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Allergic rhinitis is closely correlated with impaired kidney function: A nationwide cross sectional study

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Objectives: It is well known that the chronic inflammation is associated with renal dysfunction. Allergic rhinitis is a type of chronic inflammatory disease, however, the relationship between allergic rhinitis and chronic kidney disease has not been elucidated, yet.

Methods: A total of 11,684 adults who participated in The Korean National Health and Nutrition Examination Survey VI (KNHANES VI), a nationwide cross sectional study in Korea from 2013 to 2015, were included in the analysis. We examined the association between the history of allergic rhinitis and a reduced renal function, which was defined as an estimated glomerular filtration rate (eGFR) < 60 mL/min/1.73 m² in this cohort. We classified into the control and allergic rhinitis group according to the presence of allergic rhinitis history.

Results: There were 10,200 (87.3%) subjects without allergic rhinitis and 1,484 (12.7%) subjects with allergic rhinitis. The mean age was 50.7 ± 16.7 years and subjects who have allergic rhinitis were younger compared to that in subjects without allergic rhinitis. The subjects who have a reduced renal function were 320 (3.1%) in the control group and 65 (4.4%) in the allergic rhinitis group (P = 0.012). The subjects with allergic rhinitis had higher risk of a reduced renal function (odds ratio [OR], 1.41; 95% confidence interval [CI], 1.08-1.86) compared with the subjects without allergic rhinitis in unadjusted model, and the result was still significant after adjustment for demographic and clinical variables. Moreover, the risk for a reduced renal function in the allergic rhinitis group was steadily increased as the longer duration of allergic rhinitis (ORs, 1.15 [95% CI, 0.68-1.92]; 1.69 [95% CI, 1.09-2.64]; and 1.87 [95% CI, 1.21-2.88], in the shortest, middle, and longest tertile, respectively) compared to that in the control group after adjustment for confounding factors.

Conclusions: We suggested that allergic rhinitis is closely associated with impaired kidney function.