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ROLE OF cMYBP-C IN THE DIAGNOSIS OF ACUTE CORONARY SYNDROME

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ABSTRACT : In patients with (ACS), it is necessary to identify a sensitive biomarker for early diagnosis to avoid misdiagnosis of this serious condition and despite the high sensitivity and specificity of troponin in this context, the diagnosis of ACS represents a challenge. cMYBP-C might improve the ability of early diagnosis of ACS and the aim of the current study is to evaluate its role in the diagnosis depending on troponin as a reference biomarker. A total number of 150 patients with ACS were randomly selected to participate in the current study. They were equally divided into ST-elevation myocardial infarction (STTEMI), patients with non-ST elevation myocardial infarction (NSTEMI) and unstable angina (UA)in addition to50 individuals as a control healthy group. All participants were investigated for both troponin and c-MYBP-Cand the results were statistically evaluated. The current study has shown a significant increase in serum level of c-MYBP-C in patients with ACS apart from those with unstable angina when compared to the control group. This increase was so comparable to troponin increase that both biomarkers were even significantly higher in STEMI compared to NSTEMI. In those with unstable angina, there was no significant difference in both biomarkers compared to the control group. c-MYBP-Cis a useful biomarker for early diagnosis of ACS and in differentiating myocardial infarction (whether STEMI or NSTEMI) from unstable angina.

Key words : Acute coronary syndrome, cMYBP-C, cTnI.

INTRODUCTION

Acute coronary syndrome (ACS) represents a heterogeneous group in respect to clinical features, severity of ischemia and prognosis. This term includes ST- elevation myocardial infarction (STEMI), which is recognized by complete occlusion of the coronary artery, non–ST elevation myocardial infarction (NSTEMI), which isrecognized by partial occlusion of the coronary artery and unstable angina (UA) (Kokkoz *et al*, 2018). ACS is associated with a significantly high mortality rate, with serious cardiovascular complications secondary to atherosclerosis due to various factors such as oxidative stress anomalies, chronic inflammation and increased risk to thrombosis (Eylul, 2018). Several factors are implicated to have a significant effect on increasingthe risk of coronary artery disease including age, sex, family history, and ethnicity. These factors are considered as non-modifiable factors while there are other factors that can be modified which include Diabetes type 2, hypertension, increased levels of serum cholesterol, LDL-cholesterol and triglyceride, decreased level of HDL-cholesterol, stress, smoking, obesity and sedentary life style (Joison and Baiardi, 2016). Ischemia is the first step in the initiation of MI which results from disproportion between oxygen supply and its demand.This ischemia can often be diagnosed from patient history and from specific ECG changes. The clinical features include central chestpainon exertion or even at rest with dyspnea or fatigue. Frequently, this pain is diffused, poorly localized, unrelated to movement. Unfortunately, these symptoms are poorly specific for myocardial ischemia as they can be present in many other condition including gastrointestinal, pulmonary, neurological, or musculoskeletaldisorders (Thygesen *et al*, 2018). Both clinical and laboratory findings including cardiac biomarkers and ECG changes are essential for the proper diagnosis of ACS (Rak, 2013). Troponins are composed of three regulatory proteins, cTnC, cTnI and cTnT (Del Val Martin *et al*, 2015). cTnI, and cTnT are expected to increase within 2 to 3 hours after starting chest pain in patients with ACS and their level will remain elevated for up to 10 days while their peak is observed between 12-48 (Aakre and Omland, 2019) cardiac myosin binding protein -C (cMyBP-C) is a contractile protein presents in cardiomyocytes, its level is