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Association of Remnant Cholesterol Levels with the Initiation of Kidney Replacement Therapy in Patients with Chronic Kidney Disease: Results from the KNOW-CKD Study

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Objectives : While remnant cholesterol (RC) has been established as a risk factor for atherosclerotic cardiovascular disease, its role in chronic kidney disease (CKD) progression remains unclear. This study aimed to investigate the association between RC levels and the adverse kidney outcomes in CKD patients.
Methods : We analyzed data from the KoreaN Cohort Study for Outcomes in Patients With Chronic Kidney Disease, a prospective multicenter cohort study. The participants were categorized into quartiles based on their RC levels, calculated as total cholesterol minus low-density lipoprotein cholesterol minus high-density lipoprotein cholesterol. The primary outcome was the initiation of kidney replacement therapy (KRT).
Results : A total of 2,087 CKD patients were enrolled. During a median follow-up of 8.0 years, 654 (31%) patients initiated KRT. Higher RC levels were significantly associated with an increased risk of KRT initiation. Compared to the lowest quartile (Q1), the adjusted hazard ratios (aHRs) for KRT initiation were 1.22 (95% CI, 0.95–1.57) for Q2, 1.32 (95% CI, 1.03–1.70) for Q3, and 1.42 (95% CI, 1.07–1.89) for Q4. A 1-standard deviation increase in RC was associated with a 16% higher risk of KRT initiation (aHR, 1.16; 95% CI, 1.05–1.29). The association remained significant across various subgroups, particularly in patients with diabetes and early-stage CKD.
Conclusions : Elevated RC levels are independently associated with an increased risk of KRT initiation in CKD patients. These findings suggest that RC may contribute to CKD progression and highlight the need for further studies to evaluate the potential benefits of RC-targeted lipid-lowering strategies in preserving kidney function.

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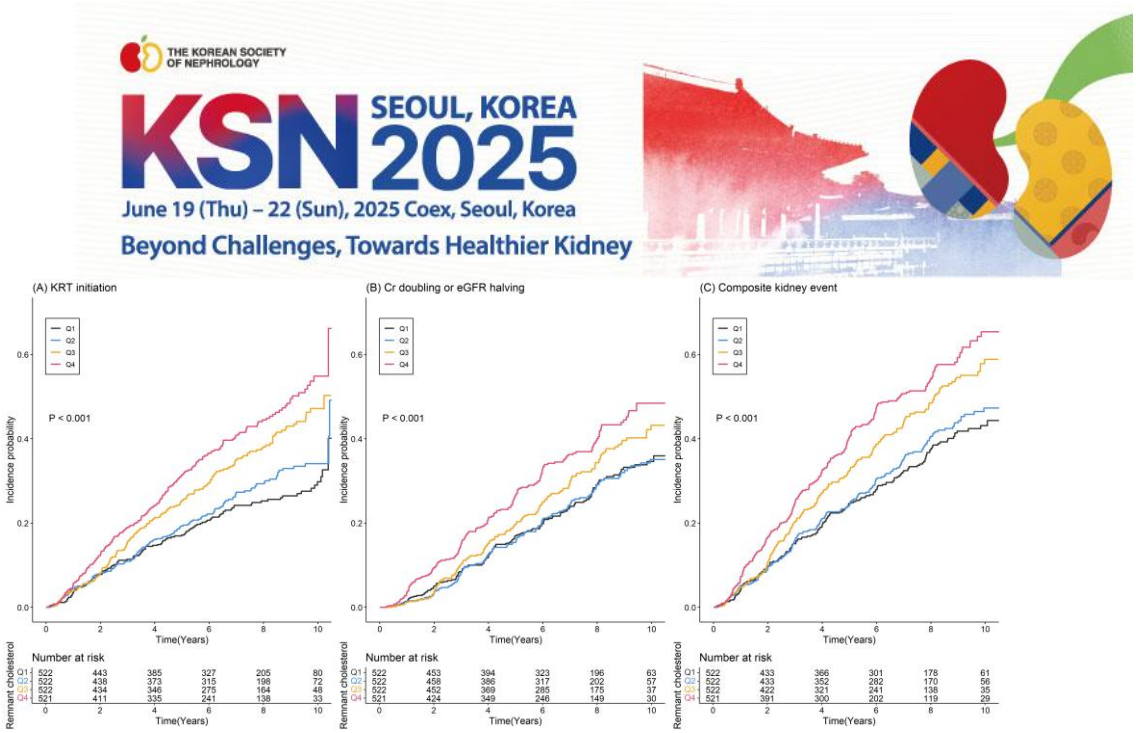

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