



 HYPERTENSION, LIPIDS AND PREVENTION

LIPID AND LIPOPROTEIN BIOMARKERS AND THE RISK OF ISCHEMIC STROKE IN POSTMENOPAUSAL WOMEN

ACC Poster Contributions

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Background: Few studies have simultaneously investigated the role of lipid and lipoprotein biomarkers as predictors of ischemic stroke. The value of these biomarkers as independent predictors of ischemic stroke remains controversial.

Methods: We conducted a prospective nested case-control study of postmenopausal women from the Women's Health Initiative Observational Study to assess the relationship between lipid and lipoprotein biomarkers among 972 women who subsequently developed ischemic stroke, compared with age- and race- matched women who remained free of ischemic stroke. Conditional logistic regressions were used to determine odds ratios (OR) for ischemic stroke.

Results: In univariate analysis, fasting levels of triglycerides ($P<0.001$), IDL particle number ($P<0.01$), LDL particle concentration ($P<0.01$), VLDL triglyceride ($P<0.001$), VLDL particle concentration ($P<0.01$), VLDL size ($P<0.001$), and total cholesterol/HDL ($P<0.01$) were all significantly higher at baseline among women who subsequently developed ischemic stroke compared to those who did not, while levels of HDL-C ($P<0.01$) and HDL size ($P=0.02$) were lower. No significant baseline difference for total cholesterol, LDL-C, LDL size, apolipoprotein-AI, and lipoprotein (a) was observed. In a multivariable model conditioned on age and race, and additionally adjusted for smoking status, body mass index, systolic blood pressure, use of anti-hypertensive medication, diabetes, and physical activity, triglycerides were the strongest predictor of risk (OR for the highest vs lowest quartile, 1.66; 95% CI 1.19-2.31, P for trend <0.01), followed by VLDL size (OR 1.55, 95% CI 1.08-2.22, P for trend =0.04) and IDL particle number (OR 1.36, 95% CI 0.97-1.89, P for trend =0.03).

Conclusions: Among a panel of lipid and lipoprotein biomarkers assessed at baseline, triglyceride level was the strongest independent predictor for the development of ischemic stroke in postmenopausal women. Traditional lipid biomarkers, including total cholesterol, LDL-C, and HDL-C did not rank among the independent predictors of ischemic stroke. Future studies should assess whether decreasing triglycerides would lower the risk of ischemic stroke.