Warning Signs of a Heart Attack

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Each year, approximately 715 000 Americans experience a heart attack, approximately 162 000 of which are fatal (Table 1).[1] Of those who die, almost half die suddenly before they can get to a hospital. Although a heart attack is a frightening event, if you learn the signs of a heart attack and what steps to take, you can save a life, perhaps even your own. During a heart attack, a clot in one of the arteries of the heart suddenly blocks the flow of blood to the heart, and within minutes, heart muscle begins to die. This is technically called a myocardial infarction, meaning death of heart muscle. The more time that passes without treatment, the greater the damage. The part of the heart that dies during a heart attack cannot grow back or be repaired.

Fortunately, clot-dissolving drugs and other artery-opening treatments such as angioplasty (often followed by insertion of a stent, which helps to keep the artery open after the procedure) can stop a heart attack in its tracks. Given soon after symptoms begin, these treatments can prevent or limit damage to the heart. The quicker they are started, the more good they will do and the greater the chances are of a full recovery. These treatments are most effective if they are started in the first hour after the onset of heart attack symptoms. The benefit of opening the blocked artery decreases with each passing hour from symptom onset until treatment.

Learn the Signs

Many people think that a heart attack is sudden and intense, like the "'Hollywood" heart attack depicted in the movies where a person clutches his or her chest and falls over. The truth is that many heart attacks start as a mild discomfort in the center of the chest. Someone who feels such a "non-Hollywood" warning may not be sure what is wrong. The discomfort (and other symptoms) may even come and go. Even people who have had a heart attack may not recognize the signs because the next one can have entirely different symptoms. The warning signs of a heart attack are shown in Table 2. Learn them, but also remember the following: Even if you are not sure it is a heart attack, you should still check it out promptly. This includes any sudden, new symptoms or a change in the pattern of symptoms you already have (for example, your symptoms become stronger, become more frequent, or last longer than usual).

The media (and often health professionals) mistakenly use the term heart attack when a person suffers a cardiac arrest, which is the term used when the heart suddenly stops beating (often as a result of a rhythm disturbance in the heart). Within seconds, a cardiac arrest victim loses consciousness and may have a few seconds of seizure activity (shaking of the body) as the flow of blood and oxygen to the brain stops. The victim lies pulseless but may continue to have abnormal ("agonal") breathing for several minutes, which can confuse laypersons into thinking that the individual has just fainted. In such a case, it is critical for bystanders to call 9-1-1 immediately. The 9-1-1 operator will coach the bystander to do chest compressions on the victim and will dispatch emergency personnel and equipment needed to resuscitate the victim. A cardiac arrest can occur as a complication of a heart attack but can also be caused by other disorders.

Call 9-1-1

Timing is everything. People who experience the warning signs of a heart attack often deny how serious the situation is and take a wait-and-see approach. But time is very important, and anyone with these warning signs needs to get medical evaluation and treatment right away. Do not wait more than a few minutes—5 minutes

The information contained in this *Circulation* Cardiology Patient Page is not a substitute for medical advice, and the American Heart Association recommends consultation with your doctor or healthcare professional.

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Table 1. Who Is at Risk

Many people think that heart attacks are a "man's problem," yet heart disease is actually the No.1 killer of both men and women in the United States. In men, the risk for heart attack increases significantly after the age of 45. In women, heart attacks are more likely to occur in the years after menopause (usually after the age of 50). However, younger men and women can also have heart attacks.

Besides age, factors that increase the risk for heart attack are the following:

- A previous heart attack or procedure to open up the coronary arteries
- Family history of early heart disease:
  - Father or brother diagnosed before age 55
  - Mother or sister diagnosed before age 65
- Diabetes mellitus
- High blood cholesterol
- High blood pressure
- Cigarette smoking
- Overweight
- Physical inactivity

If you have 1 or more of these factors, see your healthcare provider to find out how to reduce your risk of having a heart attack

at most—to call 9-1-1. If your physician has prescribed nitroglycerin because you have chest discomfort that comes on with physical exertion and is relieved by rest (a condition called angina pectoris that is usually caused by partial blockage of 1 or more of the arteries nourishing the heart), you may take the medication as prescribed. If your symptoms are not relieved within 5 minutes, you should call 9-1-1 immediately and go to the hospital so that the physicians can determine whether you are having a heart attack. In the past, patients were often told to "take 1 nitroglycerin tablet every 5 minutes for up to 3 doses" if their symptoms were not relieved. This recommendation has been changed to allow only 1 nitroglycerin tablet with a maximum 5-minute period of observation to ensure that, if a heart attack is the cause of the symptoms, the patient will be transported to the hospital as soon as possible to get the blocked artery opened, to minimize heart damage, and to increase the odds of survival.

By calling 9-1-1 and taking an ambulance, you will get to the hospital in the fastest and safest way possible. There also are other benefits to calling 9-1-1:

- Emergency personnel can begin treatment immediately, even before you arrive at the hospital.
- Your heart may stop beating during a heart attack. Emergency personnel have the knowledge and equipment needed to start it beating again.
- Patients having a heart attack who arrive by ambulance tend to receive faster treatment on their arrival at the hospital.

