

SPECIAL REPORT

Nomenclature and Criteria for Diagnosis of Ischemic Heart Disease

Report of the Joint International Society and Federation of Cardiology/World Health Organization Task Force on Standardization of Clinical Nomenclature

LONG AGO, EPIDEMIOLOGISTS REALIZED the necessity of standardizing terminology and diagnostic criteria. Today, this need should also be recognized by clinicians. New, expensive medical and surgical methods of treatment are introduced every day, and it is essential to evaluate the effectiveness of these methods reliably and objectively. However, comparison of results is only possible if the object of the evaluation has been defined in a standard manner. The need for agreement on nomenclature is particularly urgent in the field of ischemic heart disease (IHD) because extraordinary advances have been achieved by new methods of diagnosis and treatment which are a matter of worldwide interest and discussion.

The task of this group is to propose an internationally acceptable nomenclature of IHD and to define the underlying concepts in order to promote comparability of various studies. Definitions are based on clinical observations, including ECG and enzyme changes, but exclude coronary arteriography.

Ischemic Heart Disease

IHD is defined as myocardial impairment due to an imbalance between coronary blood flow and myocardial requirements caused by changes in the coronary circulation. IHD comprises acute and temporary as well as chronic conditions, and may be due to functional changes or organic disease. Ischemia due to noncoronary hemodynamic changes such as aortic stenosis is excluded. The term "IHD" is synonymous with the term "coronary heart disease." Other terms are no longer favored. Categories of IHD are defined below.

1. Primary Cardiac Arrest

Primary cardiac arrest is a sudden event, presumably due to electric instability of the heart, where evidence which allows other diagnosis¹ is lacking. If no

¹Thus, for example, death occurring in the early phase of proven myocardial infarction is excluded, and should be considered as death due to myocardial infarction.

resuscitation is applied or if resuscitation is unsuccessful, primary cardiac arrest is referred to as sudden death.² Evidence of previous IHD may or may not be present. If death occurred in the absence of witnesses, the diagnosis is presumptive.

2. Angina Pectoris

2.1 Angina of Effort

Effort angina is characterized by transient episodes of chest pain precipitated by exercise or by other situations resulting in an increased myocardial oxygen demand. The pain usually disappears rapidly with rest or with sublingual nitroglycerin. Effort angina is divided into three categories:

- 2.2.1 de novo effort angina — effort angina of less than 1 month's duration;
- 2.2.2 stable effort angina — effort angina of 1 month's duration or more;
- 2.2.3 worsening effort angina — sudden worsening in frequency, severity, or duration of chest pain caused by the same effort.

2.2 Spontaneous Angina

Spontaneous angina is characterized by episodes of chest pain that occur without apparent relation to increased oxygen demand of the myocardium. This pain tends to be more prolonged, more severe, and less readily relieved by nitroglycerin than that of effort angina. No enzyme changes are observed. The ECG often shows some transient ST-segment depression or T-wave changes. Spontaneous angina may occur alone or in conjunction with angina of effort.

Patients with spontaneous angina may present different clinical patterns of frequency, duration, and intensity of pain. At times, patients may have episodes of prolonged chest pain simulating myocardial infarction, but without the characteristic ECG and enzyme changes.

Some cases of spontaneous angina show, during the attack, transient elevation of the ST-T segment. This

²The definition of sudden death was purposely omitted by the committee because sudden death is a consequence of cardiac arrest which is the real manifestation of IHD. The definition used should be operational.

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is known as variant angina.³ This term does not apply when such an ECG pattern is recorded in the acute phase of a myocardial infarction.

De novo effort angina, worsening effort angina, and spontaneous angina are frequently referred to as "unstable angina." The committee prefers to use the specific terms.

3. Myocardial Infarction

3.1 Acute Myocardial Infarction

The clinical diagnosis of acute myocardial infarction is usually based on the history, the ECG, and serum enzymes.

A. History. The history is typical if severe and prolonged chest pain is present. Sometimes the history is atypical and the pain may be mild or even absent, or other symptoms may predominate.

B. ECG. Unequivocal changes in ECG are the development of abnormal, persistent Q or QS waves, and evolving injury current lasting longer than 1 day. When the ECG shows these unequivocal changes, the diagnosis may be made on the ECG alone. In other cases, the ECG may show *equivocal changes*, consisting of a) a stationary injury current, b) a symmetrical inversion of the T wave, c) a pathological Q wave in a single ECG record, or d) conduction disturbances.

C. Serum Enzymes. a) *Unequivocal change* consists of serial change, or initial rise and subsequent fall of the serum level. The change must be properly related to the particular enzyme and to the delay time between onset of symptoms and blood sampling. Elevation of cardiospecific isoenzymes is also considered unequivocal change.

b) *Equivocal change* consists of an enzyme pattern where an initially elevated level is not accompanied by a subsequent fall — the curve of enzyme activity is not obtained.

3.1.1 Definite acute myocardial infarction. Definite acute myocardial infarction is diagnosed in the presence of unequivocal ECG changes and/or unequivocal enzyme changes; the history may be typical or atypical.⁴

3.1.2 Possible acute myocardial infarction. Possible acute myocardial infarction is diagnosed when serial, equivocal ECG changes persist more than 24 hours, with or without equivocal enzyme changes; the history may be typical or atypical.

During recovery from acute myocardial infarction some patients may present with spontaneous chest pain, sometimes associated with ECG changes, but without new enzyme changes. In some of these cases a Dressler's postinfarction syndrome can be diagnosed;

in others, spontaneous angina; and in others, a recurrence or possible extension of the acute myocardial infarction. Other diagnostic tools may help to establish the precise diagnosis.

3.2 Old Myocardial Infarction

Old myocardial infarction is usually diagnosed on an unequivocal ECG in the absence of a history or enzymatic signs of acute myocardial infarction. If there are no residual ECG changes, the diagnosis may be based on earlier, typical ECGs or on the presence of prior unequivocal serum enzyme changes.

4. Heart Failure in IHD

Heart failure may occur for many reasons in IHD. It may occur as a complication of acute or previous myocardial infarction or it may be precipitated by anginal episodes or arrhythmias. For patients presenting with heart failure in the absence of clinical or ECG evidence of previous IHD (other causes being eliminated), the diagnosis of IHD remains presumptive.

5. Arrhythmias

Arrhythmias may be the only symptom of IHD. In this event, the diagnosis of IHD is presumptive unless coronary arteriography is performed and demonstrates coronary arterial obstructions.

The terms "preinfarction angina" and "intermediate coronary syndrome" are not included in this report because, in the committee's opinion, diagnosis of the former is a retrospective diagnosis which is verified only in a minority of cases, and because all cases diagnosed as the latter can be located in one of the categories of IHD described in this report.

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³This electrocardiographic aspect is also called Prinzmetal's angina. As it was described by other authors before the publication of Prinzmetal's paper, the term "variant angina" is recommended.

⁴Definite infarctions are sometimes designated as transmural when unequivocal ECG changes are present and nontransmural or subendocardial when evolving ST-T wave changes in the absence of Q or QS waves take place together with unequivocal enzyme changes.

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