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Use of Aspirin and Risk of Initial Cardiovascular Events and Bleeding in CKD G3-G4 patients: A Nationwide Cohort Study in South Korea

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Objectives: Despite the higher risk of cardiovascular (CV) events in patients with chronic kidney disease (CKD), the role of aspirin for primary prevention is unclear. This study aimed to investigate the association between the initiation of aspirin in adults with CKD but no prior CV disease and the first CV event using the longitudinal Korean National Health Insurance Service (NHIS) data.

Methods: Among patients aged 40-79 years with estimated glomerular filtration rate (eGFR) between 15 and 59 mL/min per 1.73 m² who underwent routine NHIS health examinations between 2011 and 2016, a total of 15,861 patients newly prescribed aspirin at a dose of 100 mg daily and 79,305 aspirin non-users were included using 1:5 propensity score matching. Primary efficacy outcome was a composite of atherosclerotic CV disease (i.e., myocardial infarction, ischemic stroke, coronary revascularization, or death from any vascular cause, excluding intracranial hemorrhage) and primary safety outcome was a composite of the hospitalization for intracranial hemorrhage or gastrointestinal bleeding, respectively.

Results: During mean follow-up time of 6.9 ± 2.9 years, incidence rates for the primary efficacy outcome of aspirin users and non-users were 8.7 and 9.4 per 1,000 person-years, respectively. The initiation of aspirin was associated with 3% lower risk of all serious CV events combined, but without statistical significance (HR 0.97; 95% CI, 0.89-1.04; P=0.371). In contrast, major bleeding events occurred with the incidence rate of 7.3 per 1,000 person-years in aspirin users, as compared with 5.2 in non-users. There was a significant adverse effect of use of aspirin showing 45% higher risk in serious bleeding events as compared to non-users (HR 1.45; 95% CI, 1.32-1.59; P<0.001).

Conclusions: The use of low-dose aspirin as a primary prevention strategy in patients with CKD G3-G4 resulted in a higher risk of major hemorrhage but did not result in a lower risk of adverse CV outcomes.