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Long term effects of intensive low salt diet education on deterioration of glomerular filtration rate among non-diabetic hypertensive patients with chronic kidney disease

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Objectives: We investigate whether a reduced dietary salt intake and an intensive low salt diet education program effectively attenuate the rate of renal function decline.

Methods: This cohort study recruited 171 participants from a previous randomized clinical trial that originally consisted of 245 hypertensive CKD patients who were assigned to two groups, intensive low salt diet or conventional education. We evaluated the renal outcomes, which included the rate of change in estimated glomerular filtration rate (eGFR) per year, the increase of serum creatinine ≥ 50%, the decrease of eGFR ≥ 30%, and the percent change of albuminuria throughout the entire study period.

Results: The baseline characteristics of the cohort participants between the two groups were similar at the time of trial phase randomization. During the whole study period, the rate of renal function decline was significantly faster in conventional group; 0.11 ± 4.63 ml/min/1.73m2/year vs -1.53 ± 3.04 ml/min/1.73 m2/year, p = 0.01. The percent of incremental change in serum creatinine ≥ 50% was 1.1% in the intensive group and 8.2% in the conventional group (*p=0.025*), and the percent of decremental change in eGFR ≥ 30% was 3.3% in the intensive group and 11.1% in the conventional group (*p=0.048*). With logistic regression analysis adjusted for related factors, we found that the conventional group showed a higher risk for deterioration in serum creatinine and eGFR during the entire study period. Especially, we found that the intensive education program preserved eGFR in participants with one, several, or all of the following characteristics at the time of randomization: older, female, obese, had higher protein intake, higher amounts of albuminuria, higher salt intake.

Conclusions: This cohort study demonstrated that an intensive low salt diet education program attenuated the rate of renal function decline in hypertensive CKD patients independent of its effect on lowering salt intake or albuminuria.