PrevaHealth
WELLNESS DIAGNOSTIC CENTER

Understanding Heart Disease

The heart is a hollow, muscular organ that serves as a pump to circulate blood throughout the body. With each beat, the heart sends blood to nearly every cell in the body- a journey that requires over 10,000 miles of blood vessels. In an average lifespan, a human heart beats more than 2.5 billion times. Together, the heart and blood vessels constitute the cardiovascular system.

The most frequent cause of sudden death among adults is a blockage in one of the arteries that provide blood to this heart muscle. A buildup of **plaque** is the usual cause of this blockage. This buildup (atherosclerosis) usually occurs without symptoms and is often undetectable by stress testing until it advanced stages. Far too often, the victim first becomes aware of this blockage by suffering a heart attack. Cardiovascular Disease (CVD) refers to the problems that can disrupt this intricate and vital pumping system.

Identifying the Problem

Cardiovascular Disease is the Nation's leading killer of adults. Approximately 50% of men and 56% of women ultimately die of a heart attack, heart failure, heart arrthymia, or complications of vascular disease, most notably stroke and aortic aneurysms. In the US a person dies of heart disease every 29 seconds. While the death toll is staggering, it is only part of the picture. Those CVD victims who survive struggle each day with its effects. One out of every 4 adults has CVD; this converts to about 57 million people in the US resulting in 6 million hospitalizations per year and disability for an additional 10 million.

Often referred to as "the silent killer," the disease typically remains undetected until a major cardiac event occurs. About half of the 1,500,000 Americans who have heart attacks each year have no warning symptoms- their first, last and only symptom of coronary artery disease is a fatal heart attack. Nearly one third of the fatal heart attack victims have no known risk factors.

Given its insidious nature, it is important to have a diagnostic test that can identify coronary atherosclerosis in its earliest stages, long before symptoms occur. Unfortunately, the pumping of the heart and the sympathetic pulsing of the blood vessels make it very difficult to take an accurate image of these structures with conventional imaging modalities. Simply waiting for symptoms to occur can be fatal.

The greatest tragedy of all is that, for most people, cardiovascular disease is preventable if found in its early stages.

Who is at risk?

A number of risk factors have been identified that increase the likelihood of having CVD. These include abnormal blood cholesterol, high blood pressure, smoking, obesity, physical inactivity, diabetes, and a variety of other contributing risks. Published guidelines allow a doctor or a patient to estimate their risk by performing a point score calculation based upon their risk factors. This is called the Framingham Risk Calculation and is good starting point for all adults. However, the Framingham Risk Calculation cannot quantify certain individualized factors including issues of heredity (a family history of a heart attack in a parent or sibling increases your own risk substantially) or environmental factors and personal lifestyle choices.

Thus, while the Framingham Risk Calculation is relatively accurate in distinguishing those at very low risk from those at very high risk, the average risk person (about 40% of the adult population) is often mis-classified. The electrocardiogram (EKG) is only abnormal AFTER a heart

attack in most individuals and a stress test is only abnormal AFTER you already have advanced blocked arteries. Early detection of developing CVD is obviously the best approach.

What can be done?

As noted above, the buildup of **plaque** is the usual cause of the blockages that cause CVD. This plaque first shows itself as calcified particles in the cardiovascular system. This calcification (hardening) of the heart and vascular arteries is an absolute marker for the presence of atherosclerotic plaque. A state of the art imaging technology, called Electron Beam Tomography (EBT) can take images of the heart and vascular system at speeds up to 10 times faster than conventional CT (also known as 'CAT scans') scanners. This unique ability allows for an accurate picture of the moving components of the cardiovascular system, the heart and vital blood vessels, to detect the presence of cardiovascular disease in its earliest stages-years, or even decades before your first symptom and when it is most easily treated. Once the disease is found, there are many treatments, medications and lifestyle modifications that can be prescribed to manage, delay and, in many cases, reverse the disease.

The EBT HeartScan, first introduced over a decade ago, is considered by the American Heart Association as the "gold standard" in non-invasive assessment of overall coronary artery plaque burden and the risk of cardiovascular disease. This state-of-the-art technology allows for an accurate picture of the moving components of the cardiovascular system, the heart and vital coronary arteries, to detect the presence of disease in its earliest stages- years, or even decades before your first symptom and when it is most easily treated.

At PrevaHealth we use innovative EBT e-Speed™ technology to look at your heart and coronary arteries (HeartScan) or to examine the vascular system (VascularScan). We use this information to provide you and your doctor a "HealthPATH" designed specifically for you.*

* The EBT e-Speed™, was developed by General Electric, the world leader in medical imaging and is exclusively available in Ohio at the PrevaHealth Wellness Diagnostic Center

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