Cardiovascular markers: what does it change in the routine daily care of patients with new "gold standard"?

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In the past years WHO defined myocardial infarction from symptoms, ECG abnormalities, and enzymes. However, the development of more sensitive and specific biomarkers allows detection of ever smaller amounts of myocardial necrosis. Accordingly it requires a more precise definition of myocardial infarction. In response to this issue ESC and ACC in 2000 re-examined the definition of myocardial infarction, with recent update (2007) by ESC, AHA, WHF in order to refine the ESC/ACC criteria for the diagnosis of myocardial infarction from various perspectives.

The term of myocardial infarction should now be used when there is evidence of myocardial necrosis in a clinical setting consistent with myocardial ischemia. Under these conditions, from biochemical point of view, there must be detection of rise and fall of biomarkers, preferably troponin, with at least one value above the 99th percentile of the upper reference limit, together with evidence of myocardial ischemia.

The preferred biomarker for myocardial necrosis is cardiac troponin which has nearly absolute myocardial tissue specificity as well as high clinical sensitivity, thereby reflecting even microscopic zones of myocardial necrosis. An increased value for cardiac troponin is defined as a measurement exceeding the 99th percentile of the normal reference population and detection of a rise and/or fall of the measurements is essential to the diagnosis of acute myocardial infarction, and it needed to distinguish background elevated troponin levels, e.g. patients with renal failure.

Optimal precision at the 99th percentile for each assay should be defined as ≤ 10%. To establish the diagnosis of myocardial infarction, one elevated value above the decision level is required.

Evolution of the definition of the diagnosis of myocardial infarction has a number of implication for society and for individual patient, specially in his routine daily care. Shift in criteria results in:

- the new defintion will impact epidemiological data,
- consequences for the patients and their families with respect to psycological status, life insurance, professional career, driving licences,
- a substantial increase in case identification that will have significant health resource and cost implications (increased number of myocardial infarction DRG, hospital reimbursement, disability attestation),
- a substantial impact on treatment (a number of risk score include troponin neasurement for treatment algorithms),
- awareness of the presence of myriad conditions, other than myocardial infarction, that can lead to myocardial necrosis with consequent elevation of biomarkers.Clinical, therapeutic and prognostic implication of these pathological conditions are not always definite.

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