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Coronary Artery Disease Screening and Diagnosis.

Overview:

Coronary Artery Disease is the most common type of heart disease, affecting about 13 million Americans. The cause of coronary artery disease is atherosclerosis which is the gradual build of plaques in the blood vessels that feed the heart or the coronary arteries.

Over time these plaques – deposits of fat cholesterol, calcium and other cellular sludge can narrow the coronary arteries so that less blood flows to the heart muscle. Diminished blood flow to the heart can cause chest pain (angina) a sudden complete blockage can lead to a heart attack. Every year more than 500,000 Americans die of a heart attack.

The problem is that many people who have coronary artery disease are not aware that they have it. The disease can develop slowly and silently over decades. It can go unnoticed until it produces a heart attack.

Subsequent newsletters will discuss the signs and symptoms, causes and risk factors of coronary artery disease. The focus of this newsletter will be on Screening and diagnosis with some emphasis on some of the newer techniques.

Screening and Diagnosis:

For those who have risk factors for coronary artery disease there are several tests that can be used to diagnose coronary artery disease.

Electrocardiogram (EKG)

In this test patches with wires are attached to your skin to measure electrical impulses given off by the heart. This test can show evidence of a previous heart attack or one that might be in progress. A Holter Monitor is an EKG taken over a 24 hour period. The recorded abnormalities may show evidence of inadequate blood supply to heart. Many times an EKG taken for an Insurance Physical may be the first sign of a potential problem.

Echocardiogram:

This test uses sound waves to produce an image of the heart. An echocardiogram can help identify whether an area of the heart has been damaged from a lack of blood supply by assessing how well that area moves during each heartbeat. A Stress Echocardiogram can help to identify diminished blood flow to the heart during exercise. An echocardiogram provides useful information regarding the Ejection Fraction or the ability of the heart muscle to pump blood.

Stress Test and the Nuclear Stress Test:

Stress Tests help to measure if the heart is getting adequate blood supply. They may be used to evaluate symptoms such as chest pain, shortness of breath during exertion. It can be used as a screening tool if you have no symptoms. These tests do have their shortcomings such as if the person has certain abnormalities on the resting EKG then the results of the Treadmill EKG may not be accurate. If they are positive quite frequently the doctor will advise a Nuclear Stress Test. In this test trace amounts of radioactive material such as thallium or a compound called cardiolite are injected into the blood stream. Special cameras can detect areas in the heart that receive less blood flow. These are far more accurate than the traditional treadmill EKG. The Nuclear Stress Test can also be effective in measuring the Ejection Fraction (ability of the heart muscle to pump blood).

Coronary Angiography:

This has long been considered the Gold Standard or the definitive test for coronary artery disease. It can show specific sites on narrowing in the coronary arteries. A small tube (catheter) is inserted into an artery in the arm or groin and threaded into the heart. A dye is injected into the catheter as the dye flows through the arteries the doctor can see narrow areas and blockages with the help of x rays. This test also has the advantage of measuring the function of the Left Ventricle. The Angiography test more than any other test currently available provides the clearest picture of how much coronary artery disease is present. It is also the most expensive test.

Electron beam computerized tomography (EBCT):

This test is also called an ultra fast CT scan can detect calcium within plaques that narrow the coronary arteries. Most of the plaques but no all contain some calcium. If a substantial amount of calcium is discovered coronary artery disease is felt to be likely. There has been some controversy regarding these tests. Critics of the scans indicate that the technology is still being refined say that they are not accurate enough to predict who will have a heart attack. Proponents argue that the results can serve as a wake up call to modify lifestyle. They are far less costly than Stress Tests or Nuclear Stress Tests. They are not useful if the person has had a heart attack or angioplasty or CABG. There usefulness seems to be as a screening tool for someone who may be at risk for heart disease not someone who already has it or known to be at high risk.

Coronary magnetic resonance angiography (MRI of the Heart):

This technique uses magnetic waves to produce a three dimensional image of the coronary arteries to check for narrowing or blockages. While this technique is still being developed it does have the advantages of producing actual images of the coronary arteries with a non invasive procedure such as the Angiogram. The Coronary CTA can provide detailed and precise 2D and 3 D images of the heart at work. In addition of the 1.5 million people who undergo diagnostic coronary catherizations about half of them have normal or near normal results? Until the advent of the Coronary CTA there was no real alternative to the Coronary Angiography. This is a far more effective test for diagnosing and flowing coronary artery disease than the EBCT.

The various Screening and Diagnostic tests for coronary artery disease are just a part of the total risk assessment process in Life Underwriting. Other factors certainly include risk factors medications lifestyle changes stress that play a large part in evaluation the applicant at risk for coronary artery disease as well as the applicant who already has proven coronary artery disease. With the development of the Coronary Magnetic Resonance Angiography a valuable alternative to Coronary Angiography is being developed. Because Angiography is invasive it does carry increased risk. In addition it is an expensive procedure. CTA is a far more cost efficient method of defining the degree of disease in an individual. The CTA scan results will be able to give both cardiologists and life underwriters a far clearer picture of the degree of disease present at a far more effective cost than an Angiography. This is particularly true of those applicants who have already been diagnosed with coronary artery disease and have had CABG or Angioplasties.

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