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The prognostic impact of the ratio of the monocyte count to high-density lipoprotein cholesterol in patients with end-stage kidney disease

Dong Ryul Kim, Da Won Kim, Yun Jung Nam, So Yeon Hwang, Seok Joon Shin, Hye Eun Yoon
Department of Internal Medicine-Nephrology, The Catholic University of Korea, Incheon St. Mary's Hospital, Korea, Republic of

Objectives: Monocytes are major source of proinflammatory reactions during atherosclerosis, while high-density lipoproteins (HDL) protect endothelial cells by neutralizing the proinflammatory and pro-oxidant effects of monocytes. Recently, the ratio of the monocyte count to the HDL-cholesterol level (MHR) has emerged as an indicator of inflammation and atherosclerosis. This study investigated the prognostic impact of MHR in patients with end-stage kidney disease (ESKD) starting dialysis.

Methods: This was a retrospective cohort study including 706 ESKD patients starting dialysis from a single center. The MHR at dialysis initiation was calculated and patients were stratified into quartiles (Q1, Q2, Q3, and Q4) according to the MHR. Cardiovascular event (CVE) and death were assessed as study outcomes. The association between MHR and CVE and death was analyzed.

Results: During a median follow-up duration of 3.0 (0.01 – 12.2) years, 178 patients (25.2%) developed CVE and 170 deaths (24.1%) occurred. The CVE-free survival rate was significantly lower in the higher MHR quartiles compared to the lowest MHR quartile (Q3 versus Q1, $P = 0.013$; Q4 versus Q1, $P = 0.007$). The death-free survival rate was not different between quartiles ($P = 0.615$). In multivariable Cox proportional hazard model, the higher MHR quartile was associated with CVE (Q3 versus Q1, adjusted hazard ratio, 1.71; 95% confidence interval, 1.09 – 2.69; $P = 0.02$; Q4 versus Q1, adjusted hazard ratio, 1.59; 95% confidence interval, 1.01 – 2.50; $P = 0.043$).

Conclusions: In conclusion, the MHR at dialysis initiation predicted CVE in ESKD patients. The MHR may be a useful predictor for CVE in ESKD patients starting dialysis.