

What Is a Heart Attack?

2 credit hour course

When blood flow to a section of heart muscle becomes blocked, a heart attack ensues. The section of heart muscle affected will become damaged due to lack of oxygen if blood flow is not restored quickly. Eventually, this area of muscle will die.

Today, heart attacks are the leading killer of both men and women in the United States. Fortunately, there are many treatments that can save lives and prevent people from being crippled with disabilities. When symptoms of a heart attack appear, treatment will be most effective when started within 1 hour of them appearing. If you think you or someone with you is having a heart attack, call 911 as soon as possible.

A condition called coronary artery disease, or CAD, is the primary cause of most heart attacks. In CAD, a fatty material called plaque builds up over a period of many years on the inside walls of the coronary arteries (supplying blood and oxygen to the heart). An area of this plaque build-up can then rupture, causing a clot to form on the surface of the plaque. With a large enough clot, it can partially or completely block the flow of oxygenated blood to the part of the heart muscle fed by the blocked artery. If this blockage of the coronary artery is not treated quickly during a heart attack, muscle in the heart will begin to die and be replaced by scar tissue. This may cause many long-lasting problems.

There are several severe problems linked to heart attacks. These include heart failure and life-threatening arrhythmias (irregular heartbeats). When a person experiences heart failure the heart cannot pump enough blood throughout the body. There is also a condition called ventricular fibrillation, a serious arrhythmia that could lead to death if it is not treated quickly.

The most common heart attack signs and symptoms are:

- Chest pain or discomfort-uncomfortable pressure, squeezing, fullness, or pain in the center of the chest that can be mild or strong. This discomfort or pain can last for a few minutes or goes away and comes back.
- Upper body discomfort in one or both arms, the back, neck, jaw, or stomach.
- Shortness of breath may occur before or after chest discomfort.
- Nausea, vomiting, lightheadedness, fainting, cold sweats.

If believe you or someone you know is having a heart attack always call an ambulance. The more you delay treatment the higher chance of causing serious damage to the heart. If the symptoms stop completely in 5 minutes or less, call your doctor. Many people are also prescribed nitroglycerin pills who have had heart related problems in the past. If this is the case for you or someone near you with heart attack symptoms, take a nitroglycerin pill.

There are over 1.1 million heart attack victims in the U.S. every year, almost half of them dying. CAD induced heart attacks are the leading killer of men and women in this country. Many of these people could have been saved if they had gotten help sooner. Of the people that die from heart attacks, half of them die in within an hour of the first symptoms, before they even reach the hospital.

WHAT CAUSES A HEART ATTACK?

Already mentioned, coronary artery disease, or CAD, is one leading cause of heart attacks in this country. Heart attacks can also occur due to problems with the very small, microscopic blood vessels of the heart. This condition is called microvascular disease. Women are believed to be more prone to this disease than men.

Another cause of heart attacks, though less common, is a severe spasm, or tightening of a coronary artery that cuts off blood flow through it. These spasms can occur in arteries that don't have CAD.

Doctors are still not sure what brings on these spasms, but they may sometimes be related to:

- Certain drugs such as cocaine
- Emotional stress or pain
- Exposure to extreme cold
- Cigarette smoking

WHO IS AT RISK FOR A HEART ATTACK?

There are several risk factors that make it more likely a person will develop CAD and have a heart attack.

There are some risk factors for a heart attack that can be controlled and others that cannot be controlled.

Risk factors that you can control include:

- Smoking
- High blood pressure
- High blood cholesterol
- Overweight and obesity
- Physical inactivity
- Diabetes

Risk factors that you cannot control include:

- Age. Risk increases for men older than 45 years of age and women older than 55.

- Family history of early onset of CAD. Your risk increases if your father or brother was diagnosed with CAD before the age of 55, or if your mother or sister was diagnosed with CAD before the age of 65.

There are certain CAD risk factors that tend to occur together. When this does happen it is called metabolic syndrome. A person with metabolic syndrome is twice as likely to develop heart disease and five times as likely to develop diabetes as someone without metabolic syndrome.

[WHAT ARE THE SYMPTOMS OF A HEART ATTACK?](#)

Don't always believe what you see on TV or in the movies. Not all heart attacks begin with sudden crushing pain in the chest. Symptoms of a heart attack are not the same for everyone. Many heart attacks begin slowly with mild discomfort or with no symptoms at all.

The most common symptom of a heart attack is chest pain or discomfort. When a person has a heart attack, it may involve discomfort in the center of the chest that lasts for several minutes or goes away and comes back. The discomfort may feel like uncomfortable pressure, squeezing, fullness or pain. It can be mild or severe. Many people think they have indigestion or heartburn when it is in fact a heart attack pain.

