Lipoprotein (a) in Serum

Background

Lipoprotein (a) [Lp(a)] is a spherical lipid particle that is genetically determined and remains at relatively constant levels over an individual's lifetime. It contains two cross-linked proteins as part of its structure: apolipoprotein(a) covalently bound to apolipoprotein B-100. Lp(a) is important as a serum marker for coronary artery disease independent of diet and lipid levels. Elevated Lp(a) levels are associated with increased risk and severity of atherosclerosis, coronary heart disease and stroke.

Similar to LDL-cholesterol, Lp(a) is synthesized in the liver. Although Lp(a) shows some homology to LDL-cholesterol in structure, Lp(a) differs from LDL in molecular weight, electrophoretic mobility and protein/lipid ratio. Physiologic circulating levels of Lp(a) do not appear to be regulated by the same mechanisms of LDL-cholesterol. Likewise, cholesterol feeding does not appear to increase levels of Lp(a) in plasma, although it does increase levels of LDL-cholesterol. Most pharmacologic agents that have an effect on lowering LDL-cholesterol levels have little effect on levels of Lp(a), thus also indicating regulation under different metabolic control.

The causes of high Lp(a) are kidney disease and certain family (genetic) lipid disorders.

Clinical Indications

Patients with a family history of elevated Lp(a) and/or a family history of premature cardiovascular disease that is not explained by high LDL or low HDL. Also used for heart disease patients with a normal lipid profile and mildly elevated cholesterol and/or low-density lipoprotein cholesterol (LDL-C), as it is believed that an elevated Lp(a) may worsen other heart and vascular disease processes. An elevated Lp(a) may suggest the need for more aggressive treatment of LDL and other, more treatable risk factors down to acceptable levels.

Limitations of the Assay

For the most accurate results, wait at least two months after a heart attack, surgery, stroke, infection, injury, or pregnancy to check blood level. In general, lipids should not be measured right after excessive alcohol intake, with severely uncontrolled diabetes, or during rapid weight loss.

Methodology

Lipoprotein (a) in serum is quantitatively measured on the Immage 800 Immunochemistry system by rate nephelometry. Antibody to human Lp(a) is brought into contact with Lp(a) in a sample.

The IMMAGE 800 Test measures the rate of increase in light scattered from particles suspended in solution as a result of complexes formed during an antigen-antibody reaction.

The increase in light scatter resulting from the antigen-antibody reaction is converted to a peak rate signal, which is a function of the sample Lp(a) concentration. Following calibration, the peak rate signal for a particular assay is automatically converted to concentration units by the analyzer.

References

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Test Overview

Test Name	Lipoprotein (a)
Methodology	Nephelometry (NEPH)
Reference Range	0-40 mg/dL
External Specimen Requirements	Testing Volume/Size: 1 mL; Type: Serum; Tube/Container: SST (Gold); Transport Temperature: Refrigerated.
Minimum Specimen Requirements	Volume/Size: 0.5 mL
Special Information	Patients should fast for at least 12 hours before blood is drawn.
Clinical Information	Evaluation of coronary artery disease risk associated with elevations of the atherogenic lipoprotein (a).
Billing Code	32054
CPT Code	83695

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