White Blood Cell Count Mean Platelet Volume Ratio as A Predictor of Major Adverse Cardiovascular Event in Acute Non St-Elevation Myocardial Infarction (NSTEMI)

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Abstract : Background : Recent studies have shown that complete blood count analysis can become a strong parameter to predict long term complication and reinfarction in acute coronary syndrome (ACS) but there are still no parameter known for predicting short term and in-hospital complication. White Blood Cell Count Mean Platelet Volume Ratio (WMR) is one of parameter from complete blood count analysis that can be used for predicting Major Adverse Cardiovascular Event (MACE) that has not been studied extensively. The main objective of this study is to determine whether WMR can be used as a MACE predictor for NSTEMI patient during hospitalization.

Method :A total of 104 patients with NSTEMI who undergo treatment at Haji Adam Malik Hospital since October 2017 until April 2018 were recruited in this prospective cohort study. The relationship of baseline White Blood Cell Count (WBC) to Mean Platelet Volume ratio (WMR) with MACE was assessed in hospital. The patients were divided into two groups: Group A [MACE-positive] and Group B [MACE-negative]. Multivariate COX regression was performed to calculate odds ratio (OR).

Result: In the ROC curve analysis, WMR had the highest area under receiver operating characteristics curve and highest discriminative ability amongst all CBC parameters in predicting MACE , the cut-off value of WMR in the prediction of MACE was 7.65 mm (AUC 0.74, 95% CI 0.645-0.835, p<0.001). The NSTEMI group with dengan WMR $\geq$ 1118 had a higher incidence of MACE than the group with WMR < 1118 of 24 people (70.6%) versus 10 people (29.4%). WMR $\geq$ 1118 is considered to predict the incidence of MACE with a sensitivity of 70.6%, a specificity of 70%, a negative predictive value (NPV) of 83% and a positive predictive value (PPV) of 53%. Multivariate analysis showed that WMR $\geq$ 1118 was an independent factor that could predict the occurrence of MACE during the hospitalization period (OR 10.49, 95% CI 3.01-36.65, p<0.001). **Conclusion**: WMR is an inexpensive indicator, can be done easily and can become an independent factor to predict MACE during hospitalization in NSTEMI patient with OR 10.49.

Keyword : WMR, MACE, NSTEMI, ACS.

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