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Cardiac Markers are Biomarkers Measured to Evaluate Heart Function

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INTRODUCTION

Cardiac biomarkers, formerly known as cardiac enzymes, are simple blood tests. Cardiac biomarkers enter the bloodstream when the myocardium is damaged. Analysis of cardiac biomarkers can help diagnose heart attacks quickly and allow appropriate clinical decisions to be made. Cardiac biomarkers have become essential tools in cardiology over the last 50 years. Primary and secondary prevention, diagnosis and treatment of Acute Myocardial Infarction (AMI), and diagnosis and risk stratification of heart failure (HF). We are entering an era in which biomarkers may be able to guide therapies to optimize patient management. This is already the case for cardiac troponin (cTn), but all biomarkers should be targeted. This special issue brings together recent reviews and original articles on the subject.

The 1990s was the golden age of cardiac biomarkers. The great clinical importance and economic impact of heart disease has led to enormous research efforts in the diagnosis and risk stratification of ACS and heart failure, and in the discovery of new biomarkers for risk stratification in primary and secondary prevention caused. This has led to the discovery of numerous biomarkers and the development of immunoassays suitable for routine measurements.

DESCRIPTION

The focus was on markers of coronary artery plaque formation, plaque instability, intracoronary thrombus formation (coagulation and platelet activation, decreased endogenous fibrinolytic activity), and markers of myocardial ischemia. However, most of these markers have not progressed from research into routine use because of analytical problems or because of limited clinical relevance for risk stratification. Because it added less to traditional risk factors and improved in a multimarker approach. Risk stratification and patient reclassification are very conservative. Importantly, no direct information was available on how to improve patient management.

Genomic biomarkers also emerged around this time and have become particularly popular over the past two decades. Almost all candidate genetic biomarkers for the genetic age of cardiovascular disease failed validation after an initial period of enthusiasm. Rare variants may be effective, but their rarity prevents us from identifying large numbers of additional patients at risk. So low that routine risk calculation methods, such as determining smoking behaviour or measuring blood pressure and cholesterol, outperform analysis of these common variants in the DNA sequence. Therefore, the current consensus is not to test common genetic variants with low impact. Currently, the study of microRNAs has also become a very popular research area. MicroRNAs are small, regulatory, and mostly inhibitory non-coding RNAs that are detectable in the blood and may serve as biomarkers for cardiovascular disease. However, it is still unknown whether microRNAs are relevant for routine cardiovascular diagnosis, risk stratification, or therapeutic orientation. One way to potentially overcome the limitations of individual biomarkers is our goal is to combine information from different aspects of cardiac pathophysiology to enhance the clinical utility of combining them in a multimarker panel test. Although this multimarker approach has been extensively studied, no breakthroughs in this area have yet occurred. Future approaches may also combine proteins, lipids, metabolites, genetic markers, and imaging techniques. Panels in this area may prove valuable over time.

CONCLUSION

Creatine kinase also known as creatine phosphokinase or CPK is a muscle enzyme that exists as isoenzymes. MB types are specific for cardiomyocytes, whereas MM and BB are specific for skeletal muscle and brain tissue, respectively. CK levels are elevated approximately 3-4 hours after myocardial infarction

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and remain elevated for 3-4 days. This helps detect reinfarction within 4-10 days after the first infarction. Troponin he remains elevated for 10 days and is not very useful for this purpose. Measuring cardiac biomarkers can be a step towards diagnosing disease. Cardiac imaging often confirms the diagnosis, but simpler and less expensive cardiac biomarker measurements can inform doctors if more complex or invasive procedures are needed. In many cases, medical societies advise physicians to make biomarker measurement the first screening strategy, especially in patients at low risk of cardiac death.

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CONFLICT OF INTEREST

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