# Terminology and Categorization of Acute Coronary Syndrome

**Kristofer Maite***

*Department of Emergency Medicine, Elisabeth TweeSteden Ziekenhuis, Hilvarenbeekseweg 60, 5022 GC Tilburg, the Netherlands*

## Definition

Sudden coronary syndrome is characterised by a clinical appearance that is frequently accompanied by acute chest pain, various myocardial injury signs, and ECG abnormalities related to decreased heart muscle blood flow. Unstable angina pectoris (USAP), non-ST elevation myocardial infarction (NSTEMI), and ST-elevation myocardial infarction (STEMI) are all examples of ACS. Shows the definition of acute coronary syndrome based on American and European heart associations' standards.

## Epidemiology

Coronary heart disease remains one of the major causes of death, despite lower incidence and fatality rates in recent years. According to the Turkish Cardiology Society's TEKHARF research, 2 million persons in Turkey have coronary artery disease. Cardiovascular disorders account for 45 per cent of all fatalities in our nation, according to TEKHARF data. If the current downward trend, which is similar to rates in industrialised nations, continues, the number of people with heart disease is expected to reach 3.4 million [1].

The rising prevalence of NSTEMI and STEMI as people become older might be linked to a triggering factor like inflammation. NSTEMI is frequently associated with comorbidities like as diabetes and renal insufficiency.

## Physiopathology

Myocardial ischemic symptoms are mostly resulted from disrupted integrity of vulnerable atherosclerotic plaque [2]. Acute coronary syndrome is caused by occlusive thrombus in more than 90% of cases .Atherosclerosis is a chronic condition progressing up to the occlusion of the vessel, which begins in the intima of the artery .This process influences entire vasculature. Intima and media layers develop plaque. Rupture or erosion of the plaque is required in order to become a thrombus. Acute ischemic events begin as a result of plaque rupture, endothelial damage, inflammation and release of some mediators. Impaired integrity in the arterial wall stops the flow in the vessel lumen, causing ischemia and damage. Diffuseness of necrosis varies depending on the presence of collateral flow, duration of ischemia and the extent of the involved area. The thrombus obstructing the vessel lumen is a mixture of clots consisting of platelet rich fibrin and erythrocytes. Although there are several factors regarding time of the occurrence of acute coronary syndrome [3], decreased fibrin degradation activity due to increased levels of platelet aggregation and plasminogen activator inhibitor plays a role in occurrence of plaque fissure and rupture often early in the morning .

USAP, NSTEMI or STEMI occur based on prevention of blood flow in the vessel lumen by growth of the plaque or degree of the obstruction in the vessel lumen as a result of thrombus occurring due to plaque rupture. Pathological studies in patients with NSTEMI acute coronary syndrome have found myocardial damage areas in the sites supplied by the relevant vascular structure.

## General principles

The initial approach to patients with ACS is urgent admission to emergency care, where haemodynamic and ECG monitoring is warranted and usually done in the ambulance or emergency department of a hospital. After monitoring and venous access is installed, rapid general and causal treatment is initiated. General treatment consists of pain relief and limitation of myocardial ischemia. More causal treatment is the institution of antithrombotic therapy. Pain relief can be achieved by nitro-glycerine, but is mostly guaranteed with morphine. Anti-ischaemic therapy is aimed at decreasing the ischaemic burden in order to prevent myocardial necrosis. Antithrombotic therapy is given to inhibit clot formation and propagation. In case of suspected total coronary occlusion, for example, in trans mural myocardial ischemia (ST elevation on admission ECG), clot lysis1 or clot destruction2 is the main goal. In cases of non-trans mural myocardial ischemia, such as in ACS, only drugs that interfere with clot formation and propagation are given as antithrombotic treatment [4].

After these treatments, most patients become free of symptoms. When signs and symptoms of myocardial ischemia recur, patients usually undergo cardiac catheterisation and subsequent revascularisation, when feasible. Whether a systemic invasive approach is preferable over a selective invasive strategy in patients with ACS, is still a matter of intense debate, which I discuss elsewhere in this supplement. Thus, the general principles of the early pharmacological approach of ACS consist of anti-ischaemic and antithrombotic therapy [5].

Acute coronary syndromes come in a variety of forms. Acute coronary syndromes are classified as non-ST elevation or ST-elevation based on the ST segment alteration on the ECG.

## Conclusion

Acute coronary syndromes (ACS) are the most common thrombotic consequences of atherosclerosis, and they comprise a variety of clinical manifestations caused by cardiac myocardial ischemia.

Unstable angina pectoris, STEMI, and NSTEMI are all part of this clinical picture.

In the case of coronary heart disease, it's vital to get the right diagnosis as quickly as feasible.

A fast diagnosis and treatment interventions, as well as triage and proper referral of patients with acute myocardial infarction in emergency departments, can help to reduce mortality and morbidity.

The value of echocardiography, a trustworthy, easy-to-use, and low-cost tool for quickly establishing the diagnosis, cannot be overstated.

***Address for Correspondence**: Kristofer Maite, Department of Emergency Medicine, Elisabeth TweeSteden Ziekenhuis, Hilvarenbeekse Weg 60,5022 GC Tilburg, The Netherlands, E-mail: Maite66@etz.nl*

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