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Effects of Statin on Estimated Glomerular Filtration Rate and Albuminuria in Chronic Kidney Disease: From the KNOW-CKD study

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Background: Dyslipidaemia occurs frequently in chronic kidney disease (CKD) patients and contributes to both cardiovascular disease and worsening renal function. Statins are widely used in CKD patients even though evidence favoring their use is showing conflicting conclusions. Therefore, we evaluated the effects of statin on 1-year estimated glomerular filtration rate (eGFR) and urine albumin creatinine ratio (UACR) using KoreaN Cohort Study for Outcome in Patients With Chronic Kidney Disease registry.

Methods: Statin was treated in 688 CKD patients and was not treated 460 CKD patient for one year. eGFR and UACR were measured on baseline and 1-year at central laboratory. Baseline charicteristics was evaluated between two groups. Subgroup analysis was performed in diabetes mellitus (DM) group or eGFR< 60 mL/min per 1.73 m^2.

Results: Statin treated group did not show any significant eGFR change compared to no treatment group, while it decreased UACR markedly (-400.21±587.62 vs. -941.94±1242.63, p<0.001). Atrovastatin (35.9%) and rosuvastatin (31.1%) were popular statin among 6 using statin types and 5 different statin types did not affect 1-year eGFR change except simvastatin (-2.20±9.57, p=0.016). All 6 statins significantly decreased 1-year UACR. These results were similar in diabetes mellitus (DM) and eGFR< 60 mL/min per 1.73 m^2 as well by subgroup analysis. However, multiple regression analysis showed statin was not a significant factor for affecting 1-year delta eGFR and delta UACR and only angiotensin converting enzyme was significant factor for affecting delta UACR.

Conclusion: Statin treatment did not affect in 1-year eGFR change, but decreased 1-year UACR in CKD, DM, eGFR< 60 mL/min per 1.73 m^2 patients. Statin can be expected for albuminuria reducing effect in CKD patients.

Keywords: Albuminuria, chronic kidney disease, estimated glomerular filtration rate, statin