1. Title: Association of Ankle-Arm Blood Pressure Index and White Matter Lesions: The ARIC Study

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3. Timeline:

   - Submit Proposal to Publications Committee: 5/20/95
   - Complete Analysis: 2/20/96
   - Submit First Draft to Publications Committee: 5/20/96
   - Submit to Journal: 8/20/96

4. Rationale:

   Cerebral White Matter Lesions (WML) are hyperintensity areas seen with some frequency on MRI scans of the brain. Their clinical significance remains unclear. In general, they are believed to be the consequence of localized and/or generalized hypoperfusion/ischemia of the brain. Most published studies on WML are clinically based, and only one population based study has been published thus far, although based on only 100 individuals selected from a population survey of an all white Netherlands population. In this study, it was reported that WML are associated with indexes of atherosclerosis such as carotid artery wall thickness, lesions, ankle-arm systolic blood pressure ratio (ABI) and ECG-identified prevalent MI. None of these findings could be regarded as conclusive. The association of ABI, as a continuous measurement of peripheral atherosclerosis, and WML has not yet been studied at the population level. If there is such an association, it is important to explore whether the association is independent of arm BP. If that is the case it would suggest that peripheral atherosclerosis is a marker of WML, independent of systematic blood pressure. This would add useful information on the pathogenesis of WML and its distribution in populations.

5. Main Study Questions:

   (1) Is ABI associated with white matter lesions identified by MRI scans at the general population level?
   (2) Is the association explained by arm blood pressure (seated and/or supine)?
   (3) Does this association differ by age, ethnicity and gender?

6. Data (variables, source, inclusion/exclusion):

   The following variables are needed for this analysis: MRI data, ankle and arm blood pressure data, age, race, gender, field center, race, education levels, prevalent hypertension, CHD diabetes stroke status, medication such as anti-hypertensive medication, smoking status, total cholesterol and its fractions.