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Abstract 3531: Lipoprotein-associated Phospholipase A₂ Mass Is Significantly Reduced In Dyslipidemic Patients Treated With Lifestyle Counseling And Combination Lipid Modifying Drug Therapy

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Background: Lipoprotein-associated phospholipase A₂ (Lp-PLA₂) mass is a novel inflammatory biomarker and independent predictor for cardiovascular disease. In human blood, Lp-PLA₂ is predominately associated with low-density lipoprotein (LDL). Thus, it is hypothesized that changes in Lp-PLA₂ should mirror changes in levels of LDL. To our knowledge, no studies exist which have examined the efficacy of lifestyle intervention and lipid drug therapy on reducing levels of Lp-PLA₂ while also determining the relationship between changes in LDL and Lp-PLA₂. Therefore, the primary purpose of this study was to assess the ability of lifestyle and combination lipid drug therapy to reduce levels of Lp-PLA₂ among patients treated for mixed dyslipidemia. The secondary purpose was to examine the relationship between changes observed in Lp-PLA₂ and LDL cholesterol (LDL-C).

Methods: Thirty dyslipidemic patients who received lifestyle intervention and combination lipid altering drug therapy for an average period of 6 months were included in these analyses (mean age=60.9, 40% with stable angiographically established CAD, 40% metabolic syndrome, 70% male). Lifestyle intervention included diet and exercise counseling. Drug therapy included omega-3 fish oil, extended release niacin, colesvelam HCl and a fixed combination of 10 mg ezetimibe and 40 mg simvastatin. Measures of Lp-PLA₂ were determined by an FDA approved ELISA assay (PLAC™ test, diaDexus, Inc.), whereas LDL-C was calculated with the Friedewald equation using overnight fasting blood samples.

Results: The study revealed a 34% reduction in median Lp-PLA₂ values (baseline 230.5 ± 47.4 vs. post-treatment 151.0 ± 35.5 ng/mL; p<.01). Significant changes in mean LDL-C from baseline (129.2 ± 49.0 vs. post-treatment 66.2 ± 32.2 mg/dL; p<.01) was also observed. However, regression analysis revealed only a weak positive relationship between changes in LDL-C and Lp-PLA₂ mass (R²=0.29; p<.01).

Conclusion: Lp-PLA₂ mass is significantly reduced with the use of lifestyle and combination lipid lowering drug therapy. Changes in Lp-PLA₂ were only partially explained by the changes observed for LDL-C.