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Effects of life style intervention & combination lipid modifying therapy on lipoprotein associated phospholipase A2

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Introduction: Lipoprotein associated phospholipase A2 (Lp-PLA₂) is a novel inflammatory biomarker which can identify individuals with high cardiovascular disease risk. We examined the efficacy of life style intervention (diet and exercise) and combination lipid lowering therapy, on reducing the Lp-PLA₂ levels while also determining the relationship between changes in LDL-C and Lp-PLA₂.

Methods: 248 patients who completed the life style intervention and combination therapy for an average period of 10.5 months were included in the study. The mean age was 59.2 years, 43.6% with stable, angiographically established CAD, 50% with metabolic syndrome, and 58% men. Combination therapy included omega 3 fish oil (2000mg/d), extended-release niacin (500-1000mg/d), ezetimibe (10mg/d), fenofibrate (160mg/d) and colesvelam HCl (1850mg/d), as well as statins. The statins used were either simvastatin (20-40mg/d) or rosuvastatin (5-20mg/d). 65% (n=161) received low to medium doses of simvastatin, whereas 35 % (n=87) received low to medium doses of rosuvastatin. Lp-PLA₂ was determined by FDA approved ELISA assay, whereas the LDL-C was calculated using the Friedewald equation.

Results: The study revealed a 32.5% reduction in mean Lp-PLA₂ values (baseline 181.1 ± 41.5 vs. post treatment 122.1 ± 28.1 ng/ml; p=0.000). The change observed in LDL was significant (baseline 126.2 ± 43 vs. post treatment 73.9 ± 37.7 mg/dL, p=0.000). A Pearson correlation test analysis revealed a weak positive association between changes in Lp-PLA₂ and LDL-C (r²=0.052, p=0.000).

Conclusion: Lp-PLA₂ is reduced by life style intervention and combination therapy.

Results also revealed that changes in Lp-PLA₂ are only partially explained by the changes in LDL-C.