Commentary
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Coronary Artery Disease: An Overview

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Commentary

Coronary artery disease occurs when your heart's primary blood arteries become damaged or diseased. Coronary artery disease is caused by cholesterol-containing deposits (plaques) in your coronary arteries and inflammation. The coronary arteries supply your heart with blood, oxygen, and nourishment. Plaque development can restrict these arteries, reducing blood flow to the heart. Reduced blood flow may eventually result in chest pain (angina), shortness of breath, or other signs and symptoms of coronary artery disease. A heart attack might be caused by a total blockage. You may not detect a problem until you have a large blockage or a heart attack since coronary artery disease commonly develops over decades. However, there are things you may do to prevent and treat coronary artery disease. A healthy way of living can have a significant impact.

Symptoms

- If your coronary arteries constrict, they won't be able to provide your heart with enough oxygen-rich blood, especially when it's working hard, as it is during exercise. Reduced blood flow may not create any symptoms at first. However, as plaque builds up in your coronary arteries, you may experience the following signs and symptoms of coronary artery disease:
- • Chest discomfort (angina). As if someone were standing on your chest, you may feel pressure or tightness in your chest. Angina is a type of chest pain that typically appears on the middle or left side of the chest. Angina is most commonly brought on by physical or emotional strain. After ceasing the stressful activity, the pain normally goes away within minutes. The pain may be brief or sharp, and it may be felt in the neck, arm, or back in certain persons, particularly women.
- Excessive gasping for air. Shortness of breath or excessive weariness may occur if your heart is unable to pump enough blood to meet your body's needs.
- A heart attack may occur. A heart attack is caused by a totally clogged coronary artery. Crushing pressure in your chest, pain in your shoulder or arm, and shortness of breath and perspiration are all classic indications and symptoms of a heart attack.
- Women are slightly more likely than males to suffer less conventional heart attack signs and symptoms, such as neck or jaw pain. They may also have other symptoms like shortness of breath, exhaustion, and nausea.

Sometimes a heart attack occurs without any apparent signs or symptoms.

Causes

Coronary artery disease is assumed to start when the inner layer of a coronary artery is damaged or injured, which can happen as early as childhood.

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Various things may contribute to the harm, including:

- Smoking
- High blood pressure
- High cholesterol
- Diabetes or insulin resistance
- Not being active (sedentary lifestyle)

When the inner wall of an artery is injured, fatty deposits (plaque) of cholesterol and other cellular waste products tend to form near the injury site. Atherosclerosis is the medical term for this condition. Blood cells called platelets clump together at the location of a plaque rupture or break to try to mend the artery. This clot has the potential to obstruct the artery, resulting in a heart attack.

Risk factors

Risk factors for coronary artery disease include:

- **Age:** Damaged and constricted arteries are more likely as you become older.
- **Sex:** Men are more likely than women to develop coronary artery disease. Women's risk, on the other hand, rises after menopause.
- **Family history:** An increased risk of coronary artery disease is linked to a family history of heart disease, especially if a close relative got heart disease at a young age. If your father or brother was diagnosed with heart disease before the age of 55, or if your mother or sister was diagnosed before the age of 65, your risk is the highest.
- **Smoking:** People who smoke have a much higher chance of developing heart disease. Inhaling secondhand smoke raises a person's risk of developing coronary heart disease.
- **High blood pressure:** High blood pressure that is uncontrolled can cause your arteries to stiffen and thicken, limiting the channel through which blood can flow.
- **High blood cholesterol levels:** High cholesterol levels in the blood can raise the risk of plaque development and atherosclerosis. A high level of low-density lipoprotein (LDL) cholesterol, also known as "bad" cholesterol, can induce high cholesterol. High-density lipoprotein (HDL) cholesterol, also known as "good" cholesterol, can have a role in the development of atherosclerosis.
- **Diabetes**: Diabetes is associated with an increased risk of coronary artery disease. Type 2 diabetes and coronary artery disease share similar risk factors, such as obesity and high blood pressure.

Overweight or obesity: Excess weight typically worsens other risk factors.

Physical inactivity: Lack of exercise also is associated with coronary artery disease and some of its risk factors, as well.

High stress: Unrelieved stress in your life may damage your arteries as well as worsen other risk factors for coronary artery disease.

Unhealthy diet: Eating too much food that has high amounts of saturated fat, trans-fat, salt and sugar can increase your risk of coronary artery disease.

Risk factors often occur together and one may trigger another. For

instance, obesity can lead to type 2 diabetes and high blood pressure. When grouped together, certain risk factors make you even more likely to develop coronary artery disease. For example, metabolic syndrome — a cluster of conditions that includes high blood pressure; high triglycerides; low HDL, or "good," cholesterol; high insulin levels and excess body fat around the waist — increases the risk of coronary artery disease.

Complications

Coronary artery disease can lead to:

- **Chest pain (angina):** When your coronary arteries narrow, your heart may not receive enough blood when demand is greatest — particularly during physical activity. This can cause chest pain (angina) or shortness of breath.
- **Heart attack:** If a cholesterol plaque ruptures and a blood clot forms, complete blockage of your heart artery may trigger a heart attack. The lack of blood flow to your heart may damage your heart muscle. The amount of damage depends in part on how quickly you receive treatment.
- **Heart failure:** If some areas of your heart are chronically deprived of oxygen and nutrients because of reduced blood flow, or if your heart has been damaged by a heart attack, your heart may become too weak to pump enough blood to meet your body's needs. This condition is known as heart failure.
- **Abnormal heart rhythm (arrhythmia):** Inadequate blood supply to the heart or damage to heart tissue can interfere with your heart's electrical impulses, causing abnormal heart rhythms.

Prevention

The same lifestyle habits used to help treat coronary artery disease can also help prevent it. A healthy lifestyle can help keep your arteries strong and clear of plaque. To improve your heart health, follow these tips:

- Quit smoking
- Control conditions such as high blood pressure, high cholesterol and diabetes
- Stay physically active
- Eat a low-fat, low-salt diet that's rich in fruits, vegetables and whole grains
- Maintain a healthy weight
- Reduce and manage stress

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