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The Association of Sodium Intake with Chronic Kidney Disease Using Ansan-Ansung Cohort Study

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Objectives : High sodium intake is regarded as a potential risk factor for various diseases. Chronic kidney disease (CKD) is a one of the diseases that can be caused by a high sodium intake. CKD can cause various symptoms and its causes are not completely known. The aim of this study was to assess the association between sodium intake and the development of CKD using the Ansan-Ansung cohort study.

Methods : We used various statistical methods such as multivariable logistic regression and spline interpolation. Patients' data were obtained from the Korean Genome and Epidemiology Study conducted by National Institute of Health from 2001 to 2011. The data were classified by whether daily sodium intake exceeds 2g, which is the daily sodium intake standard suggested by WHO. The occurrence of CKD was determined by the detection of proteinuria and whether kidney dysfunction was developed using estimated glomerular filtration rate (eGFR).

Results : The study included 9,360 people, 7,205 of whom intaked more than 2g of sodium per day, and 2,105 of whom did not. Statistical analysis including selected variables, such as hypertension, diabetes melleus and sodium intake showed that regular sodium intake was not associated with eGFR below 60 compared to low sodium intake in the entire participants. However, in people with diabetes, high sodium intake had a positive association with kidney dysfunction. Similarly, there was no correlation between sodium intake and the proteinuria in total patients, but regular sodium intake was associated with an increased risk of proteinuria compared to low sodium intake in patients with diabetes.

Conclusions : These data suggest that there is a significant correlation between sodium intake and CKD in patients with diabetes.