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Association between Metabolic Dysfunction-associated Steatotic Liver Disease (MASLD) and Risk of Cardiovascular Diseases in > 160,000 Chronic Kidney Disease Individuals from Nationwide Health Screening Cohort

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Objectives : Fatty liver disease (FLD) is known as a risk factor for cardiovascular disease (CVD) including myocardial infarction (MI) and stroke. After the FLD was redefined as metabolic dysfunction-associated steatotic liver disease (MASLD), whether the association between MASLD and CVD remain still is unclear, especially in CKD population. The aim of our study is to quantify the association between MASLD and CVD in CKD population by generating epidemiological data.
Methods : We utilized 163,159 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 CVD was analyzed using Cox proportional hazard models adjusting demographic and clinical variables.
Results : The study population had mean age of 62.6 years old with 58% females. During median of 9.25 (9.01-9.6) years of follow-up, we identified 18057 (11.07%) CVD events. In the multivariable model, the "MASLD" group [HR 1.14 (1.096, 1.186)] or "ALD/other SLDmet" group [HR 1.19, (1.106, 1.28) showed higher risk of CVD compared to "no SLDmet" group, while "MetALD" group [HR 1.111 (0.996, 1.239)] showed non-significant difference. The association between MASLD and CVD significantly differ in various subgroups, and the association was particularly accentuated in female [HR 1.215 (1.157, 1.276)] than male [HR 1.061 (1.008, 1.116)], and in age between 20-64 [HR 1.315 (1.233, 1.402)] than age over 65 [HR 1.084 (1.038, 1.132)].
Conclusions : In this large-scale observational study, MASLD was associated with risk of CVD in individuals with CKD. This association was more pronounced in female than in male, and in young-aged than old-aged.

MASLD-CVD_Fig1.png

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