

ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #336

1. Title: Association of Cerebral White Matter Lesions to Hypertension, its Treatment and Control - The ARIC Study

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3. Timeline:

Submit Proposal to Publications Committee	August, 1995
Complete analysis	December, 1995
Submit first draft to Publications Committee	March, 1996
Submit to Journal	June, 1996

4. Rationale:

Cerebral White Matter Lesions (WML) are hyperintensity areas seen with some frequency on MRI scans of the brain. In general, they are believed to be the consequence of arteriosclerosis, generalized hypoperfusion and/or 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 based survey of an all white Netherlands population. Some of these studies reported that WML are associated with blood pressure and hypertension. WML have also been related to the decline of cognitive function in patients with hypertension. It has been speculated that long-standing hypertension may cause chronic end-organ damage in the form of demyelination of the white matter, which can be revealed by MRI scan as WML. Our previous analysis of the ARIC MRI data indicated a significant positive association between WML and blood pressure, pulse pressure, and hypertension. However, the relationship between WML and the duration, severity of hypertension at the population level has not been well studied in middle-aged adults, nor have data been available on the relationship between WML and the treatment, and the control of hypertension. Given a much higher prevalence of hypertension in African-Americans, it is pertinent to examine WML and hypertension in this population group. Therefore, we propose this analysis to investigate these research questions using the B1 data collected in ARIC visit 3 examination.

5. Main Study Questions:

- (1) Are WML associated with JNC V-defined hypertension in the general population aged 55-72 years?
- (2) Are the prevalence and severity of WML in hypertensives associated with the "duration" of hypertension, approximated by comparing WML between incident and prevalent hypertensives?
- (3) Are the prevalence and severity of WML in hypertensives associated with the treatment of hypertension?
- (4) Are the prevalence and severity of WML in treated hypertensives related to the control of hypertension?
- (5) Do the above mentioned associations differ by ethnicity?

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

The following variables are needed for this analysis: MRI data, age at visit 3, hypertension status at Visit 1 to Visit 3, anti-hypertensive medication and blood pressure at Visit 3, race, gender, field center, education levels, smoking status, BMI, total cholesterol and its fractions at Visit 3.