Note: If you are having heart attack symptoms and for some reason cannot call 9-1-1, have someone else drive you at once to the hospital. Never drive yourself unless there is absolutely no other choice because you could pass out while driving.

Table 2. Heart Attack Warning Signs

Chest discomfort: Most heart attacks involve discomfort in the center of the chest that lasts for more than a few minutes or that goes away and comes back. The discomfort can feel like uncomfortable pressure, squeezing, or fullness.

Discomfort in other areas of the upper body: Symptoms can include discomfort in 1 or both arms or in the back, neck, jaw, or stomach.

Shortness of breath: This symptom often accompanies chest discomfort. However, it can also occur before the chest discomfort.

Other signs: These may include breaking out in a cold sweat, nausea, or light-headedness.

Questions You Will Likely Be Asked in the Emergency Department

When you get to the emergency department, you should be ready to answer, as best as you can, the following questions about your symptoms:

1. What time did your discomfort begin?
2. What were you doing when your discomfort began?
3. Was it at its most intense level immediately, or did it gradually build up to a peak?
4. Did you notice any additional symptoms in association with the discomfort such as nausea, sweating, or shortness of breath?
5. On a scale of 0 to 10, with 10 being the worst, what number would you use to describe your discomfort at this time?

Remember: Do Not Delay

The best way to find out whether symptoms are caused by a heart attack is to get checked at a hospital emergency department (Table 3).

In a heart attack, every minute that passes causes more of the heart muscle to die. You can save a life, your own or someone else's, by calling 9-1-1 right away. Never delay calling 9-1-1 to take aspirin or do anything else you think might help.

Doctors and emergency personnel want anyone who may be having a heart attack to come to the emergency department without delay, even if the symptoms turn out to be a false alarm.

Plan Ahead

Make a plan now for what you would do if a heart attack should happen. It will save time and could help save a life. To plan ahead, do the following:

- Learn the heart attack warning signs listed in this article.
- Talk to your doctor about your heart attack risk and what you can do to reduce it.
- Ask specifically about aspirin and the use of nitroglycerin.
- Talk with your doctor, family members, friends, and coworkers about the heart attack warning signs and the importance of acting fast. Discuss the benefits of calling 9-1-1 instead of going to the hospital by car. Knowing what to do if a heart attack occurs could save your life or theirs.

For more information on lowering your risk of heart disease, check out the following American Heart Association and National Heart, Lung, and Blood Institute Web sites:

Table 3. Tests to See Whether You Are Having a Heart Attack

Electrocardiogram: This is a graphic record of the electric activity of the heart as it contracts and rests. It can often detect areas of damage, inadequate blood flow, heart enlargement, and abnormal heartbeats. The electrocardiogram does not always show the damage that is occurring, particularly if it involves the left side or back walls of the heart. In such cases, blood tests or other studies that can image the blood flow of the heart are used.
Blood tests: Blood tests are often used to check for biochemical markers that are released into the blood within the first few hours after heart damage occurs. In some cases, some of these blood tests can identify high-risk conditions in which a heart attack may be imminent.
Nuclear scan: This is sometimes used to show damaged areas of the heart and to reveal problems with its pumping action, which is particularly helpful in cases where the electrocardiogram does not detect the damage. A small amount of radioactive material is injected into a vein, usually in the arm. A scanning camera positioned over the heart records the nuclear material, which is delivered by the coronary arteries and either taken up by the heart muscle (healthy areas) or not taken up (damaged areas). In particular cases, the camera can also evaluate how the heart muscle as a unit pumps the blood. This test can be done during both rest and exercise.
Coronary angiography (or arteriography): This test is used to take detailed pictures of the coronary arteries. A fine tube (catheter) is threaded through an artery of an arm or leg up into the heart. A fluid that shows up on an x-ray is then injected, and the heart and blood vessels are filmed as the heart pumps. The picture is called an angiogram or arteriogram. It can show problems such as a blockage caused by atherosclerosis.

- What Is A Heart Attack (http://www.nhlbi.nih.gov/health/health-topics/topics/heartattack), information on heart attacks
- Heart and Vascular Diseases (http://www.nhlbi.nih.gov/health/public/heart/index.htm), a directory of heart disease prevention and treatment information for patients and the public
- High Blood Cholesterol: What You Need to Know (http://www.nhlbi.nih.gov/health/public/heart/chol/hbc_what.htm), a patient brochure
- Risk Assessment Tool for Estimating Your 10-Year Risk of Having a Heart Attack (http://cvdrisk.nhlbi.nih.gov/calculator.asp), a 10-year heart attack risk calculator
- Mission: Lifeline Glossary (http://www.heart.org/HEARTORG/HealthcareResearch/Mission-LifelineHomePage/Mission-Lifeline-Glossary_UCM_308046_Article.jsp), information on the American Heart Association Mission: Lifeline program
- Heart Attack: Know the Symptoms, Take Action (http://www.nhlbi.nih.gov/health/public/heart/mi/heart_attack_wallet_card.pdf), a wallet card with heart attack symptom and response information

Disclosures

None.

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