KSN 2017 Abstract

Long-term effect of diet modification for CKD patients

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Chronic kidney disease (CKD) is a worldwide problem and a risk factor to cardiovascular events, hospitalization, cardiovascular mortality, and all-cause mortality. Prevalence of CKD was increased from 11.0 % during the period 1994-1998 to 13.1 % between 1999 and 2004 in United States. The prevalence of CKD in urban areas of Korea was 13.7 % among adults aged more than 35 years. The Kidney Disease Improving Global Outcome (KDIGO) guideline recommends strategies to prevent progression and complications of CKD in pharmacologic and non-pharmacologic aspects. The use of renin-angiotensin-aldosterone system inhibitors (RASIs) to reduce albuminuria and control blood pressure are the mainstay pharmacological treatment to prevent CKD progression. Diet modification, especially modification of salt intake, might be another way to improve CKD prognosis. We suggested that the prevalence of CKD could be decreased by improved blood glucose control, improved blood pressure control, and changing various health-related behaviors, such as cessation of smoking and avoiding excess intake of salt, energy, and protein, through analyzing a nation-wide epidemiologic data set of Korea. There are several randomized controlled trials (RCTs) to show low salt intake in people with CKD reduced blood pressure and proteinuria, however, the duration of studies was too short to test the effect of salt restriction on end points such as CKD progression. Unfortunately, there is a paucity of high-quality prospective RCTs investigating whether low salt intake improves long-term renal outcomes. Post-hoc analysis of the RENAAL and IDNT trials and the REIN and REIN-2 trials showed higher salt intake increased the risk of end stage renal disease (ESRD) in non-diabetic CKD and a composite outcome of doubling serum creatinine and ESRD in diabetic CKD patients using a RASI. A prospective cohort study showed lower dietary sodium intake may reduce risk for decline rate of estimated glomerular filtration rate (eGFR) in women, although the dietary intake was assessed by the food frequency questionnaires. Trial of Hypertension Prevention (TOHP) I and TOHP II trial has been conducted to investigate long term effects of low salt diet education and showed risks of mortality, cardiovascular events, and incident hypertension were decreased in the intervention group. However, the trials did not measure urinary sodium excretion after 18 months or 36-48 months of trial phase, and did not observe the effect of intervention on renal outcome.

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Therefore, we conducted a prospective cohort study to investigate whether lower dietary salt intake and the intensive low salt diet education are effective to reduce the rate of GFR decline among hypertensive CKD patients participated in an open-label randomized controlled trial. The trial aimed to determine the effect of short-term intensive low-salt diet education on urine albumin excretion. We followed the cohort for 36.3 months (range: 27.0 ~ 47.0 months) after randomization and measured 24-hour urine sodium and urea excretion and eGFR. This presentation shows results of this cohort study.