中文題目：以單核球與淋巴球比例和嗜中性球與淋巴球比例預測急性冠心症病患之預後

英文題目：The prognostic value of combination of monocyte to lymphocyte ratio and neutrophil to lymphocyte ratio in patients with acute coronary syndrome: results from a metropolitan medical center in Taiwan

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Background

Acute coronary syndrome (ACS) accounts for most of the mortality worldwide. Lately the prognostic role of several hematological markers in ACS have been investigated. Among these, the utility of combination of neutrophil to lymphocyte ratio (NLR) and monocyte to lymphocyte ratio (MLR) has been demonstrated to be associated with adverse outcomes in ACS. The aim of this study was to validate the prognostic value of NLR and MLR in patients with ACS in Taiwan.

Material and Methods

This was a retrospective cohort analysis enrolled patients with acute coronary syndrome (ACS) by using Tri-Service General Hospital (TSGH) coronary heart disease (CHD) registry from 2016 January to 2018 August in Taiwan. All patients in this cohort had admitted to the hospital and received coronary angiography (CAG). Upon the clinical presentation, neutrophil to lymphocyte ratio (NLR) was calculated as the ratio of neutrophil counts to lymphocyte counts. Monocyte to lymphocyte ratio (MLR) was calculated as the ratio of monocyte counts to lymphocyte counts. The primary endpoint of this study was composite of in-hospital mortality and in-hospital stroke. The secondary endpoints included the length of hospitalization, the risk of the individual components of primary endpoint (in-hospital mortality and in-hospital stroke, respectively), and further analysis for the cause of in-hospital death (cardiovascular death and non-cardiovascular death). The association between the combined elevation of NLR and MLR and our main outcome was assessed by multivariate logistic regression analysis.

Results

According to the receiver operating characteristics (ROC) curve analysis, the cut-off value of NLR of 6.47 and MLR of 0.76 were acquired. Compared to ACS patients with no elevated NLR/MLR (N=748) and only one elevated NLR or MLR (N=161),

those with both elevated NLR/MLR (N=53) had higher risk of primary endpoints (28.3% vs. 6.1% and 7.5% respectively). Moreover, patients with both elevated NLR/MLR had significantly longer length of hospital stay than other groups (p<0.001). After multivariate logistic regression analysis by adjusting age, diabetes, dyslipidemia, prior history of heart failure, peripheral arterial occlusive disorder, hemoglobin level, platelet counts, estimated glomerular infiltration rate, and left ventricular ejection fraction, both elevated NLR/MLR remained an independent risk factor for primary endpoint in patients with ACS relative to no NLR/MLR and one NLR/MLR (OR= 3.14, 95% CI= 1.24-7.99; p0.016 and OR= 3.04, 95% CI= 1.06-8.69; p=0.039).

Conclusion

For the first time in Taiwan, this study validated that combined elevation of NLR and MLR in the setting of ACS may provide a potential information of risk stratification in our daily clinical practice. Future prospective analysis will be needed to clarify of the prognostic role of these low-cost, easily available laboratory testing in patients with ACS.