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Relationship between vascular access patency and platelet-to-lymphocyte ratio in patients with end-stage kidney disease initiating hemodialysis

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Objectives:

Platelets release highly active microparticle during inflammation. Recently, platelet-to-lymphocyte ratio (PLR) is used as an inflammatory marker in malignancy and rheumatic, cardiovascular, peripheral artery and ocular disease. However, there are limited data examining the predictive value of the PLR in vascular access. Hence, the aim of the present study is to investigate relation between vascular access patency and PLR.

Methods:

This was a retrospective cohort study including 94 ESKD patients starting dialysis from a single center. The PLR at dialysis initiation was calculated and patients were stratified into tertiles (Q1, Q2, and Q3) according to the PLR. Primary patency and primary-assisted patency of vascular access were assessed as study outcomes. The association between PLR and primary patency, primary-assisted patency was analyzed.

Results: Sixty-six patients have native arterio-venous fistula(AVF) and 26 have arterio-venous graft(AVG). During a median follow-up duration of 46.2 (12.0 – 72.0) months, Forty-three patients (45.7%) underwent angioplasty, 29 patients had experienced vascular failure. The primary patency of vascular access was significantly short in the higher PLR tertile compared to the lowest PLR tertile (Q3 versus Q1, $P = 0.001$). On the other hand, the primary assisted patency has no correlation with PLR ($P = 0.630$). In multivariable Cox proportional hazard model, the higher PLR tertile was associated with primary patency (Q3 versus Q1, adjusted hazard ratio, 2.78; 95% confidence interval, 1.47 – 5.29; $P = 0.02$).

Conclusions: In conclusion, the PLR at hemodialysis initiation predicted primary patency of vascular access in ESKD patients. The PLR may be a useful predictor for primary patency of vascular access in ESKD patients starting dialysis.