Medical Coverage Policy | Measurement of Small Low-Density Lipoprotein (LDL) Particles

EFFECTIVE DATE: 02|01|2005
POLICY LAST UPDATED: 09|05|2017

OVERVIEW
Lipoprotein-associated phospholipase A2 (Lp-PLA2), is an enzyme that hydrolyzes phospholipids and is primarily associated with low-density lipoproteins (LDLs). Accumulating evidence has suggested that Lp-PLA2 is a biomarker of coronary artery disease (CAD) and may have a proinflammatory role in the progression of atherosclerosis.

MEDICAL CRITERIA
Not applicable

PRIOR AUTHORIZATION
Not applicable

POLICY STATEMENT
BlueCHiP for Medicare and Commercial Products
Measurement of lipoprotein-associated phospholipase A2 (Lp-PLA2) is considered not medically necessary as the evidence is insufficient to determine the effects of the technology on health outcomes.

COVERAGE
Benefits may vary between groups/contracts. Please refer to the appropriate section of the Benefit Booklet, Evidence of Coverage or Subscriber Agreement for services not medically necessary.

BACKGROUND
Low-density lipoproteins (LDL) have been identified as the major atherogenic lipoproteins and have long been identified by the National Cholesterol Education Project (NCEP) as the primary target of cholesterol-lowering therapy. LDL particles consist of a surface coat composed of phospholipids, free cholesterol, and apolipoproteins, surrounding an inner lipid core composed of cholesterol ester and triglycerides. Traditional lipid risk factors such as low-density lipoprotein-cholesterol (LDL-C), while predictive on a population basis, are weaker markers of risk on an individual basis. Only a minority of subjects with elevated LDL and cholesterol levels will develop clinical disease, and up to 50% of cases of coronary artery disease (CAD) occur in subjects with 'normal' levels of total and LDL cholesterol. Although treatment for elevated coronary disease risk with statins targets cholesterol levels, selection for treatment involves estimation of future CAD risk using well-validated prediction models that use additional variables.

Lipoprotein-associated phospholipase A2 (Lp-PLA2), also known as platelet-activating factor acetylhydrolase, is an enzyme that hydrolyzes phospholipids and is primarily associated with LDLs. Accumulating evidence has suggested that Lp-PLA2 is a biomarker of CAD and may have a proinflammatory role in the progression of atherosclerosis. Recognition that atherosclerosis represents, in part, an inflammatory process has created considerable interest in measurement of proinflammatory factors as part of cardiovascular disease risk assessment.

Interest in Lp-PLA2 as a possibly causal risk factor for CAD has generated development and testing of Lp-PLA2 inhibitors as a new class of drugs to reduce risk of CAD. However, clinical trials of Lp-PLA2 inhibitors

have not shown significant reductions in CAD end points. Furthermore, assessment of Lp-PLA2 levels has not been used in the selection or management of subjects in the clinical trials.

For individuals who have a risk of cardiovascular disease (CVD) who receive lipoprotein-associated phospholipase A2 (Lp-PLA2) testing, the evidence includes studies of analytic validity and studies of the association between Lp-PLA2 and various coronary artery disease outcomes. Relevant outcomes are overall survival, disease-specific survival, and test validity. The studies have demonstrated that Lp-PLA2 levels are an independent predictor of CVD. Evidence of clinical utility is lacking. To improve outcomes, clinicians must have the tools to incorporate Lp-PLA2 test results into existing risk prediction models, and-these models should demonstrate improved classification into risk categories that will improve treatment and health outcomes. Direct evidence for improved health outcomes with the use of Lp-PLA2 in clinical practice is lacking. Although Lp-PLA2 levels are associated with CVD risk, changes in patient management that would occur as a result of obtaining Lp-PLA2 levels in practice are not well-defined. The evidence is insufficient to determine the effects of the technology on health outcomes. Therefore, this service is not medically necessary for BlueCHiP for Medicare and Commercial products.

CODING

BlueCHiP for Medicare and Commercial Products
The following code is considered not medically necessary:
83698

RELATED POLICIES

Novel Biomarkers in Risk Assessment and Management of Cardiovascular Disease

PUBLISHED

Provider Update, November 2017
Provider Update, January 2017
Provider Update, October 2015
Provider Update, January 2014
Provider Update, December 2011
Provider Update, January 2011
Provider Update, August 2009
Provider Update, November 2008

REFERENCES

1. National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. Adult Treatment Panel III guidelines. 2001; http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3xsum.pdf. Accessed April, 2015.

2. Food and Drug Administration (FDA). 510(K) Summary -- diaDexus PLAC Test. 2013; http://www.accessdata.fda.gov/cdrh_docs/pdf3/K030477.pdf. Accessed April, 2015.

3, Wallentin L, Held C, Armstrong PW, et al. Lipoprotein-associated phospholipase A2 activity is a marker of risk but not a useful target for treatment in patients with stable coronary heart disease. J Am Heart Assoc. Jun 21 2016;5(6). PMID 27329448

4. O'Donoghue ML, Braunwald E, White HD, et al. Effect of darapladib on major coronary events after an acute coronary syndrome: the SOLID-TIMI 52 randomized clinical trial. JAMA. Sep 10 2014; 312(10):1006-1015. PMID 25173516

5. Nicholls SJ, Kastelein JJ, Schwartz GG, et al. Varespladib and cardiovascular events in patients with an acute coronary syndrome: the VISTA-16 randomized clinical trial. JAMA. Jan 15 2014; 311(3):252-262. PMID 24247616

6. Goff DC, Lloyd-Jones DM, Bennett G, et al. 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation. November 12, 2013 2013

7. Ryu SK, Mallat Z, Benessiano J, et al. Phospholipase A2 enzymes, high-dose atorvastatin, and prediction of ischemic events after acute coronary syndromes. Circulation. Feb 14 2012;125(6):757-766. PMID 22230483

8. Garg PK, McClelland RL, Jenny NS, et al. Lipoprotein-associated phospholipase A2 and risk of incident cardiovascular disease in a multi-ethnic cohort: The multi ethnic study of atherosclerosis. Atherosclerosis. Jul 2015;241(1):176-82. PMID 26004387

9. Cai A, Li G, Chen J, et al. Increased serum level of Lp-PLA2 is independently associated with the severity of coronary artery diseases: a cross-sectional study of Chinese population. BMC Cardiovasc Disord. 2015; 15:14. PMID 25879827

10. Celik O, Ozturk D, Akin F, et al. Evaluation of lipoprotein-associated phosholipase A2 and plaque burden/composition in young adults. Coron Artery Dis. May 2015;26(3):266-71. PMID 25647459

CLICK THE ENVELOPE ICON BELOW TO SUBMIT COMMENTS