Editorial
Volume 10:5, 2022

Journal of Cardiovascular Diseases & Diagnosis

ISSN: 2329-9517 Open Access

An Overview of Acute Coronary Syndrome (ACS)

Michael Fazio*

Department of Cardiology, Central Adelaide Local Health Network, Adelaide, Australia.

Editorial

Acute coronary syndrome (ACS) is a syndrome (a group of symptoms) brought on by a reduction in blood supply to the heart's muscles, which causes some of the heart muscle to either stop working altogether or to die. The most typical symptom is centrally situated; crushing chest discomfort that frequently radiates to the left shoulder or angle of the jaw and is accompanied by nausea and perspiration. Particularly in women, older individuals, and those with diabetes mellitus, acute coronary syndromes frequently appear with symptoms other than chest discomfort.

Depending on the length of symptoms, the existence of ECG alterations, and the findings of blood tests, acute coronary syndrome can fall into one of three categories: Unstable angina, ST-elevation myocardial infarction (30%), non-ST-elevation myocardial infarction (25%), or both (38 percent). In general, unstable angina occurs when symptoms last shorter than 30 minutes. Acute myocardial infarction is the diagnosis if symptoms last for more than 30 minutes.

The difference between ACS and stable angina, which appears during stress or physical activity and goes away after rest, should be made. In contrast to stable angina, unstable angina happens unexpectedly, frequently at rest, with little effort, or with less effort than the person previously experienced stable angina ("crescendo angina"). Since new-onset angina implies a problem with a coronary artery, it is also regarded as unstable angina [1].

Signs and symptoms

Chest pain, which feels tight around or over the chest and (often, but not always) radiates to the left arm and left angle of the jaw, is the primary sign of severely reduced blood flow to the heart. Shortness of breath, diaphoresis (sweating), nausea, and vomiting may also be present. The sensation is frequently "atypical," with diverse types of pain being felt or even no pain at all (which are more likely in female patients and those with diabetes). Some people may experience palpitations, anxiety, angor animi, or a sensation of approaching doom. Due to its lack of specificity, the description of the chest pain as a pressure is not very helpful in making a diagnosis.

Although coronary thrombosis is typically linked to ACS, cocaine usage has also been found to be a risk factor. In addition to profound anaemia, brady- or tachycardia (excessively slow or rapid heartbeat), low or high blood pressure, severe aortic valve stenosis (narrowing of the valve at the beginning of the aorta), pulmonary artery hypertension, and a number of other conditions, chest pain with characteristics of cardiac origin (angina) can also be precipitated [2].

Pathophysiology

Atheroma rupture is more frequently observed in ACS patients than atheroma erosion (30%), which leads to the production of thrombus that clogs the coronary arteries. Plaque rupture accounts for 60% of ST elevated myocardial infarction (STEMI), while plaque erosion accounts for 30% of STEMI. For non-ST elevated MI, the ratio is the opposite (NSTEMI). In cases of plaque rupture, the plaque's contents are lipid-rich, collagen-poor, and inflammatory in abundance, predominately composed of macrophages, and coated with a thin fibrous cap. Plaque erosion, on the other hand, results in a plaque that is rich in extracellular matrix, proteoglycan, and glycoaminoglycan but devoid of fibrous caps, inflammatory cells, and a substantial lipid core. The risk of reperfusion injury increases once the coronary arteries are unblocked because inflammatory mediators are dispersed throughout the body. Investigations on Cyclophilin D's potential role in decreasing reperfusion injury are still ongoing. Myocardial infarction without obstructive coronary artery disease and spontaneous coronary artery dissection are two additional, less frequent causes of acute coronary syndrome (MINOCA) [3].

Diagnosis

Electrocardiogram: The ECG is the test that reliably distinguishes between different reasons when there is sudden chest discomfort. The ECG should be performed as soon as is reasonably possible, possibly even in the ambulance. Treatment for a heart attack in the form of angioplasty or thrombolysis is recommended right away if this shows acute cardiac injury (elevation in the ST segment, new left bundle branch block) (see below). It is impossible to instantly distinguish between unstable angina and NSTEMI in the absence of such alterations.

Imaging and blood tests: The patient typically undergoes a number of tests in the emergency room, including a chest X-ray, blood tests (including myocardial markers like troponin I or T, and H-FABP and/or a D-dimer if a pulmonary embolism is suspected), and telemetry, as it is only one of the many possible causes of chest pain (monitoring of the heart rhythm). Combining low TIMI scores with low troponin levels (less than 5 ng/l) can help identify patients who have a low risk of myocardial infarction and allow for a safe release from the emergency room. Troponin levels and coronary CT angiography can also be used to identify people who are at risk for developing ACS. F-fluoride positron emission tomography is useful for locating people with coronary plaques that are lipid-rich and high risk [4].

Prevention

Acute coronary syndrome frequently shows a degree of atherosclerotic damage to the coronaries. Good living, exercise, treatment for diabetes and hypertension, quitting smoking, and maintaining healthy cholesterol levels are the main ways to prevent atherosclerosis. Aspirin has been demonstrated to lower the incidence of cardiovascular events in people with major risk factors. Myocardial infarction secondary prevention is covered. Acute coronary syndrome hospital admissions decreased by 17% in Scotland after a smoking ban was implemented in all enclosed public spaces in March 2006. Non-smokers accounted for 67% of the decline [5].

Conflict of Interest

None.

References

1. Goodacre, S., P. Pett, J. Arnold, and A. Chawla, et al. "Clinical diagnosis of acute coronary syndrome in patients with chest pain and a normal or non-diagnostic electrocardiogram." *Emerg Med J* 26 (2009): 866-870.

2. Canto, John G., Michael G. Shlipak, William J. Rogers, and Judith A. Malmgren,

***Address for Correspondence:** Michael Fazio, Department of Cardiology, Central Adelaide Local Health Network, Adelaide, Australia, E-mail: faziom@gmail.com*

Received: 04 May, 2022, Manuscript No. jcdd-22-68073; **Editor assigned:** 08 May, 2022, PreQC No. P-68073; **Reviewed:** 15 May, 2022, QC No. Q-68073; **Revised:** 22 May, 2022, Manuscript No. R-68073; **Published:** 29 May, 2022, DOI: 10.37421/2329-9517.2022.10.495

et al. "Prevalence, clinical characteristics, and mortality among patients with myocardial infarction presenting without chest pain." *JAMA* 283 (2000): 3223-3229.

3. Grech, Ever D., and David R. Ramsdale. "Acute coronary syndrome: Unstable angina and non-ST segment elevation myocardial infarction." *BMJ* 326 (2003): 1259-1261.
4. Eisen, Alon, Robert P. Giugliano, and Eugene Braunwald. "Updates on acute coronary syndrome: A review." *JAMA Cardiol* 1 (2016): 718-730.
5. Franke, Kyle B., Dennis T.L. Wong, Angus Baumann, and Stephen J. Nicholls, et al. "Current state-of-play in spontaneous coronary artery dissection." *Cardiovasc Diagnosis Ther* 9 (2019): 281.

How to cite this article: Fazio, Michael. "An Overview of Acute Coronary Syndrome (ACS)." J Cardiovasc Dis Diagn 10 (2022): 495.