KSN 2020
FULLY VIRTUAL MEETING

Abstract Type : Oral
Abstract Submission No. : OR-1196

The Prognostic Role of Neutrophil to Lymphocyte Ratio (NLR) In Chronic Kidney Disease (CKD): A Meta-analysis Study

Muhamad Fajri Addai[1], Jonathan Hasian Haposan[2], Andi Khomeini Takdir Haruni[3]
[1]Department of Research and Development, Johar Baru Primary Health Care, Indonesia
[2]Department of Epidemiology, University of Pittsburgh, Pittsburgh, USA, Indonesia
[3]Department of Internal Medicine, Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia, Indonesia

Objectives: We did a study to evaluate the role of neutrophil to lymphocyte ratio (NLR) in predicting all-cause and cardiovascular-related (CVD) mortality and poorer renal outcome among CKD patients. We also investigated the value of NLR in predicting CKD among diabetes mellitus (DM) patients.

Methods: Major medical databases (EMBASE, PUBMED, Science Direct, Cochrane, Springer, Scopus, ProQuest, and Lilacs) were systematically searched for observational study published until January 2020 with predefined protocol and without language restriction regarding PRISMA guideline. The analysis was performed in RevMan 5.3 to provide pooled measures for Odds Ratio (OR) and weighted mean difference (WMD).

Results: Fifty-five studies were enrolled comprising 130,008 patients. Higher NLR was indicated as independent predictors for all-cause mortality compared to lower NLR (OR=1.46, p=0.0006) including 1-3 year (OR=1.41, p=0.01), and 3-5 year mortality (OR=1.49, p<0.00001). CVD-related mortality was associated with higher NLR in comparison with lower NLR (RR 1.38, p=0.0002). Subjects with higher NLR had poorer renal outcome compared to lower NLR (OR=1.85, p=0.003) and the risk will be increased by 35% every increased value of 1 NLR (OR=1.35, p=0.0001) among CKD patients. The risk of CKD will be increased in DM patients with increased NLR compared to lower NLR (OR=3, p<0.00001) and this risk will also be increased by 80% every increased value of 1 NLR (OR=1.8, p<0.00001). Among DM, subjects with albuminuria had higher NLR compared to those without albuminuria (WMD=0.69, p<00001). Among diabetic kidney disease patients, subjects with macroalbuminuria also had higher NLR compared to microalbuminuria (WMD=0.63, p<00001).

Conclusions: Higher NLR value was associated with the all-cause and CVD-related mortality and poorer renal outcome among CKD patients. Higher NLR was also an independent predictors of CKD among DM patients. Therefore, the use of potential role of NLR should be emphasized since inexpensive and simple to obtain, even in limited-resource settings.