Angina can also mimic the symptoms of a heart attack. Angina is pain in the chest that occurs in people with CAD, usually when they are active. Angina pain will usually only last for a few minutes and then goes away with rest. If Angina does not go away or changes from its usual pattern should be checked by a doctor right away.

Not everyone that has a heart attack may experience the typical symptoms. If you have already had a heart attack your symptoms of a second one may not be the same as the first. The more symptoms that occur, the more likely it is that you are having a heart attack.

It is critical that you act fast when you believe a heart attack is occurring. Know the symptoms so you can act quickly to get treatment for yourself or someone else. The sooner treatment is received, the less damage to the heart there will be.

DIAGNOSIS AND TREATMENT

Diagnosis of a heart attack is based on the symptoms of an individual, personal and family medical history, and the result of diagnostic tests.

EKG (Electrocardiogram)

This test is used to detect and record the electrical activity of the heart. Changes in the electrical waves of the heart are strong indicators of a heart attack. EKG's can also show if a person is having arrhythmias that can be caused by a heart attack.

Blood Tests

When a person has a heart attack, heart muscle cells burst open and release protein into the blood stream. A blood test can measure the amount of these proteins in the blood. Higher levels of these proteins are evidence of a heart attack.

Coronary Angiography

Coronary Angiography is a type of x-ray exam of the heart and the blood vessels. It is often used during a heart attack to spot blockages in the coronary arteries.

The doctor will take a catheter and pass it through an artery in an arm or your groin and thread it to your heart. This process of the coronary angiography is called cardiac catheterization.

When the catheter is in place, a special dye is injected into the bloodstream, allowing the doctor to study the flow of blood through the heart and blood vessels.

If a blockage is found, another procedure called angioplasty, may be used to restore blood flow through the artery. In some instances, the doctor will place a stent, or a small mesh tube, in the artery to help keep it open.

Early treatment can limit or prevent damage to the heart muscle. It is critical to act fast when a heart attack is suspected. Medical personnel can begin diagnosis and treatment before a person arrives at the hospital.

Here are a few of treatments that can be used immediately if a heart attack is suspected:

- Oxygen
- Aspirin to prevent further blood clotting
- Nitroglycerin
- Treatment for chest pain

Once it has been determined that it is indeed a heart attack, treatments to restore blood flow to the heart are started immediately. Treatments include medicine and procedures.

MEDICINES

There are a number of medicines that are used to treat heart attacks. They include the following:

Thrombolytic Medicines

Also called clot busters, these are used to dissolve blood clots in the coronary arteries. For maximum effect, these medicines must be given within 1 hour after the start of symptoms.

Beta Blockers

These medicines help reduce the workload on your heart. They are also used to relieve chest pain or discomfort to help prevent additional heart attacks. Beta blockers are also used to correct arrhythmias.

Angiotensin-Converting Enzyme (ACE) Inhibitors

These medicines lower work to reduce blood pressure and the strain on your heart. They also help to slow down any further weakening of the heart muscle.

Anticoagulants

These work to thin the blood and prevent any further clots forming in the arteries.

Antiplatelet Medicines

These medicines (aspirin, clopidogrel) stop platelets (type of blood cell) from clumping together and forming unwanted clots.

MEDICAL PROCEDURES

If medicine alone cannot stop a heart attack, medical procedures, surgical or nonsurgical may be used.

These include the following:

Angioplasty

This nonsurgical procedure can be used to open coronary arteries that are blocked by a blood clot.

During angioplasty, a catheter with a balloon on the end is threaded through a blood vessel to the

blocked coronary artery. The balloon is then inflated to push the plaque against the wall of the artery. This widens the artery, restoring blood flow.

A small stent may also be used to help keep the artery open. Some stents are coated with medicine to prevent further blockage.

Coronary Artery Bypass Grafting

Coronary artery bypass grafting is a surgery in which veins and arteries are taken from other parts of the body and sewn into place to bypass blocked coronary arteries. This provides a new route for blood flow to the heart.

Your Role as a Caregiver

Most people that have a heart attack will spend several days in the hospital. When they leave the hospital, treatment does not stop. This is where you as a professional caregiver come in. Depending on the severity of the heart attack, the doctor may recommend several things for the patient. Besides the medicines the doctor may prescribe, cardiac rehabilitation may also be included. Also things that may be included in the plan of care are recommended changes in lifestyle, quitting smoking, losing weight, change in diet, and increasing physical activity. The following are things to be aware of when working with a patient who is recovering from a heart attack:

- Plan of care may include a regimen of drugs to help the heart beat more strongly and regularly and to increase the output of fluids by the kidneys.
- Ensure that the patient follows a low-sodium diet.
- Limit the amount of fluids if called for by the plan of care.
- Weigh the patient daily to monitor the level of fluid retention
- Monitoring of blood pressure

