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The Role of Interleukin-6 G-174C Gene Polymorphism to Carotid Artery Calcification in End State Renal Disease Patients with Dialysis; a Single Study in Indonesia

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Objectives: This study was conducted to analyze the association of Interleukin-6 G-174C gene polymorphism with carotid artery calcification in End State Renal Disease (ESRD) patients with dialysis

Methods: This study is a cross-sectional study of stable-regular hemodialysis patients at Rasyida Renal Hospital Medan. PCR-RFLP examination was carried out to determine the IL-6 gene -174 (G /C) polymorphism, while an ultrasound examination was performed to evaluate the carotid artery calcification.

Results: We recruited 95 ESRD patients with regular HD. Carotid artery calcification was detected in 28 (29,5%) patients. Among those 95 patients, there were 72 (75.8%) patients had the GG genotype, 22.1% of patients had the CG genotype, and two patients (2.1%) had the CC genotype. Statistics showed that patients with DM (RR=3.19, 95% CI: 1.52 - 6.71; p = 0.002) and who had underweight to normal BMI categories (RR=1.31, 95% CI: 1.04 - 1.64; p = 0.048)) had significantly more carotid artery calcification than controls. Likewise, all patients with C allele (100%) experienced carotid calcification compared with patients with GG genotype (PR: 11.84, CI: 5.48-25.60, p <0.001).

Conclusions: This study shows that the IL-6 gene -174 (G / C) polymorphism plays a role in increasing the risk of carotid artery calcification in regular hemodialysis patients in Medan, Indonesia