ACS PATIENTS AT RISK OF THROMBOTIC EVENTS

WHAT IS ACS?

Acute coronary syndrome (ACS) is a form of cardiovascular disease that results from sudden insufficient blood supply to the heart.[1]

1.14 MILLION UNIQUE HOSPITALIZATIONS FROM ACS EACH YEAR IN THE UNITED STATES.[2]

ACS affects more than one million people in the United States annually.[2] The yearly incidence of new heart attacks is estimated to be approximately 525,000 and about 210,000 people will have a recurrent attack.[2]

ACS occurs when arteries of the heart become blocked, cutting off blood supply to the heart muscle. ACS is usually associated with the formation of blood clots – also known as thrombosis – in the arteries of the heart. The two main types of ACS include myocardial infarction (MI), also known as a heart attack, and heart-related chest pain that occurs when a person is at rest (unstable angina).[3]

Medical professionals determine whether a patient's ACS symptoms have been caused by unstable angina or MI by checking an electrocardiogram (ECG) and blood tests.[3] Based on the ECG, heart attacks are further classified as either ST-segment elevation MI (STEMI) or non-ST-segment elevation MI (NSTEMI).[3] Approximately 33% of heart attacks are classified as STEMI and 66% are classified as NSTEMI.[4]

A blood test which detects the presence of proteins such as troponin is used to confirm that there has been damage to the heart muscle. Patients may also undergo imaging exams such as an angiogram to determine how many arteries are blocked or narrowed, and to what extent.[3]

PATIENTS WITH STEMI

In STEMI patients, the coronary artery is typically completely blocked by a clot resulting in a severe form of heart attack. STEMI patients are at increased risk of dying because a large portion of their heart muscle is at risk of damage and death (necrosis) due to one or more blocked coronary arteries. Thus, STEMI always requires some form of urgent intervention.[5] For STEMI patients who undergo a type of intervention known as primary percutaneous coronary intervention (PCI), the goal is usually to perform the procedure within 90 minutes of first medical contact to prevent or limit permanent damage to the heart.[6]

PATIENTS WITH NSTE-ACS

Acute chest pain without persistent ST-segment elevation is usually classified as NSTE-ACS, which includes both NSTEMI and unstable angina.[7]

The initial strategy in patients with NSTE-ACS is to alleviate ischemia (insufficient oxygen in the heart muscle due to restricted blood supply) and symptoms, to monitor the patient with serial ECGs, and to repeat measurements of markers of heart muscle damage and death. At presentation, the working diagnosis of NSTE-ACS, based on the measurement of troponins, will be further qualified as NSTEMI (those with elevated levels of troponins), or unstable angina (no elevation in troponins).[7] In a certain number of patients, coronary heart disease will subsequently be excluded as the cause of symptoms.

TREATMENT OF ACS PATIENTS

Patients with STEMI typically receive antiplatelet treatment as early as possible after the onset of symptoms to prevent more damage to the heart.[8] They are then immediately scheduled for one of several different types of procedures (coronary artery bypass grafting (CABG), primary PCI, thrombolysis) designed to restore blood flow to the heart. The choice of procedure depends on the number of blockages and the anatomy of the blocked vessels, among other factors.[5]

The treatment approach for NSTEMI patients is more complex and requires specialist assessment. Many factors contribute to the decision, including the number and extent of blockages in the arteries of the heart, the anatomy of the blocked vessels, the overall health and age of the patient, and the presence of other conditions such as obesity or diabetes. In some cases, physicians perform a procedure to open blocked vessels immediately or within a few days.[5]

PCI

Percutaneous coronary intervention is used to treat many ACS patients in the acute setting. The PCI procedure manually opens up arteries to restore healthy blood flow to the heart. PCI can include, but is not limited to, balloon angioplasty, thrombus aspiration and coronary artery stenting. Angioplasty is a procedure where the physician inserts a narrow tube called a coronary catheter into an artery in the arm or groin and threads it up to the heart. A small balloon is inflated to open the blocked part of one or more coronary arteries. A stent is a small metal scaffold that looks like a spring or coil. A stent is implanted during angioplasty to keep open a coronary artery that was blocked and preserve blood flow in the treated artery.[9]

Patients with ACS who undergo PCI with stenting are usually treated with aspirin and one additional antiplatelet medication for a year after their procedure to prevent the formation of blood clots around the stent (stent thrombosis) and the occurrence of additional ACS events.[10]

REFER TO:

J. Scott MacGregor

Lilly USA

317-440-4699 (cell)

Jenn Silvent

Daiichi Sankyo

973-944-2160 (office)

973-479-9845 (cell)

1 American Heart Association. Acute Coronary Syndrome. http://www.heart.org/HEARTORG/Conditions/HeartAttack/AboutHeartAttacks/Acute-Coronary-Syndrome_UCM_428752_Article.jsp. Last accessed May 29, 2015.

2 Mozaffarian D, Benjamin EJ, Go AS, et al. Heart Disease and Stroke Statistics–2015 update. *Circulation.* 2015;131:e29-e322.

3 Acute Coronary Syndrom. Mayo Clinic. http://www.mayoclinic.org/diseases-conditions/acute-coronary-syndrome/basics/definition/con-20033942. Accessed June 3, 2015.

4 Yeh RW, Sidney S et al. Population trends in the incidence and outcomes of acute myocardial infarction. *N Engl J Med.* 2010;362:2155–2165.

5 Heart Attack Treatment Guidelines. CardioSmart. https://www.cardiosmart.org/heart-conditions/guidelines/heart-attack-guidelines. Last accessed June 3, 2015.

6 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation. *European Heart Journal*. 2012;33:2569–2619.

7 Amsterdam EA, Wenger NK, Brindis RG., et al. 2014 AHA/ACC Guideline for the Management of Patients With Non–ST-Elevation Acute Coronary Syndromes. *Circulation*. 2014; 130: e344-e426.

8 O'Gara PT, Kushner FG, Ascheim DD, et al. 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction: Executive Summary. *Circulation*. 2013;127:529-555.

9 Percutaneous Coronary Interventions. American Heart Association. National Heart, Lung and Blood Institute. http://www.nhlbi.nih.gov/health/health-topics/topics/angioplasty. Last accessed June 3, 2015.

10 Levine GN, Bates ER, Blankenship JC, et al. 2011 ACCF/AHA/SCAI Guideline for Percutaneous Coronary Intervention: Executive Summary: A Report of the American College of CardiologyFoundation/ American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. *Circulation*. 2011;124:2574-2609