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High Leucine-Rich Repeat-Containing 17 Level Is an Independent Factor for Vascular Calcification in High Cardiovascular Risk Patients

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Objectives : Leucine-Rich Repeat-Containing 17 (LRRc17), an LRR protein secreted by osteoblast inhibits osteoclastogenesis. We aimed to evaluate the relationship between plasma level of LRRc17 and coronary artery vascular calcification (VC).

Methods : The data was retrieved from the Cardiovascular and Metabolic Disease Etiology Research Center - High Risk Cohort (CMERC-HI, NCT02003781). CMERC-HI is a cohort of patients with risk factors for cardiovascular disease. After exclusion of study patients with incomplete data and dialysis, a total 397 patients were eligible for analysis the associations between plasma LRRc17 levels and VC. Presence of VC was defined coronary calcium score (CCS) > 0.

Results : The mean age was 69.5 ± 11.4 years, and 223 (56.1%) patients were male. The median level of plasma LRRc17 and CCS were 108.7 (43.1 - 203.8) pg/mL and 15.4 (0 - 148.5), respectively. When the patients were classified into three groups according to CCS, the LRRc17 values were significantly higher with increasing CCS [CCS = 0, 83.6 (40.3 - 194.8); 0 < CCS ≤ 400, 118.6 (44.2 - 193.1); CCS > 400, 157.1 (66.6 - 247.6) pg/mL; P = 0.011]. Univariate logistic regression analysis showed that high LRRc17 was significantly associated with the presence of VC [LRRc17 50 pg/mL increases;

odds ratio (OR) 1.13; 95% confidence interval (CI) 1.04 – 1.24, P = 0.005]. Furthermore, when multiple logistic regression analysis was constructed, high LRRc17 was independently associated with the presence of VC even after adjustment for age, gender, body mass index, comorbidities, laboratory parameters, statin use, and eGFR (LRRc17 50 pg/dL increases; OR 1.15; 95% CI 1.01 –1.30, P = 0.029).

Conclusions : High LRRc17 level is independently associated with the presence of VC in high cardiovascular risk patients.

Keywords : Leucine-Rich Repeat-Containing 17, Vascular Calcification