

## MARKERS OF CARDIOVASCULAR RISK Lp-PLA2(PLAC TEST)

I have received several calls over the past several months asking if I did the PLAC test. In thinking what I would write about, I decided that I would begin a series devoted to explaining the newest risk factors that can be used as markers of increased cardiovascular risk.

The first marker I want to discuss is Lipoprotein-associated Phospholipase A2( Lp-PLA2). Lp-PLA2 can be measured using a widely available laboratory test called the PLAC test. It is an enzyme that, in humans, is bound to the lipoprotein particles. Lipoprotein particles are the vehicles that drive cholesterol around the body and also into the walls of an artery causing atherosclerosis. The most abundant lipoprotein particle that is responsible for clogging ones' arteries is the LDL particle (LDL-P). Lp-PLA2 is involved in the production of proinflammatory products. There has been some controversy regarding the exact biological role of Lp-PLA2 activity on atherosclerosis. Studies do suggest that Lp-PLA2 is closely aligned with the key stages of atherosclerosis. In addition to being associated with LDL particles, it is secreted by the cells responsible for inflammation within a plaque inside of an artery wall. In numerous epidemiological studies, an independent association between Lp-PLA2 concentrations and an increased risk of cardiovascular events has been observed in individuals with varying degrees of baseline risk. If one looks at histological sections of the arterial plaques that have increased risk for rupture, there is increased staining for Lp-PLA2. Simply put, an increased level of Lp-PLA2 is associated with an increased risk of cardiovascular events, namely ischemic strokes.

Lp-PLA2 testing is not yet formally endorsed by a CDC/American Heart Association panel. A recent expert committee was convened to establish an algorithm to most appropriately interpret Lp-PLA2 testing. The expert panel said that the PLAC test is not appropriate to further stratify risk in patients who did not require treatment for

high cholesterol. They did state that an Lp-PLA2 level >200ng/ml would warrant reclassifying the patient to the next highest risk category which would require more aggressive treatment of the high cholesterol levels. Lp-PLA2 may play an important role in the progression of atherosclerosis and overall plaque stability. In the future, Lp-PLA2 may be a viable target to further reduce global cardiovascular risk.