

# Bypassing Acute Coronary Syndrome

**A**cute coronary syndrome (ACS) is a term applying to situations in which blood supplied to the heart muscle is suddenly blocked. A blockage in a coronary artery that is severe but partial often causes a dangerous situation with pain that comes and goes called unstable angina (an-ji-nuh). A blockage that is complete usually leads to a heart attack in which some of the heart muscle dies. Unstable angina can develop into a heart attack if it is not properly treated.

The most common cause of ACS is plaque (plak) buildup in the arteries in your heart. The plaque is made up of fatty deposits and causes the arteries to narrow, making blood flow more difficult.

## How do I know if I'm at risk?

Risk factors for ACS are similar to those of other types of heart disease. These include:

- Men older than 45 years
- Women older than 55 years
- High blood pressure
- High cholesterol
- Cigarette smoking
- Lack of physical activity
- Type 2 diabetes
- Family history of chest pain, heart disease, or stroke
- Personal history of high blood pressure, pre-eclampsia, or diabetes during pregnancy

## What are the symptoms?

ACS is a life-threatening condition, so symptoms should be taken very seriously. Symptoms of ACS include:

- Chest pain (angina)
- Pressure, tightness, or fullness in the chest
- Pain or discomfort in both arms, the jaw, neck, back, or abdomen
- Shortness of breath
- Lightheadedness, dizziness, or fainting

- Nausea/vomiting
- Sweating or clammy skin
- Feeling restless or nervous

## How can I avoid the problem?

You can prevent ACS or improve symptoms by:

- Not smoking
- Eating a heart-healthy diet that includes whole grains, lean meat, low-fat dairy, fruits, and vegetables
- Exercising
- Monitoring your cholesterol and blood pressure
- Maintaining a healthy weight
- Managing your stress levels
- Drinking alcohol only in moderation (no more than 1 drink a day for women and no more than 2 drinks a day for men)

## When do I need medical attention?

If you think you're having a heart attack, call 911 and seek immediate medical attention. If your chest pain is ongoing, make an appointment with your doctor to discuss the pain and ways to treat it.

## What tests will I need?

If you experience chest pain regularly, your doctor will likely order several tests to figure out the cause. One type of test is a blood draw to check your cholesterol and blood sugar levels.

Your doctor may also refer you for imaging tests, including:

- **Echocardiogram (eck-oh-car-dee-oh-gram) (EKG).** A probe uses sound waves to produce a video image of your heart, which may be used to identify whether an area of your heart has been damaged by a heart attack and isn't pumping normally.
- **Chest X-ray.** Your doctor may use a chest X-ray to check the size and shape of your heart and blood vessels.

- **Nuclear scan.** Small amounts of radioactive material are injected into your bloodstream. Special cameras are then used to detect the radioactive material, identifying blood flow problems to your heart.
- **Computerized tomography (CT) angiogram (an-jee-oh-gram).** During a CT angiogram, you receive an injection of radioactive dye and are moved through a scanning machine. The CT scanner takes images of the arteries in your heart, revealing whether they're narrowed or blocked.
- **Coronary angiogram/cardiac catheterization (kath-eh-ter-ih-zay-shun).** A liquid dye is injected through a long tube that is usually fed through an artery in your leg into the arteries in your heart. The dye fills these arteries so that they are visible on an X-ray, revealing areas of narrowing or blockage.
- **Exercise stress test.** Sometimes heart problems are easier to diagnose when the heart is working hard and beating fast. During a stress test, you exercise or take medication while heart tests are performed.

## How is ACS treated?

Lifestyle changes are often the best ways to prevent or control heart disease. However, sometimes medication is needed, and your doctor will create a treatment plan with you based on your history of heart attack(s), family history, and current symptoms. Medications include:

- **Antiplatelet drugs**, including aspirin, keep blood clots from forming.
- **Anticoagulants**, also known as blood thinners, prevent blood from clotting or prevent existing clots from getting larger.
- **Digitalis** makes the heart contract harder when the heart's pumping function has been weakened.
- **Angiotensin (an-jee-oh-ten-sin) converting enzyme (ACE) inhibitors** stop production of a chemical that narrows blood vessels.
- **Beta blockers** slow the heart rate and make it

beat with less contracting force so that the heart works less hard.

- **Nitrates** relax blood vessels and work to stop chest pain.
- **Calcium channel blockers** are used to treat high blood pressure and chest pain by relaxing blood vessels.
- **Diuretics**, sometimes called "water pills," treat high blood pressure by decreasing fluid in the body.
- **Blood cholesterol-lowering agents** decrease low-density lipoprotein cholesterol (LDL-C, or "bad" cholesterol) levels in the blood.
- **Thrombolytic** agents are given during a heart attack to break up a blood clot in the coronary artery and restore blood flow.

Surgery may be required when medication is not enough to treat your ACS symptoms. Procedures include:

- **Angioplasty (an-gee-oh-plas-tee) and stenting.** During this procedure, your doctor inserts a tube into the blocked or narrowed part of the artery in your heart. A deflated balloon is passed through the tube and is then inflated, unclogging your arteries by crushing the deposits against your artery walls. A mesh tube (also known as a stent) is often left in the artery to help keep the artery open.
- **Coronary bypass surgery.** This procedure creates an alternative route for blood to go around a blocked coronary artery.

Acute coronary syndrome is often diagnosed in a hospital, but if you regularly experience chest pain, schedule an appointment with your doctor to discuss your symptoms. To learn more about plaque buildup in your arteries and accompanying chest pain causes, visit <http://www.nhlbi.nih.gov/health/health-topics/topics/angina>.