ARIC Manuscript Proposal #804

PC Reviewed: 06/05/01	**Status: A**	**Priority: 2**
SC Reviewed: 07/23/01	**Status: A**	**Priority: 2**

1.a. Full Title: Reliability of the Ankle-Brachial Index in the Atherosclerosis Risk in Communities (ARIC) Study and the NHLBI Family Heart Study (FHS)

b. Abbreviated Title (Length 26 characters): ABI Repeatability

2. Writing Group (list individual with lead responsibility first):

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3. Timeline:

To be completed by December 2001.

4. Rationale:

The ankle-brachial index (ABI) is a simple, non-invasive, accurate measure of subclinical atherosclerosis. The ABI has been shown cross-sectionally to be associated with cardiovascular disease risk factors and with other clinical and subclinical cardiovascular disease (CVD) manifestations. The ABI has a graded, inverse association with both CHD incidence[1] and with CVD and total mortality.[1;2]

Less is known about the epidemiology of ABI-defined lower extremity arterial disease (LEAD) than about heart disease and stroke. While the prevalence of ABI-defined LEAD has been described, the incidence has been described in only one Netherlands population.[3] The incidence in a United States population has not been described. The change in ABI over time has been described in one population-based epidemiologic study, but only the mean change and the baseline and 5-year-followup distributions were given.[4] Factors affecting the rate of ABI change have not been described.

Adjustment for baseline ABI may be important in analyses modeling differences in the rates of change in ABI. ABI has been shown cross-sectionally to be related to other CVD risk factors, and may be related to the rate of ABI change, and so, therefore, may confound the relation between other risk factors and the change in ABI. The relationship between baseline ABI and

the change is also of inherent interest. In usual regression, the predictors are assumed to be known and measured without error. Regression coefficients may be biased if measurement error is not taken into account.[5-7] Correction for measurement error may be made using estimates of reliability. The reliability of hemostasis factors,[8] lipoprotein measures,[9] and clinical chemistry test results[10] in the ARIC study have been reported, but the reliability of the ABI using ARIC methodology is unknown.

The reliability of the ABI using ARIC/FHS methodology is unknown. Reliability estimates from the proposed analyses will be published, and applied to the study of change in ABI in the ARIC cohort.

5. Main Hypothesis/Study Questions:

The following question will be addressed:

- What is the short-term intraindividual variation in the ankle-brachial index, as measured in the ARIC study?

The estimated reliability of this measure, along with estimates for other covariates of interest, may be taken into account in analyses of the change in ABI over time.

6. Data (variables, time window, source, inclusions/exclusions):

A subset of the ARIC study participants at the Forsyth and Minneapolis field centers also participated in the NHLBI Family Heart Study (FHS), designed to examine genetic and non-genetic determinants of coronary heart disease, atherosclerosis, and CVD risk factors.[11] Ankle and brachial systolic blood pressures taken at ARIC visit 3 and again within one year later at the FHS clinic examination will be used to estimate the reliability of the ABI.

7.a. Will the data be used for non-CVD analysis in this manuscript? ____ Yes __X _ No

b. If Yes, is the author aware that the file ICTDER02 must be used to exclude persons with a value RES_OTH = "CVD Research" for non-DNA analysis, and for DNA analysis RES_DNA = "CVD Research" would be used? ____ Yes ____ No
(This file ICTDER02 has been distributed to ARIC PIs, and contains the responses to consent updates related to stored sample use for research.)

8.a. Will the DNA data be used in this manuscript? ____ Yes __X__ No

8.b. If yes, is the author aware that either DNA data distributed by the Coordinating Center must be used, or the file ICTDER02 must be used to exclude those with value RES_DNA = "No use/storage DNA"? ____ Yes ____ No

9. The lead author of this manuscript proposal has reviewed the list of existing ARIC Study manuscript proposals and has found no overlap between this proposal and previously approved manuscript proposals either published or still in active status.
ARIC Investigators have access to the publications lists under the Study Members Area of the web site at: http://bios.unc.edu/units/cscc/ARIC/stdy/studymem.html

___X___ Yes _____ No

References

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