



Patient Information

Recognizing Acute Coronary Syndrome

Acute coronary syndrome (ACS) is an umbrella term covering a group of symptoms caused by coronary artery disease (CAD—the most common type of heart disease in adults. Insufficient blood supply to the heart results in CAD, with symptoms ranging from severe chest pain called angina to myocardial infarction, better known as heart attack.

Fatty material called *plaque* (**plak**) builds up on the inner walls of your coronary arteries. Hard plaque causes the arteries to become narrow and stiff, reducing the flow of oxygen-rich blood to the heart muscle. Soft plaque is more likely to rupture and cause blood clots that can partly or completely block the coronary arteries. In either case, the result of this plaque build up is severe chest pain that can cause shortness of breath or fatigue. Upset stomach and disorientation are also symptoms that have been reported by older individuals. The pain from a heart attack is more severe, lasts longer, and will not ease with rest. It can spread to the back, jaw, or left arm.

How do I know if I'm at risk?

CAD is the result of certain factors that damage the inner layers of your coronary arteries. Smoking, high levels of fat and cholesterol in your blood, high blood pressure, and a high level of blood sugar due to diabetes all may cause ACS.

Men older than age 45 and women older than age 55 have a greater risk of ACS, as do individuals who smoke cigarettes. CAD is more common in men earlier in life but

women's risk increases greatly after menopause. A family history of chest pain, heart disease, or stroke also may increase your chances of developing ACS or CAD.

Lack of physical activity can cause your heart to work harder than necessary when you do exercise. Inadequate activity also can affect your cholesterol and blood pressure, both of which can cause complications if levels are high.

What are the warning signs?

If you are experiencing symptoms of ACS you most likely will feel pressure or squeezing in your chest, shoulders, arms, neck, jaw, or back. The symptoms sometimes mimic the feeling of indigestion. Feelings of nausea, fatigue, shortness of breath, or weakness also may occur.

What tests do I need?

Certain tests may be performed to better understand the extent of your ACS and how to treat it. An electrocardiogram, called an ECG or EKG, is a painless test used to detect and record the heart's electrical activity. An EKG can show evidence of heart damage due to CAD and signs of a previous heart attack by testing how fast the heart is beating and its rhythm.

A stress test performed by your doctor will cause your heart to work hard and beat fast through exercise. If you are unable to exercise, medication can be given to increase your heart rate for the test. When your heart is working hard and beating fast, it requires more oxygen-rich blood. However, if your arteries are narrowed by



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plaque, they will be unable to meet the needs of your heart and will raise a red flag on the test results.

Some stress tests take images of your heart while you exercise and rest. These images can show the flow of your blood through various parts of your heart and your heart's ability to squeeze blood out when it beats. Other tests are recommended to measure the levels of certain fats, cholesterol, sugar, and proteins in your blood. If your blood is showing abnormal levels, you may be at risk for CAD.

How can I avoid the problem?

Physical exertion, emotional distress, and excitement cause stress to the heart, ultimately making it work harder than normal. Therefore, if you are experiencing ACS symptoms due to any of these activities, you need to seek immediate medical attention.

Tobacco use is a major risk factor for CAD and therefore should be stopped to help prevent ACS or a heart attack. Second-hand smoke should be avoided when possible. Being overweight also may cause your heart to strain, so maintaining a healthy diet and avoiding large meals that leave you feeling too full can help.

If you have CAD and are at risk for developing ACS, your doctor may encourage you to speak to your family and friends about how you are coping with the condition. Frequent mild depression or denial may accompany CAD and ACS.

Lifestyle changes through cardiac rehabilitation can help prevent episodes of ACS.

How is it treated?

Treatment varies depending on the type of syndrome, but it is generally treated with an attempt to increase the blood flow to

the affected area of the heart. The symptoms of ACS are medical emergencies and must not be ignored.

If you believe you are experiencing symptoms of ACS or a heart attack, chew an aspirin tablet immediately after calling an ambulance. If the aspirin is not administered at home or in the ambulance, it will be given at the hospital upon arrival. Aspirin therapy reduces the size of the present clot in the coronary artery, ultimately increasing the chances of survival. Medical nitrates, such as *nitroglycerin* (ny-treh-**glis**-eh-rehn), are used to treat ACS by relaxing and widening blood vessels, allowing more blood to flow to the heart and reducing its workload.

Close monitoring at a hospital that has a cardiac care unit will take place for a few days to assess for ACS complications or heart attack. If complications arise, however, hospitalization can be prolonged.

Angioplasty (**an-jee-oh-plas-tee**) (opening blocked or narrowed coronary arteries) and coronary artery bypass grafting (taking healthy arteries or veins from other areas in the body to bypass the affected ones) are 2 procedures commonly performed to treat ACS and CAD.

For more information, visit the Angina page of the National Institutes of Health Web site (http://www.nhlbi.nih.gov/health/dci/Diseases/Angina/Angina_All.html) ●

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Parsippany, NJ 07054-4609

