

**Abstract Submission No.: A-0899****Impacts of a plant-based diet intervention on reducing dietary acid load in CKD3-4: simple messaging is key to success**

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**Objectives :** The rate of decline of residual kidney function is reduced by diets high in fruits and vegetables and low net acid production. Previous studies have used complex and time-consuming prescriptions to reduce acid load. However, preparing these requires specialised renal dietetic expertise, which is often lacking in many regions of the world. We tested revised clinical messaging in a clinical trial setting.

**Methods :** A 16-week randomised, crossover trial involving participants with stage 3-4 CKD was undertaken. Each participant followed a specific diet for 6 weeks, separated by a minimum 4-week washout period. Participants received personalised dietary support from a dietitian during the dietary intervention periods. The two dietary patterns tested were a low plant diversity ( $\leq 15$  unique plant foods/week) and high plant diversity pattern ( $\geq 30$  unique plant foods/week) in addition to usual evidence based individualised renal dietetic care for those with CKD stages 3-4. The potential renal acid load (PRAL) was determined using the Remer and Manz formula. Changes to nutrient intake, quality of life, symptom burden, uremic toxins, adverse events, gut microbiome composition and plasma metabolites were also recorded.

**Results :** Twenty-eight participants were randomised to the study, of which 25 completed all study measures. The mean age of participants was  $64.5 \pm 14.1$  years, mean eGFR  $46.4 \pm 11.8$  ml/min and 64% male. There was a significant reduction in PRAL following the high-diversity compared to low-diversity diet ( $P=0.00282$ ). This equated to a 47% reduction in PRAL following the high-diversity diet (from  $20.9 \pm 15.4$  at baseline to  $11 \pm 11.1$  mEq/day. In contrast, PRAL increased from  $16.7 \pm 15.6$  to  $21.4 \pm 17.4$  mEq/day after the low-diversity diet. Diet quality and symptom burden (including constipation) also improved.

**Conclusions :** Simple messaging to increase plant diversity resulted in a substantial reduction in net acid production and improvements to other important therapeutic outcomes.