Greenhill

**Original article** Miao, Y. *et al.* Increased serum potassium affects renal outcomes: a post hoc analysis of the Reduction of Endpoints in NIDDM with the Angiotensin II Antagonist Losartan (RENAAL) trial. *Diabetologia* doi:10.1007/s00125-010-1922-6