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Safety and Vascular Effects of Low-Dose Ramipril in Living Kidney Donors: A Randomized Controlled Trial

Ankur Chaudhary[1], Ashok Yadav[2], Vivek Kumar[1]
[1]Department of Internal Medicine-Nephrology, PGIMER, Chandigarh, India, India
[2]Department of Experimental Medicine & Biotechnology, PGIMER, Chandigarh, India, India

Objectives : Living kidney donors may be adversely affected due to lowering of GFR post nephrectomy. Besides their anti-hypertensive actions, ACE inhibitors (ACEi) have positive effects on vascular function. We evaluated the safety of low dose Ramipril (1.25mg) in kidney donors and impact on flow mediated dilatation (FMD) at 6 months post donation.
Methods : In a single centre, open label, randomized control trial, all prospective living renal donors between 18-60 years, with no underlying hypertension or allergy to ACEi were enrolled. Baseline eGFR and FMD were recorded. Subjects were randomized (1:1 ratio) at discharge to receive either daily dose of 1.25 mg of Ramipril or no medication. Repeat FMD and eGFR were measured at 6 months. Subjects were withdrawn from study if serum creatinine increased by >25% as compared to baseline, or serum potassium rose to >5.5 mEq/L, or systolic blood pressure (SBP) fell to <90 mm Hg or by >25% as compared to baseline.
Results : 59 subjects post donor nephrectomy were enrolled and randomised: 29 to Intervention/Ramipril and 30 to Control arm. At 6 months, 19 participants followed up in intervention and 23 in control arm. One participant in intervention arm (3.44%) developed side effect in form of increase in serum creatinine >25% from baseline which led to discontinuation of drug. In the control arm, 2 (6.7%) participants had rise in serum creatinine. Mean difference in eGFR was 25.4±16.3ml/min/1.73m2 in intervention versus 26.0±17.1ml/min/1.73m2 in control arm (p=0.909). Mean difference in FMD at 6 months vs baseline was 3.63±10.76% in intervention while -2.62±10.28% (p=0.098) in control arm.
Conclusions : Use of ramipril in dose of 1.25 mg once daily in living kidney donors was safe. A trend in improvement in vascular function was noted in intervention arm suggesting further study the effect of ACEi on vascular function in post kidney donation with adequate sample size.

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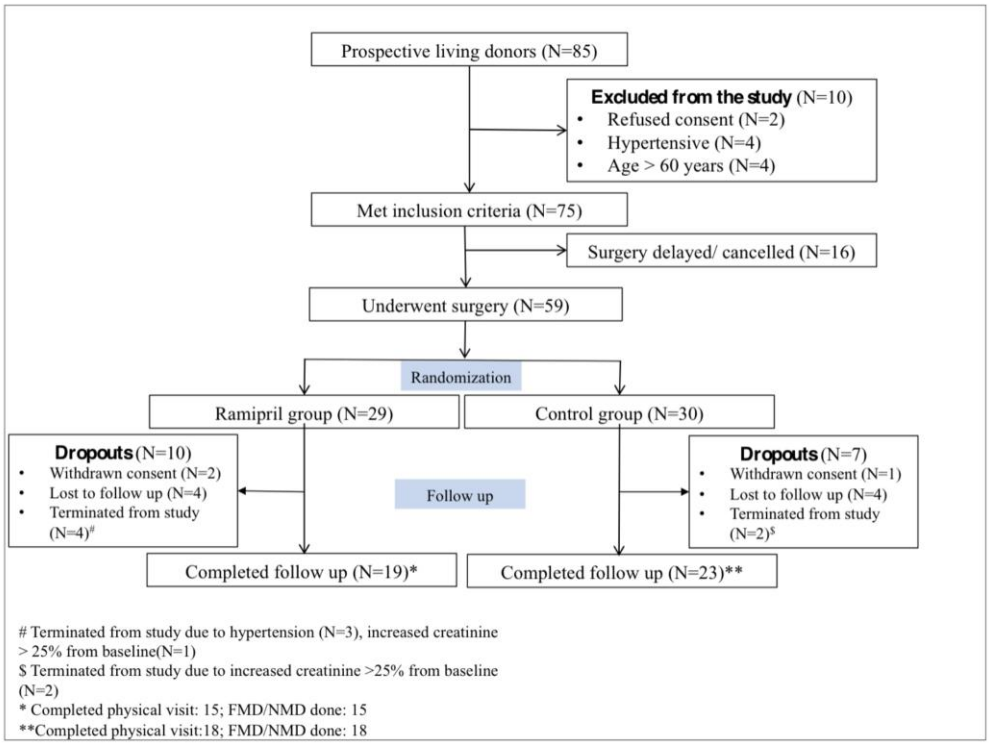

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