

Abstract Type : Poster
Presentation No. : POT 006

Breakfast skipping is associated with faster renal function decline in subjects with normal renal function: A community based prospective cohort study

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Objectives: Skipping breakfast has been shown to be associated with several metabolic derangements. However the relationship between breakfast skipping and renal function remains unclear. Therefore, the effect of breakfast skipping on the decline rate of renal function was evaluated in subjects with normal renal function.

Methods: Data were retrieved from the Korean Genome and Epidemiology Study, a prospective community-based cohort study. The study subjects were followed-up biennially from 2001 to 2014. Meal habits were self-reported. Subjects were dichotomized to breakfast skippers and to eaters. The slope of decline of renal function was calculated by linear regression analysis of serial eGFR of each subject.

Results: A total of 9487 subjects were evaluated. The mean age was 52.0 ± 8.8 and 4524 (47.7%) participants were male. The mean estimated glomerular filtration rate was 94.0 ± 14.2 mL/min/1.73 m². Among the total subjects, 1210 (12.8%) subjects were breakfast skippers. When baseline characteristics were compared between breakfast skippers and eaters, breakfast skippers were significantly younger (48.0 vs. 52.6, $P < 0.001$), had higher BMI levels (24.8 vs. 24.5, $P < 0.001$), and higher serum LDL-cholesterol levels (121.6 vs. 117.9, $P = 0.001$). Logistic regression analysis revealed that BMI levels (odds ratio [OR], 1.028; confidence interval [CI], 1.01-1.05), serum LDL-cholesterol levels ([OR], 1.003; [CI], 1.00-1.01), and HOMA-IR were significantly associated with breakfast skipping ([OR], 1.042; [CI], 1.00-1.08). When the association between breakfast skipping and the renal function decline rate during the follow-up period was investigated by multiple linear regression analysis, breakfast skipping was significantly associated with a faster decrease in renal function (beta coefficient [B], -0.49; 95% confidence interval [CI], -0.77- -0.21).

Conclusions: Breakfast skipping may accelerate renal function decline in individuals with normal renal function. Breakfast skipping meal habits could be a modifiable risk factor for renal function decline.