Myocardial Infarction Assessment

Myocardial infarction, aka “heart attack,” is when the blood flow to the heart is decreased, causing decreased oxygenation to the heart tissue. When this decreased oxygenation is prolonged, the tissue becomes ischemic and dies. Decreases in blood flow are most commonly due to atherosclerotic plaques lodging in the coronary arteries. It is important to know that infarctions are slow to develop and preventative measures are preferred, but that the aim of care is to restore blood flow within 4-6 hours. MI’s most commonly occur at the bifurcation of the left coronary artery. Common causes of death after MI include arrhythmias and pump failure secondary to cardiogenic shock.

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Assessment

Substernal Chest Pain
Below the Sternum Chest Pain-bolt
Pain is typically substernal or feels as if it is below (epigastric) or behind the sternum. It's important to ask the responding patient about the PQRST (provocation, quality, radiation, severity and timing) of the pain to fully assess.

Crushing or Dull Sensation
Crushed Dull-guy
Patients will describe the pain as dull, heavy, or crushing. The phrase “there is an elephant sitting on my chest” is a popular description. Levine’s sign, when the patient describes the pain by squeezing their fist and placing it on their chest, is a common finding.

Arm, Jaw, and Neck
Arm, Jaw, and Neck guy
Pain can classically radiate to other locations like the left neck, jaw and arm. Women may experience atypical discomfort like shortness of breath, thoracic or lumbar back pain and fatigue. Older adults may have a blunted pain response, but experience changes in mentation (confusion), dizziness and dysrhythmias.

> 20 Minutes
> 20 Minutes Timer with (20) Dollar-bill
To differentiate unstable angina (chest pain) from stable angina, the pain typically lasts longer than 20 minutes and is unrelieved by rest and nitroglycerin. Any patient with persistent, unmanaged chest pain should seek emergent care and intervention.

Unrelieved by Nitro
Not-suppressed by Nitro-glacier
Nitroglycerin, medication used for patients with stable angina to open the coronary arteries and improve myocardial blood flow, may not improve chest pain in patients with severe coronary occlusion experiencing an AMI.

Palpitations
Heart with Palpitating-paw
A sensation described as strong, irregular, fluttering, or racing heart beats is a common complaint for patients experiencing an AMI. However, it is also common in patients experiencing anxiety, a panic attack or with arrhythmic disorders. Often, patients will say they “felt my heart skip a beat.”

Diaphoresis
Sweaty-sweatband
Sympathetic response to pain in myocardial infarctions as well as dysfunction of the myocardium can result in development of diaphoresis or excessive sweating, along with other skin and membrane changes like pallor and coolness to the touch.

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Fear of Impending Doom

Guy in Fear of Impending Doom

In severe cases, patients simply may describe a sensation “they may die.” This can occur in an acute myocardial infarction, as well as other presentations like patients with anxiety or a panic attack.

Nausea and Vomiting

Nausea & Vomiting

Although not a specific finding, patients often experience nausea and vomiting when experiencing an MI. However, this can also occur in a patient experiencing epigastric discomfort related to GERD, pancreatitis or other digestive disease processes. A comprehensive patient assessment including history and physical examination is important to differentiate.

Shortness of Breath

S.O.B.

Shortness of breath occurs due to a mixture of response to ischemic pain and a body’s response to increase perfusion to the damaged myocardial tissue. This is taxing to the body (metabolically demanding), and some patients may also report fatigue.

Considerations

Monitor for Arrhythmias

Monitor for Broken Arrhythmia-drum

The loss of capable cardiac tissue due to infarction results in large areas of dysfunctional myocardium. There is a high risk of developing cardiac arrhythmias and other complications following an unmitigated or severe acute myocardial infarction (AMI). Heart rhythms should be monitored during and after treating an AMI, and arrhythmias such as ventricular fibrillation and ventricular tachycardia can still develop even after successful management of an AMI.

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