Lp-PLA\textsubscript{2} Activity

Increased activity of Lp-PLA\textsubscript{2} may lead to increased relative risk of:
- Coronary heart disease (CHD)
- Myocardial infarction (MI)

Lp-PLA\textsubscript{2} Activity can be reduced by:
- Treatment with lipid-lowering therapies
- Increased omega-3 fatty acid
- Lifestyle modifications

Description
Lp-PLA\textsubscript{2}, or lipoprotein-associated phospholipase-A\textsubscript{2}, measures disease activity within the artery wall below the collagen or calcified cap due to the activation of macrophages. Lp-PLA\textsubscript{2} is not an acute-phase reactant. When disease is active in the artery, increased levels of Lp-PLA\textsubscript{2} are produced by macrophages and foam cells within the intima of the artery.\textsuperscript{1} Lp-PLA\textsubscript{2} also interacts with oxidized low-density lipoprotein (oxLDL), which increases inflammation and enhances a proatherogenic state, as well as plaque vulnerability.\textsuperscript{2}

Clinical Use
The Lp-PLA\textsubscript{2} Activity test may be performed on individuals at intermediate or high relative risk for developing cardiovascular disease (CVD).

Clinical Significance
- Lp-PLA\textsubscript{2} accumulates within human atherosclerotic plaques and vulnerable lesions.\textsuperscript{3}
- Individuals with elevated Lp-PLA\textsubscript{2} Activity are nearly twice as likely to develop CHD at 7 years regardless of non-high-density lipoprotein cholesterol levels.\textsuperscript{4}
- Individuals with elevated Lp-PLA\textsubscript{2} Activity are twice as likely to experience a CHD event (MI, coronary revascularization or CHD-related death) at 5 years.\textsuperscript{5}

Testing Frequency
Lp-PLA\textsubscript{2} testing is determined by an individual's medical history, but may be performed semi-annually or annually as necessary. If the initial test result is abnormal, then follow-up testing may be performed within 3-6 months following treatment.

Specimen Type
The Lp-PLA\textsubscript{2} Activity test should be performed on a serum or EDTA plasma specimen. Fasting is preferred, but not required.

Commercial Insurance or Medicare Coverage
Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination), have been established or posted by CMS (Medicare & Medicaid). Guidelines should be reviewed for coverage and limitations. Limited information has been provided by the majority of the larger carriers (Aetna, UnitedHealthcare, Cigna, Blues).
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. 6
- **Assess LDL-C levels.**
  - If not at an optimal level, consider lipid-lowering therapies described in the National Cholesterol Education Program/Adult Treatment Panel III (NCEP ATP III) Guidelines. 7-9
- **Assess clotting risk.**
  - Consider antiplatelet therapy if history of CAD (ie, myocardial infarction or revascularization) or a history of cerebrovascular disease (ie, transient ischemic attack or stroke). 10
- **Assess blood pressure.**
  - If not at an optimal level, consider initiating or titrating antihypertensive therapy. 10
- **Assess omega-3 fatty acid levels.**
  - If not at an optimal level, consider fish oil supplements, other dietary supplements, and dietary recommendations for increasing omega-3 fatty acid levels. 11, 12
- **Assess dental health (periodontal disease).**
  - Refer to dentist to identify gum disease. Poor dental health may cause significant inflammation and is associated with the presence of atherosclerosis. 15, 16

### Treatment Considerations†

- Assess LDL-C levels.
- Assess clotting risk.
- Assess blood pressure.
- Assess omega-3 fatty acid levels.
- Assess dental health (periodontal disease).

† The treatment considerations are provided for informational purposes only and are not intended as medical advice. A physician’s test selection and interpretation, diagnosis, and patient management decisions should be based on his/her education, clinical expertise, and assessment of the patient.

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**References**