

Coronary artery spasm (Prinzmetal angina)

What is coronary artery spasm?

Coronary artery spasm (CAS) is a temporary discomfort or pain that is caused by a temporary spasm (constriction) in one or more of your coronary arteries (the arteries that supply oxygen and nutrients to your heart). It is sometimes called 'Prinzmetal angina' and usually happens in people aged 50 years or younger.

Spasms can range from very minor to severe, and sometimes may completely block your coronary artery.

CAS that is severe and lasts for more than 15 minutes can permanently damage your heart muscle and can lead to a heart attack. Your heart's electrical system could also be affected during such an episode, causing an arrhythmia (an abnormal heart rhythm). In some cases, an arrhythmia caused by CAS can stop the heart beating, causing sudden death.

What is angina?

Angina is a temporary discomfort or pain that happens when part of your heart muscle is temporarily not able to get enough blood and oxygen to meet its needs.

The most common cause of angina is coronary heart disease (CHD). CHD is when your coronary arteries become clogged with fatty material called 'plaque' or 'atheroma'. Plaque slowly builds up on the inner wall of the arteries, causing them to become narrow. This process is called 'atherosclerosis'. It can start when you are young and be well advanced by middle age.

If your arteries become too narrow, the blood supply to your heart muscle is reduced. Angina occurs when your heart has to work harder than usual, such as during physical activity or extreme emotion, but it can't get enough blood to meet its needs because of the reduced blood supply.

Less commonly, angina is caused by CAS.

What's the difference between angina caused by CHD and CAS?

People whose angina is caused by CHD have discomfort or pain that usually happens during physical activity or extreme emotion and goes away after a few



minutes of rest or by taking angina medicine. However, people whose angina is caused by CAS have discomfort or pain usually in the early hours of the morning, and more often when they are resting or during extreme emotion rather than during physical activity. This is why CAS is also called 'non-exertional angina'.

What causes CAS?

The exact cause of CAS is not well understood. However, things called 'risk factors' increase your chance of developing CAS.

The most common and significant risk factor for developing CAS is smoking. Chemicals in cigarette smoke can make arteries spasm. Being female, having a family history of CHD and some behaviour, such as being aggressive, always on the go or restless (sometimes called a 'type A personality'), also increase your risk.

Some medicines, such as anti-migraine medicines, antibiotics and chemotherapy medicines, can cause CAS. Drugs, including cocaine, marijuana, amphetamines, alcohol and ephedrine-based weight-loss products, can also cause CAS.

CAS can affect people in different ways, and individuals can experience different symptoms. However, people tend to get it early in the morning, at rest or during extreme emotion.

What are the symptoms of CAS?

The pain or discomfort associated with CAS, and other types of angina, usually feels tight, gripping or squeezing, and can vary from mild to severe. It is usually felt in the centre of your chest, but may spread to either or both of your shoulders, your back, neck, jaw or arm. It can even be felt in your hands. Sometimes pain or discomfort is felt in the other areas of your body without being felt in your chest. Many people do not even feel pain – just an unpleasant sensation or discomfort in their chest. CAS may also be experienced as shortness of breath, rather than pain.

How do I know if I have CAS?

Talk with your doctor to find out if you have CAS.

Your doctor will ask you about your symptoms, if you smoke, your lifestyle, if you are taking any medicines or drugs, and your family's medical history. They will also measure your blood pressure and weight, listen to your heart and chest, and order blood tests to measure your blood cholesterol and glucose levels. You may have some other tests too, including an electrocardiogram (ECG), a chest X-ray and an exercise stress test.

You may be referred to a heart specialist for more tests, such as a coronary angiogram – a procedure involving an X-ray of your coronary arteries – to see if they are narrowed or blocked. If the angiogram is done when you have CAS symptoms, your doctor will be able to see the spasm in your artery. If you have a coronary angiogram when the CAS symptoms have stopped, your arteries may appear normal.

How is CAS treated?

Medicines

The symptoms of CAS can usually be relieved by taking medicines such as nitrates and calcium-channel blockers. These medicines help to relax and widen (dilate) the coronary arteries to increase blood flow to your heart. They can also be used to help prevent CAS.

There is also some evidence to support using medicines, such as statins, to stabilise cholesterol and prevent plaque building up inside arteries. Spasms can damage the artery wall, which encourages plaque and blood cells to build up over the damage. Statins can help to prevent plaque building up.

Important note

If CAS is not completely relieved within 10 minutes of rest and taking medicine, or is severe, or gets worse quickly, you may be having a heart attack. Call Triple Zero (000)* immediately and ask for an ambulance. Don't hang up. Wait for advice from the operator.

If you are having a heart attack, getting to hospital quickly can reduce the damage to your heart and increase your chance of survival. Don't ignore the warning signs! Get help fast. Every minute counts.

It is always better to go to hospital and be told it's not a heart attack than to stay at home until it is too late.

*If calling Triple Zero (000) doesn't work from your mobile phone, try 112.

Surgical treatments

- *Stent implantation*
If CAS symptoms continue despite you taking medicine and making lifestyle changes, a special expandable metal tube (a 'stent') may be inserted into your coronary artery to help to keep it open.



- **Implantable cardiac defibrillators (ICD)**
If you have a life-threatening arrhythmia that can't be managed by taking medicine or making lifestyle changes, your doctor may recommend that you have an ICD. An ICD stops an arrhythmia by pacing your heart, or in more serious situations, giving your heart a controlled electric shock or series of shocks to try to return it to its normal rhythm.

How can I reduce my risk of CAS?

To reduce your risk of developing CAS, be smoke-free. This means quitting smoking if you smoke and avoiding other people's smoke (second-hand or passive smoke). It's also important to avoid taking illegal drugs.

If you are concerned about medicines you are taking or want to know if it's okay for you to drink alcohol, talk with your doctor.

You can also help to reduce your risk of developing CAS and other heart problems by:

- taking your medicines as prescribed
- enjoying healthy eating
- being physically active
- controlling your blood pressure and cholesterol
- achieving and maintaining a healthy body weight
- maintaining your psychological and social health.

Want to know more?

If you think you might be at risk of developing CAS or want to find out if you have it, talk with your doctor.

If you'd like to know more about CAS or general heart health, call our Health Information Service on 1300 36 27 87 (local call cost) or email health@heartfoundation.org.au.

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