

Is the combination of linagliptin and allopurinol better prophylaxis against post-contrast acute kidney injury?

A multicenter prospective randomized controlled study

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ABSTRACT

Background:

Patients with diabetic kidney disease (DKD) are at increased risk to develop postcontrast acute kidney injury (AKI). Diabetic patients under dipeptidyl peptidase 4 inhibitors (DPP4Is) experience a lower propensity to develop AKI. We speculated that linagliptin as a single agent or in combination with allopurinol may reduce the incidence of post-contrast AKI in stage 3–5 chronic kidney disease (CKD) patients with underlying DKD.

Methods:

Out of 951 DKD patients eligible for this study, 800 accepted to sign informed consent. They were randomly allocated to 4 equal groups that received their prophylaxis for 2 days before and after radiocontrast. The first control group received N-acetyl cysteine and saline, the 2nd received allopurinol, the 3rd group received linagliptin, and the 4th received both allopurinol and linagliptin. Post-

procedure follow-up for kidney functions was conducted for 2 weeks in all patients.

Results: 20, 19, 14, and 8 patients developed post-contrast AKI in groups 1 through 4, respectively. Neither linagliptin nor allopurinol was superior to N-acetyl cysteine and saline alone. However, the combination of the two agents provided statistically significant renal protection: post-contrast AKI in group 4 was significantly lower than in groups 1 and 2 ($p < 0.02$ and < 0.03 , respectively). None of the post-contrast AKI cases required dialysis.

Conclusion: Linagliptin and allopurinol in combination may offer protection against post-contrast AKI in DKD exposed to radiocontrast. Further studies are needed to support this view.