

Association of the Monocyte to HDL Cholesterol Ratio With Coronary Artery Disease Severity in Patients With Acute Coronary Syndrome

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Abstract : Background : Monocytes and tissue macrophages play a pivotal role in atherosclerotic plaque formation. HDL cholesterol has an anti-inflammatory effects and can inhibit monocyte activation. The ratio of monocyte count/HDL cholesterol (MHR) is a parameter that has recently been studied and can widely used and also has a value of prognosis. The RMH predictive value for assessing the severity of coronary artery has not been widely studied. This study aims to evaluate whether the MHR value can be a predictor of the severity of coronary artery lesions in patients with acute coronary syndromes (ACS).

Methods : This retrospective cohort study of 97 patients with ACS undergoing coronary angiography and treatment at Adam Malik Hospital from January 2015 – April 2018. Patients were divided into two groups based on Gensini score, severe coronary lesions (Gensini ≥ 30) and mild coronary lesions (Gensini < 30). Bivariate, multivariate and correlation analysis were performed to find the relationship between MHR and Gensini score as well as finding meaningful RMH cutoff points. The p value < 0.05 was considered statistically significant.

Results : Of the 97 patients with ACS, 48 subjects (49.5%) were scored with a high Gensini score and 49 subjects (50.5%) with low Gensini score. The ROC curve analysis obtained MHR cutoff value in predicting the severity of coronary artery lesion was 0.021 (AUC 0.725, 95% CI 0.623-0.827, $p < 0.046$) with a sensitivity of 70.3% and specificity of 45%. This study found a significant relationship but with a weak correlation between MHR value and Gensini score ($p = 0.006$) ($r = 0.252$). Logistic regression analysis showed MHR value ≥ 0.021 (OR 2.68, 95% CI 1.069-6.716, $p = 0.035$) along with moderate to high TIMI score (OR 4.682, 95% CI 1.445-15.168, $p < 0.01$) became an independent factor for predicting the severity of coronary artery lesions.

Conclusion : There is a positive but weak correlation between the MHR value and the severity of coronary artery lesions in ACS patients. MHR value ≥ 0.021 is an independent factor in predicting the severity of coronary artery lesions in patients with ACS.

Keywords : MHR, Gensini, ACS.

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