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Rheumatoid arthritis and the risk of end-stage renal disease: a nation-wide, population-based study

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Objectives: Despite the risk of incident chronic kidney disease among the patients with rheumatoid arthritis (RA), the association of RA and the risk of end-stage renal disease (ESRD) has not been clearly elucidated. We aimed to investigate the association of RA and the risk of ESRD.

Methods: A total of 929,982 subjects with (n = 154,997) or without (n = 774,985) RA from the National Health Insurance Service (NHIS) database in Koreas (corresponding to the period between 2009 and 2017) were retrospectively analyzed. RA was defined by International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM), codes plus any dispensing of disease-modifying antirheumatic drugs. The primary outcome was incident ESRD, identified by a combination of the ICD-10-CM codes and a special code assigned to patients receiving maintenance dialysis for ≥ 3 months or those with a transplant kidney.

Results: Compared to the subjects without RA, the subjects with RA resulted in an increased incidence of ESRD (incidence rates of 0.374 versus 0.810 cases per 1,000 person-years). Accordingly, compared to the subjects without RA, the risk of ESRD was significantly increased among the subjects with RA (adjusted hazard ratio 2.095, 95% confidence interval 1.902 to 2.308). Subgroup analyses revealed that the risk of ESRD imposed by RA is relatively higher in relatively young and healthy individuals.

Conclusions: RA increase the risk of ESRD. As the risk of ESRD imposed by RA is relatively higher in relatively young and healthy individuals, kidney-protective treatment, such as biologic agents, should be preferentially considered among these patients with RA.