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Association between Metabolic Dysfunction-associated Steatotic Liver Disease (MASLD) and Risk of End-stage Kidney Disease in > 170,000 Chronic Kidney Disease Individuals from Nationwide Health Screening Cohort

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Objectives : While fatty liver disease (FLD) is a known risk factor for chronic kidney disease (CKD), its association with end-stage kidney disease (ESKD) remains unclear, especially after FLD was redefined as metabolic dysfunction-associated steatotic liver disease (MASLD). Our study aims to quantify the association between MASLD and ESKD in CKD population by generating epidemiological data.
Methods : We utilized 187,881 individuals with CKD from medical screening data of National Health Insurance Service (NHIS) database of Korea. The population was categorized with no steatotic liver disease (no SLDmet), MASLD, MASLD with increased alcohol intake (MetALD), and alcohol associated liver disease or metabolic cause associated steatotic liver disease with other combined etiologies (ALD/other SLDmet). The risk of ESKD was analyzed using Cox proportional hazard models adjusting demographic and clinical variables.
Results : The study population had mean age 63.3 years old with 58% females. During median of 9.28 (9.03, 9.63) years of follow-up, we identified 7497 (4%) ESKD events[SP1] . In the multivariable model, the "MASLD" group showed higher risk of ESKD [HR 1.146 (1.078, 1.219)] when compared to "no SLDmet" group, however, "MetALD" group [HR 0.981 (0.834, 1.154)] or ALD group [HR 1.098, (0.991, 1.216) showed nonsignificant difference. The association between MASLD and ESKD significantly differ in various subgroups, and the association was particularly accentuated in females [HR 1.391 (1.192, 1.420)] than in males [HR 1.061 (0.988, 1.140)].
Conclusions : In this large-scale observational study, MASLD was associated with ESKD in individuals with CKD. This association was more pronounced in females than in males.

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