

## KSN 2017 Abstract

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### NEUTROPHIL TO LYMPHOCYTE RATIO IS AN INDEPENDENT PREDICTOR OF SEVERITY OF CORONARY ARTERY DISEASE IN PATIENTS WITH CHRONIC KIDNEY DISEASE.

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**Objectives :** Chronic inflammation is common in patients with chronic kidney disease (CKD) and is associated with increased cardiovascular mortality in them. Neutrophil to lymphocyte ratio (NLR) was introduced as a potential marker of inflammation in cardiac and non-cardiac disorder. Emerging evidence have suggested that NLR might be a useful marker of cardiovascular disease. This study aimed to determine whether NLR could predict the severity of coronary artery disease (CAD) in patients with CKD.

**Methods :** A total of 952 pre-dialysis CKD patients [estimated glomerular filtration rate (eGFR) < 60 ml/min/1.73m<sup>2</sup>] who underwent elective coronary angiography (CAG) were studied. Depending on eGFR, study subjects were categorized into 3 groups (stage 3: n = 617, stage 4: n = 240, stage 5: n = 95). NLR values were calculated from complete blood count before CAG. The severity of CAD was evaluated by Gensini score according to the degree of luminal narrowing and location(s) of obstruction in the involved main coronary artery. A significant CAD was defined as lumen narrowing of one or more main coronary artery  $\geq$  50%.

**Results :** Prevalence of significant CAD, Gensini score, eGFR, albumin, uric acid, calcium, phosphate, hemoglobin, C-reactive protein (CRP) were significantly different among the 3 groups. In univariate analysis, Gensini score correlated with NLR ( $r = 0.542$ ,  $P < 0.001$ ), age ( $r = 0.123$ ,  $P < 0.001$ ), diabetes mellitus (DM) ( $r = 0.124$ ,  $P < 0.001$ ), hypertension ( $r = 0.133$ ,  $P < 0.001$ ), smoking ( $r = 0.088$ ,  $P = 0.007$ ), eGFR ( $r = -0.343$ ,  $P < 0.001$ ), uric acid ( $r = 0.390$ ,  $P = 0.001$ ), calcium ( $r = -0.097$ ,  $P = 0.003$ ), phosphate ( $r = 0.107$ ,  $P = 0.001$ ), total cholesterol ( $r = 0.115$ ,  $P < 0.001$ ), CRP ( $r = 0.292$ ,  $P < 0.001$ ), and hemoglobin ( $r = -0.225$ ,  $P < 0.001$ ). In multiple regression analysis, NLR ( $\beta = 0.468$ ,  $P < 0.001$ ), age ( $\beta = 0.064$ ,  $P = 0.013$ ), DM ( $\beta = 0.07$ ,  $P = 0.007$ ), hypertension ( $\beta = 0.068$ ,  $P = 0.009$ ), eGFR ( $\beta = -0.227$ ,  $P < 0.001$ ), total cholesterol ( $\beta = 0.063$ ,  $P = 0.015$ ), and CRP ( $\beta = 0.095$ ,  $P = 0.001$ ) were independent predictors of Gensini score. In ROC analysis (AUC: 0.741, 95% CI:

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0.710–0.772), the best cut-off value of NLR for identifying the significant CAD was 2.26 with associated sensitivity of 70.2% and specificity of 67.2%.

**Conclusions** : A higher NLR was an independent predictor of the severity of CAD in CKD patients. NLR could be a valuable measure for CAD risk stratification in CKD patients.

**Keywords** : Chronic kidney disease; Coronary artery disease; Neutrophil to lymphocyte ratio