Oxidized LDL (OxLDL)

CPT Code 83516
Sample Type EDTA Plasma or Serum

Order Code C335
Tube Type Lavender Top or Tiger Top

inflammation

Increased OxLDL levels signify increased risk for:

- Metabolic syndrome
- Cardiovascular disease
- Acute myocardial infarction

OxLDL levels may be decreased by:

- Maintaining a healthy weight/diet
- Exercising more
- Cholesterol-lowering medications

Description

OxLDL measures protein damage due to the oxidative modification of the ApoB subunit on LDL cholesterol. The oxidation of LDL cholesterol is one of the first steps in the development of atherosclerosis. Briefly, LDL-C enters the artery wall where it becomes oxidized. OxLDL is then recognized by scavenger receptors on the macrophages which engulf OxLDL, resulting in foam cell formation, vascular inflammation and the initiation of atherosclerosis.

Clinical Use

The OxLDL test may be performed on individuals at risk of metabolic syndrome.

Clinical Significance

- Individuals with high levels of OxLDL are 3.5X more likely to develop metabolic syndrome in the next 5 years[1].
- Increased OxLDL levels are associated with the presence of coronary artery disease[2-4].
- In healthy middle-aged men, high OxLDL levels are associated with a 4X greater risk of developing coronary heart disease[5].
- Levels of OxLDL increase in a step-wise fashion as the severity of CAD increases[6].
- OxLDL levels may be elevated in patients with kidney disease and polycystic ovary syndrome. OxLDL levels should also be interpreted with caution in patients with known autoimmune disorders and those with diseases associated with oxidative stress, such as Alzheimer's disease.

Testing Frequency

The OxLDL test can be ordered in conjunction with standard/advanced lipid testing and/or inflammation testing.

Sample Type

The OxLDL test should be performed on a serum or EDTA plasma sample.

Commercial Insurance or Medicare Coverage

Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination) have not been established or posted by CMS (Medicare and Medicaid). We have reviewed the larger carriers (Aetna, United Healthcare, Cigna, Blues) and information has not been posted or is limited.

Understanding Medical Necessity

The following ICD-10 codes for OxLDL are listed as a convenience for the ordering physician. The ordering physician should report the diagnosis code that best describes the reason for performing the test.

Diagnosis	Diagnosis Code
Type 2 Diabetes Mellitus with Hyperglycemia	E11.65
Type 2 Diabetes Mellitus without Complications	E11.9
Other Specified Diabetes Mellitus without Complications	E13.9
Pure Hypercholesterolemia	E78.0
Mixed Hyperlipidemia	E78.2
Other Hyperlipidemia	E78.4
Hyperlipidemia, Unspecified	E78.5
Hyperuricemia without Signs of Inflammatory Arthritis and Tophaceous Disease	E79.0
Essential (primary) Hypertension	I10
Atherosclerotic Heart Disease of Native Coronary Artery without Angina Pectoris	I25.10

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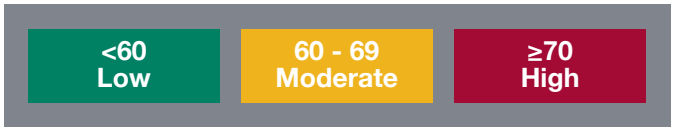
RELATIVE RISK

OxLDL (U/L)



Treatment Considerations

These treatment considerations are for educational purposes only. Specific treatment plans should be provided and reviewed by the treating practitioner.

✓ **Assess lifestyle habits.**

- Consider diet/exercise/weight reduction efforts if appropriate.

✓ **Assess LDL-C levels.**

- If not at goal, consider lipid-lowering therapy, ideally with a statin-based regimen if not contraindicated.

✓ **Assess insulin sensitivity.**

- Consider an OGTT since metabolic syndrome is associated with an insulin insensitive state. This is especially prudent if other markers such as hsCRP, Lp-PLA_2 and/or MPO are elevated.

References

1. Holvoet P et al. Association between circulating oxidized low-density lipoprotein and incidence of the metabolic syndrome. *JAMA*. 2008; 299: 2287-2293.
2. Holvoet P et al. Circulating oxidized LDL is a useful marker for identifying patients with coronary artery disease. *Arterioscler Thromb Vasc Biol*. 2001; 21: 844-848.
3. Nishi K et al. Oxidized LDL in carotid plaques and plasma associates with plaque instability. *Ateriosclr Thromb Vasc Biol*. 2002; 22: 1649-1654.
4. Tsimikas S et al. Oxidized phospholipids, Lp(a) lipoprotein, and coronary artery disease. *N Engl J Med*. 2005; 353: 46-57.
5. Meisinger C et al. Plasma oxidized low-density lipoprotein, a strong predictor for acute coronary heart disease events in apparently healthy, middle-aged men from the general population. *Circulation*. 2005; 112: 651-657.
6. Ehara S et al. Elevated levels of oxidized low density lipoprotein show a positive relationship with the severity of acute coronary syndromes. *Circulation*. 2001; 103: 1955-1960.

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