Understanding Coronary Artery Disease

Coronary artery disease (CAD) can cause decreased blood flow in the blood vessels to the heart. The goal of medical care is to restore blood flow, often by opening the artery with a balloon or stent, or bypassing it completely with a new vessel.

There are three main arteries, one on the right and two on the left side of your heart:
- Right coronary artery
- Left coronary artery
- Left anterior descending artery

Each artery divides into many smaller branches. These arteries are the vessels that can become narrowed in coronary artery disease.

**Plaque decreases blood flow**

When arteries build up fatty deposits, called plaque, along the inside walls, blood traveling through them may become limited. You may hear this called hardening of the arteries or atherosclerosis (ath-RO-skla-RO-sis).

When the blood flow is decreased, less oxygen and nutrients reach the muscles and other organs. Vessels can be partially or fully blocked.

**Risk factors**

Your risk is based on a number of factors, some of which you can control and some you cannot control, such as your age, gender, and family history. You can reduce your risk if you:
- Eat a healthy diet and avoid foods high in cholesterol and saturated fat.
- Exercise most days of the week.
- Control your blood pressure, so it is less than 120/80.
- Lower stress in your life.
- Stop tobacco use if you smoke or use tobacco products.
- Keep your blood sugar within normal levels if you have diabetes.
- Lose weight if you are overweight.
Signs of CAD

You may have one or more of these signs:

- Pressure in the chest
- Shortness of breath
- Feeling tired or weak (fatigue)
- Angina (an-JI-nuh) or chest pain or discomfort. The pain may also occur in the shoulders, arms, neck, jaw, or back. While this is not a heart attack, it can be a serious warning sign, and may indicate that not enough blood and oxygen is getting through the arteries. Angina can occur with exercise or activities that cause your heart rate or blood pressure to increase. Talk to your doctor right away if you have this sign.
- Heart attack, also called a myocardial infarction ((MI), happens when there is a complete lack of blood to part of the heart muscle. A blood clot may form in a narrowed artery and the artery becomes blocked.

Testing

Your doctor may order different tests to check if you have coronary artery disease. These may include:

- Electrocardiogram: The test is also called an EKG or ECG and it records the electrical activity of the heart.
- Exercise stress test: This test measures how the heart works when you exercise on a treadmill or exercise bike. The goal of the test is to measure your heart, lungs, and general muscle function when more blood and oxygen are needed during periods of activity.
- Nuclear stress test: This test uses medicine to speed up heart rate and check the flow of blood to the heart.
- Cardiac or heart catheterization: This procedure is done to check for problems in coronary arteries. A long, thin tube, called a catheter, is inserted into the leg or wrist artery and advanced toward the heart. A special medicine, called contrast, is injected into the artery, and helps identify blockages or other problems. See the handout, Cardiac Catheterization, for more information.

Treatment

Your doctor use one or more treatments:

- Medicines, such as anticoagulant or antiplatelet drugs, may be needed to thin the blood and make it easier for blood to travel in narrowed vessels. Medicines also may be needed to lower cholesterol, lower blood pressure, or manage blood sugar.
- If a blockage is found during a cardiac catheterization, doctors may work to remove it. This involves using a small balloon to open up a blood vessel called balloon angioplasty, and then placing a stent. A stent is a thin wire mesh that fits firmly against blood vessel walls to keep it open.
- Coronary artery bypass graft (CABG) surgery: If the blockage or artery damage is more severe, a healthy blood vessel from another part of your body may be needed. During surgery, the healthy blood vessel is inserted just past the blockage to restore blood flow to the heart.
- Other treatments may be needed.

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