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Self-Reported Habitual Snoring Is Associated with Incident Chronic Kidney Disease Development: A Community-based Prospective Cohort Study

Changhyun LEE[1], Shinchan KANG[1], Heebyung KOH[1], Jaeyeol KWON[1], Joohwan KIM[1], Cheol ho PARK[1], Sangmi LEE[1], Hyoungnae KIM[1], Seung hyeok HAN[1], Tae-hyun YOO[1], Shin-wook KANG[1,2], *Jung tak PARK[1]

[1]Internal Medicine, College of Medicine, Institute of Kidney Disease Research, Yonsei University, Seoul, Korea, Korea,South, [2]Internal Medicine, College of Medicine, Severance Biomedical Science Institute, Brain Korea 21 PLUS, Yonsei University, Seoul, Korea, Korea,South

Objectives : Reports have shown sleep disordered breathing symptoms including habitual snoring to be clearly associated with the development of metabolic derangements and vascular diseases. However, the relationship between habitual snoring and renal function is not well investigated. Therefore, this study aimed to evaluate the association between habitual snoring and the development of incident chronic kidney disease (CKD) in a cohort of subjects with normal renal function.

Methods : Data were retrieved from the Korean Genome and Epidemiology Study (KoGES), a prospective community-based cohort study. The study subjects were followed-up biennially from 2001 to 2014. A total of 9748 subjects with normal renal function were included in the final analysis. Detailed information on sleep duration, quality, and disorders including habitual snoring were collected by a self-reported sleep quality questionnaire. Subjects were classified into two groups, based on self-reported snoring frequency at baseline: non-snoring group vs. snoring group. The primary endpoint of study was development of CKD, defined as estimated glomerular filtration rate (eGFR) < 60 mL/min/1.73 m2.

Results : The mean age was 52.1 years and 5137 (52.4%) were male. The snoring group and non-snoring groups each included 6126 (62.8%) and 3622 (37.2%) subjects. The baseline eGFR was lower (91.6 ± 14.0 and 94.5 ± 14.0 ml/min/1.73m2, P <0.001) and more subjects had metabolic syndrome in the snoring group (44.5% vs. 32.1%, P <0.001) than the non-snoring group. Incidences of restless legs syndrome, periodic limb movements during sleep, and excessive daytime sleepiness were significantly higher in the snoring group than the non-snoring group. During a mean follow-up duration of 101.8 ± 53.0 months, 563 (9.19%) and 274 (7.56%) subjects developed CKD in the snoring group and non-snoring group, respectively. Cox Proportional Hazard model

analysis revealed that habitual snoring was an independent risk factor for incident CKD development [hazard ratio (HR), 1.21; 95% confidence interval (CI), 1.04–1.39; P 0.01]. This finding was significant even after adjustments were made for confounding factors including the presence of metabolic syndrome and eGFR at baseline (HR, 1.18, 95% CI, 1.02–1.36; P = 0.03).

Conclusions : Snoring may increase the risk of CKD development in subjects with normal renal function. Managing sleep quality could play a role in preserving renal function.

Keywords :