

Universal Definition of Myocardial Infarction Released

Sophia Antipolis, France 19 October 2007: A long-awaited consensus on new universal definition of Myocardial Infarction was released today.

Given the considerable advances in the diagnosis and management of myocardial infarction in recent years, the leadership of the European Society of Cardiology (ESC), the American College of Cardiology (ACC) and the American Heart Association (AHA) convened, together with the World Heart Federation (WHF), a Global Task Force to update the 2000 consensus document to establish a universal definition for myocardial infarction (MI).

As with the previous consensus committee, the Global Task Force was composed of a number of working groups in order to refine the ESC/ACC criteria for the diagnosis of myocardial infarction from various perspectives. With this goal in mind, the working groups were composed of experts within the field of biomarkers, ECG, imaging, interventions, clinical investigations, public policy and implementation. The revised definition will be published simultaneously in the European Heart Journal (ESC), the Journal of American College of Cardiology (ACC), and Circulation in the fall of 2007.

The new definition is important for several reasons. Defining a disease is a process that enables clinicians and clinical scientists to label patients—some would call it “making a diagnosis.” Labelling a patient with a specific diagnosis has important implications for that individual with respect to his or her relationship to the medical community and to the rest of society. For example, placing a diagnosis of myocardial infarction on a patient changes that individual’s ability to perform certain jobs, e.g., airline pilot.

Unfortunately, clinicians and clinical scientists often define the same disease differently. Thus, characteristics used to define a disease in one country may be interpreted differently by physicians in another country, thereby rendering comparisons of this particular disease between countries difficult if not impossible. In a similar fashion, international studies may define a disease differently. This makes it very difficult to compare the results of different pharmacologic, interventional, and epidemiologic

studies of patients with a particular disease. Such is the case with myocardial infarction. Attempts in the past to arrive at a standardised definition of this entity have failed, often because of evolving diagnostic technology and complexity or confusion in the suggested definition. The first consensus committee recommended that MI be qualified by reference to the amount of heart muscle loss (infarct size), to the circumstances leading to the infarct (e.g. spontaneous or procedure related) and to the timing of the heart muscle cell death relative to the time of the observation (evolving, healing, or healed myocardial infarction).

The new report expands the criteria for defining MI by adding new material on ECG criteria, imaging modalities, the patient who presents with sudden death as the initial manifestation of his/her infarct, as well as implications of the redefinition for clinical investigation. The question concerning how to label small elevations in blood troponin values that occur following PCI remains controversial. Most of the delegates on the task force favored calling these tiny procedure-related episodes of myocardial injury true infarcts because they occurred in the setting of recognizable coronary arterial ischemic interventions. However, it was felt that these PCI related events should be classified as infarcts distinct from the spontaneous or “wild type” MI that usually presents with the traditional clinical scenario of substernal chest discomfort accompanied by ischemic electrocardiographic alterations and is the result of rupture or fissuring of an atherosclerotic coronary arterial lesion.

The changes in the definition of MI have critical consequences for less developed and developing countries. In many such countries, the resources to apply the new definition may not be available in all hospitals; however, many developing countries already do have medical facilities capable and are currently employing the proposed definition of MI. The definition can and should be used by developed countries immediately and by developing countries as quickly as resources become available. The simultaneous and continuing use of the older WHO definition for some years as developing countries acquire necessary resources would allow a comparison between data obtained in the past, and data to be obtained in the future, employing the newer biomarker approach. It is essential that the gap between therapeutic and diagnostic advances be addressed in all countries of the world for this expanding area of cardiovascular disease.

There are a number of important implications for clinicians and clinical investigators throughout the world as the new revised definition of MI gains worldwide acceptance.

First, the original (2000) troponin-based definition of MI is still not accepted and applied by many clinicians leading to continuing confusion surrounding the diagnosis for many patients. Secondly, there are a substantial number of patients with quite small infarcts who can only be identified by highly sensitive and specific troponin measurements. These latter patients tend to be older women with less reported chest discomfort, and, as noted above, with a better short-term prognosis compared with individuals who are found to have elevated CKMB values. It is important that this population of infarct patients be identified and appropriately treated. Finally, with universal acceptance of the revised definition of MI, results from different clinical trials performed in the future can be accurately compared. Standardization of the definition of MI will benefit patients, physicians, clinical investigators, and epidemiologists throughout the world. The task force members fervently hoped that the new revised definition of myocardial infarction would be the first step in global standardization of the definition of a number of cardiovascular diseases.

Source: European Society of Cardiology, American College of Cardiology, American Heart Association, World Heart Federation