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## **Changes in Body Mass Index and Incident Chronic Kidney Disease among general population: a community-based cohort study**

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**Objectives:** Obesity increases cardio-metabolic risk and has emerged as an important determinant for chronic kidney disease (CKD) in the general population. However, it is uncertain whether weight reduction can prevent the development of CKD.

**Methods:** We studied the association between weight loss and development of CKD in healthy individuals using database from a large-scale prospective cohort of the Korean Genome and Epidemiology Study. Among 10,030 participants aged 40-69 years who were recruited between 2001 and 2002, 6,497 healthy subjects without comorbidities were included in the analysis. These subjects were categorized into five group based on quintiles of % changes in body mass index (BMI). The primary outcome of interest was incident CKD, which was defined as an eGFR of < 60 mL/min per 1.73 m<sup>2</sup> for two consecutive measurements.

**Results:** During a mean follow-up duration of 9.5 (3.4) years, incident CKD occurred in 455 (7.0%) participants; 4.8, 8.2, 9.0, 8.0, and 6.8 per 1000 patients-years across the quintiles, respectively (P = .01). The lowest quintile group was associated with a 42 % decreased risk of incident CKD in multivariable Cox model after adjustment of confounding factors (hazard ratio [HR], 0.579; 95% CI, 0.408-0.820; P < .001) compared to subjects with the smallest change in BMI. The beneficial effect of weight loss was consisted in 2<sup>nd</sup> lowest quintile group (HR, 0.712; 95% CI, 0.215-0.989; P = .04). ). This association was observed in overweight and obese subjects, while the significance was lost in underweight or normal weight group. Interestingly, weight loss in obese subjects was associated with a significantly decreased risk of incident CKD compared to those without weight loss and conferred a comparable risk to non-obese counterpart.

**Conclusions:** Weight loss was associated with decreased risk of developing CKD in healthy individuals without comorbid diseases.