- Keeping the patient calm. Avoid situations that may agitate them.
- Positioning the patient in orthopneic or high Fowler's supported by pillows, or supported in a chair. This position must be changed frequently and slowly.
- Apply elasticized stockings if directed. Stockings and Ace bandages help to channel blood to the deeper vessels. They must be checked often and reapplied every 6 to 8 hours. Make sure to check extremities for good circulation. Skin should be normal color and warm.
- Assist with activities of daily living (ADL's) as needed.
- Ensure proper hygiene. Bathing can help stimulate circulation and provide the patient with comfort. Special attention must be given to the skin because the combination of position, edema, and poor circulation contributes to tissue breakdown. Allow the patient to be as independent with bathing as possible, unless the nurse tells you otherwise. Check the patient frequently, fatigue may become an issue. Be prepared to take over and complete the bath if the patient becomes too tired or short of breath.
- Assist with oxygen therapy if needed. Oxygen therapy may be provided either by face mask or nasal cannula. Cardiac patients often breathe through the mouth, thus the mouth tends to be very dry. Special mouth care may be needed.
- Provide for elimination. A bedside commode is often convenient and less tiring for the patient.
- Encourage adequate nutrition. Small, easily digested meals should be provided. Assist the patient by feeding them when fatigue becomes an issue.
- Monitor and record fluid intake as directed. Patients with acute heart failure may be given drugs that increase output of urine and alter heart rate. Measuring the intake and output and taking daily weights are ways of determining if fluid is being retained.
- Regularly check vital signs.
- Keep feet elevated when the patient is up in a chair or wheelchair.

- Encourage regular rest periods throughout the day.
- Assist with exercise, as specified in the plan of care.

Test Questions

- Heart attacks occur when blood flow to a section of the heart muscle becomes _____.
 - Fast
 - Too hot
 - Blocked
- Lack of _____ leads damage and death of heart muscle.
 - Protein
 - Oxygen
 - Nitrogen
 - Carbohydrates
- Heart attacks are the second leading cause of death in men and women in the U.S. T F
- CAD stands for _____ artery disease.
 - Capillary
 - Coronary
 - Contracted
 - Chronic
- Severe problems linked to heart attacks include heart failure and _____.
 - Arrhythmias
 - Arthritis
 - Anaphylactic shock
 - Acidosis
- Chest pain or discomfort is the most recognized symptom of a heart attack. T F
- Treatment for heart attacks is most effective when started _____ after first symptoms appear.
 - 5 minutes
 - 10 minutes
 - Immediately
 - 20 minutes
- Shortness of breath may occur with or before chest discomfort. T F

9. Each year, about _____ million people in the United States have heart attacks.
- A. 500,000
 - B. 750,000
 - C. 1.1 million
 - D. 2.1 million
10. Problems with microscopic blood vessels of the heart is a condition called _____.
- A. Microscopic disease
 - B. Microvascular disease
 - C. Midichlorian disease
 - D. Mandalorian disease
11. Major risk factors for heart attacks that **can** be controlled include the following except:
- A. Smoking
 - B. Diabetes
 - C. High blood pressure
 - D. Age
12. Major risk factors for heart attacks that **cannot** be controlled include the following except:
- A. High blood cholesterol
 - B. Age
 - C. Obesity
 - D. A and C
13. Certain CAD risk factors tend to occur together. When they do, it is called _____.
- A. Mesothelyoma
 - B. Menopause
 - C. Metabolic syndrome
 - D. Melatonin syndrome
14. _____ is pain in the chest that occurs in people with CAD, usually when they are active.
- A. Angioplasty
 - B. Angina
 - C. Ancillary
 - D. Anaphylaxis
15. EKG stands for:
- A. Electronicgram
 - B. Electrocardiogram
 - C. Electricgram

D. Electiongram

16. Tests used to diagnose a heart attack include the following except:

- A. Coronary Angiography
- B. EKG
- C. Rorschach test
- D. Blood tests

17. Thrombolytic medicines are also known as _____ busters.

- A. Blood
- B. Clot
- C. Artery
- D. Lipid

18. ACE stands for Angiotensin Converting _____.

- A. Extract
- B. Elevation
- C. Enzyme
- D. Electron

19. Aspirin and clopidogrel are also known as _____ medicines.

- A. Angioplasty
- B. ACE
- C. Angiotensin
- D. Antiplatelet

20. During _____ a catheter with a balloon on the end is threaded through a blood vessel to the blocked coronary artery.

- A. Anticoagulant
- B. Angioplasty
- C. Angiotensin
- D. Arthritic surgery

How to Apply for Course Credit:

Please fill out the information below and mail it in with your test answers and payment of **\$10** to:

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