

Title: Predictive Value of Mean Platelet Volume in Unstable Angina

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Background and Purpose

Unstable angina (UA) constitutes a clinical manifestation of acute coronary syndrome (ACS). In the absence of ST-segment elevation and positive troponin, the prompt invasive diagnostics procedures of UA remain challenging, leaving many patients undiagnosed and untreated. Exploring an effective early predictor of UA is essential to identify the suspected UA patients. Platelet plays a pivotal role in ACS. Mean platelet volume (MPV) is an indicator of platelet activation. In addition, platelet distribution width (PDW) is linked to its activity more accurately than platelet count. There have been studies about the association between ACS and MPV. However, the relationship between the indicators of platelet activation and UA is poorly understood. We aim to explore the predictive value of MPV and other platelet indices for UA.

Methods

In this observational study, we recruited inpatients admitted to Shanghai East Hospital between October 2018 and March 2019. Suspicious UA Patients with chest pain underwent coronary angiography (CAG) were enrolled consecutively. We collected their clinical data, blood tests, cardiovascular images. Comparisons of differences among two groups was using Student's t-test and non-parametric Mann-Whitney U test. Multivariate logistic regression analysis was used to analyze the value of different characteristics as independent risk factors of UA. ROC curve analysis was used to determine the optimum cut-off of platelet indices in UA patients. $p < 0.05$ was statistically significant.

Results

A total of 103 patients were stratified into UA group (n=78) and non-UA group (n=25) based on CAG results. UA patients had higher levels of platelet indices compared to those who were not. MPV and PDW were independent predictors of UA. AUC of MPV and PDW in UA diagnosis was 0.771 and 0.734 respectively, the optimal cut-off point was 10.55 fL and 11.55%, with high sensitivity and specialty.

Conclusions

UA patients had higher levels of platelet indices compared to non-UA patients. MPV and PDW can be utilized as independent predictors for early diagnosis of suspicious UA patients who have acute chest pain.