

ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #407

1.a. Title: Past and current risk determinants of atherosclerosis

b. Abbreviated Title: Past/current :risk factors of atherosclerosis

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Background: Cohort studies such as Framingham and others have clearly established that hypercholesterolemia, cigarette smoking, and hypertension are independent risk factors for clinical atherosclerosis. So far, there is only limited evidence regarding the longitudinal association between these risk factors and subclinical atherosclerosis. In a subset of 1,410 Washington County ARIC participants who participated in the 1974 Clue survey we have information on cigarette smoking, blood pressure measurements, serum cholesterol, and SES status (education and residence), both in 1974 and at the time of the baseline visit. This group offers an opportunity to compare the longitudinal and the cross-sectional associations of traditional risk factors with both clinical (self-reported history of CVD) and subclinical atherosclerosis (carotid IMT, carotid plaque). The comparison of the associations for clinical vs. subclinical outcomes, depending on whether the longitudinal or the cross-sectional data is used, will help documenting the cross-sectional bias associated with clinical outcomes and subsequent behavior modifications.

Hypotheses:

- 1) Cigarette smoking, hypertension, hypercholesterolemia, and low SES in 1974 are associated with clinical as well as with subclinical atherosclerosis in ARIC (13-15 years later).
- 2) For clinical outcomes these associations are stronger than the cross-sectional associations identified at the baseline ARIC visit.
- 3) For subclinical outcomes (in participants free of known clinical CVD), the longitudinal associations are equally strong for longitudinal as well and cross-sectional analyses.
- 4) Both clinical and subclinical atherosclerosis are associated with 1974 vs 1987-89 change in the above risk factors.

Data and analysis plan:

Clue data on 1,410 Clue participants: 1974 cigarette smoking, blood pressure, medications, serum cholesterol (n=300), years of education, SES ranking of residence. ARIC baseline data on cigarette smoking, blood pressure, medications, serum cholesterol, years of education, SES ranking of residence. hx of CHD/Stroke, mean IMT (visit1-2), presence of plaque/shadow in visit 1-2, baseline ABI, self-reported health status.

The longitudinal and cross-sectional associations between each risk factor and clinical CVD (self-reported hx) will be examined in all participants. The associations with subclinical atherosclerosis will be explored in people without history of CVD.

The crude and independent effect of each risk factor will be examined. SES and self-reported health status will be explored as possible effect modifiers.

¹ A modified PRVCHD04 will be created to include as cases only subjects aware of their status: we will use the same criteria as in the original variable (physician diagnosed MI or coronary surgery), but exclude those characterized as prevalent CHD cases solely on the basis of a Q-wave in the ECG.