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## **Biomarkers of ischemic stroke and how to evaluate their usefulness: Results from the HaBPS study**

**Sylvia Wassertheil-Smoller**  
Albert Einstein College of Medicine, USA

The HaBPS study (Hormones and Biomarkers Predicting Stroke) was an ancillary case-control study nested in women's health initiative observational study, whose objectives were to investigate inflammatory, atherothrombotic and hemostatic blood biomarkers associated with incident ischemic stroke. There were 972 ischemic stroke cases that matched with 972 controls and their baseline bloods were assayed for a number of biomarkers. Logistic regressions were done to obtain odds ratios of stroke, controlling for lifestyle, comorbid and other risk factor variables. This paper also illustrates methods to assess the additional value above traditional risk factors of using biomarkers to improve risk prediction. C reactive protein (CRP) emerged as an independent predictor of ischemic stroke (adjusted odds ratio comparing Quartile 4 v Quartile 1 51.64, 95% confidence interval: 1.15-2.32, P 5.01). However, among 1137 nonusers of hormone therapy at baseline, the Lp-PLA2 odds ratio was 1.55 (95% CI: 1.05 to 2.28), whereas there was no significant association among 737 hormone users (odds ratio: 0.70; 95% CI: 0.42 to 1.17; P for interaction=0.055). In multivariable analysis of lipids, triglycerides were significantly associated with ischemic stroke (odds ratio for the highest versus lowest quartile, 1.56; 95% confidence interval, 1.13-2.17), while LDL-C was not. Indices of added predictive value of biomarkers, (the Net Reclassification Index (NRI), the Category-Less NRI, the c-statistic and the Integrated Discrimination Improvement (IDI)), will be described.

### **Biography**

Sylvia Wassertheil-Smoller is distinguished University Professor Emerita in the Department of Epidemiology and Population Health at the Albert Einstein College of Medicine. She is Principal Investigator in the Women's Health Initiative, The Hormones and Biomarkers Predicting Stroke Study (HaBPS) and in a consortium looking at genetics of stroke: The Stroke International Genetics Network (SIGN), as well as Co-PI in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL). She has published more than 215 papers in scientific journals as well as a text book *Biostatistics and Epidemiology: A primer for health and biomedical professionals*, third edition published by Springer Verlag.

[sylvia.smoller@einstein.yu.edu](mailto:sylvia.smoller@einstein.yu.edu)