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The Association between Income Disparities and Risk of Chronic Kidney Disease: A Nationwide Cohort Study of Seven Million Adults in Korea

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Objectives: Income disparities may have bearing on public health problems. However, longitudinal studies of the relationship between income level and incident chronic kidney disease (CKD) are scarce. Here, we studied the association between income level and incident CKD in healthy adults with normal baseline kidney function.

Methods: We analyzed a total of 7.4 million adults who underwent National Health Insurance Service health examinations between 2009−2015 with baseline estimated glomerular filtration rate (eGFR) ≥60 mL/min/1.73m^2. The main exposure was the income level categorized into deciles. The outcome of interest was incident CKD, defined as *de novo* development of eGFR <60 mL/min per 1.73m^2 (model 1) or ≥25% decline in eGFR from the baseline values accompanied by eGFR <60 mL/min/1.73m^2 (model 2).

Results: During a median follow-up of 4.8 years, there were a total of 122,032 (1.65%) and 55,779 (0.75%) incident CKD events based on model 1 and 2 definitions, respectively. Compared with income levels in the sixth decile, there was an inverse association between lower income level and higher risk of CKD up to fourth decile, above which no additional reduction (model 1) or slightly higher risk of CKD (model 2) was observed at higher income levels. The multivariable-adjusted hazard ratios (95% confidence interval) from the lowest to fourth deciles were 1.30 (1.26-1.33), 1.16 (1.13-1.19), 1.07 (1.05-1.10), and 1.06 (1.03-1.09) in model 1 and 1.32 (1.27-1.37), 1.18 (1.14-1.22), 1.08 (1.04-1.13), and 1.05 (1.01-1.09) in model 2, respectively. These associations persisted across various subgroups of age, sex, and comorbidity status.

Conclusions: In this large nationwide cohort, lower income levels were associated with higher risk of incident CKD.