

Center for **Cardiovascular** Health

"Empowering patients in the pursuit of optimal health by providing compassionate cardiovascular care addressing the Causes, Prevention, Treatment, and Reversal of the Disease."

CARDIOVASCULAR HEALTH TESTS

Lipid Profile

Cholesterol

Total serum cholesterol analysis is useful in the diagnosis of hyperlipoproteinemia, atherosclerosis, hepatic and thyroid diseases, as well as the risk of developing cardiovascular disease.

LDL Direct

LDL is the "bad" cholesterol. Even within the normal range of total cholesterol concentrations, an increase in LDL cholesterol can produce an associated increased risk for cardiovascular disease. LDL cholesterol binds to receptor sites on macrophages in blood vessel walls inciting several changes to the blood wall, which enhance atherosclerotic plaque development.

HDL Direct

HDL (the "healthy" or "good" cholesterol) is inversely related to the risk for cardiovascular disease. It increases following regular exercise, moderate alcohol consumption and with oral estrogen therapy. Decreased levels are associated with obesity, stress, cigarette smoking and diabetes mellitus.

Triglycerides

Triglycerides are fats from the food we eat that are carried in the blood. Most of the fats we eat, including butter, margarine and oils, are in triglyceride form. Excess calories, alcohol or sugar in the body turn into triglycerides and are stored in fat cells throughout the body. This test will measure the amount of triglycerides in the blood.

Apolipoproteins

Apolipoprotein B

Apo B carries the “bad” cholesterol, so lower levels are best. The major protein found in the high risk lipoprotein particles LDL, Lp(a) and VLDL. The Apo B is a reflection of the number of lipoprotein particles carrying bad cholesterol in the blood. High ApoB levels show an increased CVD risk. ApoB is more reliable than LDL-C as a CVD risk factor.

Apolipoprotein A-1

Apo A-1 represents the “good” cholesterol, so higher levels are best. Apolipoprotein A-1 (Apo A-1) has been reported to be a better predictor than HDL cholesterol and triglycerides for coronary artery disease. Low levels of Apo A-1 in serum are associated with increased risk of coronary artery disease. Measurement of Apo A-1 may be of value in identifying patients with atherosclerosis.

Inflammation

Lp PLA2

This enzyme plays a role in the inflammation of blood vessels. A build-up of unstable fatty plaque deposits in the arteries causes inflammation and leads to blockages in the blood vessels and may eventually cause a heart attack, brain damage, or stroke. LpPLA2 is an independent risk marker for cardiovascular disease and other heart diseases.

Homocysteine

Homocysteine is ordered as part of a screen for heart attack or stroke. Elevated levels damage the blood vessels. High levels can be caused genetics, nutritional deficiency of folate and B vitamins, certain medications or kidney disease.

hs-CRP

C-reactive protein (CRP) is a protein that the liver makes when there is inflammation in the body. It's also called a marker of inflammation, and can be measured with an hs-CRP (high-sensitivity C-reactive protein) test. Inflammation is a way for the body to protect itself from injuries or infections, and inflammation can be caused by smoking, high blood pressure, and high blood sugar. Elevated levels may be evidence of inflammation linked to heart disease.

Oxidized LDL

Oxidized LDL is LDL cholesterol (the "bad" cholesterol) that has been modified by oxidation. Oxidized LDL triggers inflammation leading to the formation of plaque in the arteries, also known as

atherosclerosis. Oxidized LDL may also play a role in increasing the amount of triglycerides the body produces, as well as increasing the amount of fat deposited by the body. In turn, fat tissue can enhance the oxidation of LDL, creating a vicious cycle.

Uric Acid

The substance produced by breakdown of protein. High levels can lead to gout, a type of inflammation and arthritis often at the base of the large toe. Elevated uric acid levels in the blood stream have also been associated with increased CVD risk.

Myocardial Stress

NT-proBNP

NT-proBNP is primarily secreted from the cardiac ventricular myocytes in response to cardiac stress. NT-proBNP is a useful diagnostic and prognostic tool as elevated levels may indicate the presence of an underlying cardiac disorder.

Lipoprotein Markers

Lp(a)

Lp(a) is resistant to treatment and it is important to aggressively treat all associated atherogenic lipoprotein abnormalities.

REFERENCES

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