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Commentary

Biomarkers for Early Detection of Cardio Vascular Disease (CVD)

Endalkchew Biranu*

Department of Medical Laboratory Sciences, Addis Ababa University of Health Sciences, Addis Ababa, Ethiopia

ABOUT THE STUDY

The use of biomarkers in the diagnosis of people with suspected cardiovascular disease has changed everything. Cardiovascular Disease (CVD) is the leading cause of death and disability worldwide, and it is a big global disorder problem. The discovery for novel biomarkers with a long half-life and good myocardial durability offers a wide range of therapeutic uses and values. The goal of analyzing the use of novel cardiovascular biomarkers is to find solutions to clinical problems like early detection of cardiovascular disease, monitoring of chronic Heart Failure (HF), prognosis after a myocardial infarction, and collecting information about the response to specific therapies. New cardiac biomarkers allow for a more rapid diagnosis of acute myocardial infarction while maintaining a high level of accuracy. Natriuretic peptides and cardiac troponins are the most generally applied current cardiovascular biomarkers in the diagnosis and prognosis of heart failure and acute myocardial infarction. The most frequent forms are acute myocardial infarction, acute heart failure, and chronic heart failure. Troponin has a higher sensitivity and accuracy for detecting and ruling out myocardial infarction. In terms of mortality, B-natriuretic peptide (BNP and NT-pro BNP) most used Natriuretic peptides. In the absence of myocardial necrosis, myeloperoxidase can identify those who are at risk for heart attacks. In order to diagnose acute myocardial infarction, a dual marker technique combining copeptin and troponin T is more accurate. While the Heart-Fatty Acid Binding Protein assay is earlier indicator of myocardial necrosis and can helping identifying patient's risk. sST2 (soluble suppression of tumorigenicity 2) is a cardiac biomarker used to diagnose heart failure and Acute Coronary Syndrome (ACS). ST2 has two known isoforms: ST2L, which is membrane bound, and sST2, which is soluble. When compared to non-diabetic controls, sST2 levels have been linked to an increased risk of type 2 diabetes. H-FABP is present in striated muscle cells and is released into the bloodstream when myocardial injury occurs.Investigations have indicated that H-FABP is an early indication of myocardial infarction, as well as right heart strain owing to pulmonary embolism. GDF-15 is a member of the Transforming Growth Factor- beta (TGF-β) family and is a dimeric protein. It has been found to be a valuable biomarker in the diagnosis of inflammatory processes, cardiovascular disease, cancer, and renal injury. The membrane-bound protein Soluble Urokinase Plasminogen Activator Receptor (suPAR) is expressed in vascular endothelium and immunologically active cells. It functions as an inflammatory marker and can also be used to predict the risk of developing CVD. Cardiac Troponins (cTn) are the most widely utilised biomarkers in clinical cardiology, and they have transformed the treatment of patients with Acute Coronary Syndromes (ACS). Plasma copeptin levels were substantially greater in Acute Myocardial Infarction (AMI) patients than in healthy persons. Acute internal stress is regarded to be the primary cause of copeptin release so far. Corin plays a significant role in blood volume, blood pressure, and heart function modulation. According to a recent study, blood corin levels evaluated within the first 24 hours after admission in AMI patients are considerably lower than in healthy persons. Biomarkers may prove to be an effective tool for guiding and monitoring therapy strategies in patients with AMI. However, in the absence of randomized trials testing a biomarker-guided treatment plan in patients with AMI, the use of biomarkers for post-infarction risk classification requires more validation and investigation. In the future, further new biomarkers may be used to improve the prognostic assessment of AMI patients. Traditional biomarkers necessarily have the problem of residual risk omission in the screening of high-risk groups and accurate diagnosis, management, and prognosis of the disease, despite the fact that treatment for CVD has made significant progress. Many more biomarkers for diagnosis, prognosis, and risk prediction have been discovered, but only a few have made it into clinical research.

Correspondence to: Endalkchew Biranu, Department of Medical Laboratory Sciences, Addis Ababa University of Health Sciences, Addis Ababa, Ethiopia, E-mail: Bendalkchew@yahoo.com

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