Manuscript #070

1. Title:
The Relationship of Carotid Atherosclerosis and Cardiovascular Disease Risk Factors to Family History of Disease in Middle-Aged Adults: The ARIC Study

2. Suggested Writing Group:
(lead) Greg Burke, Paul Sorlie, Millicent Higgins, Gordon Keelor, Aaron Folsom, Teri Manolio, Gerardo Heiss, Moyses Szklo (other interested investigators are welcome)

3. General Overview:
This paper will address the issue of whether risk factor/wall thickness differences exist in a middle-aged population for individuals with a positive versus negative family history of cardiovascular disease. Family history has been shown to be a predictor of risk factor levels and/or outcome in studies of children, young adults and adults. In addition, it has been shown that the relationship between family history and outcome appears to be mediated to a large extent through risk factor differences. However, no investigators have ever assessed the relationship between carotid ultrasound information and family history of cardiovascular disease.

4. Analysis Plans:
Two phases for these analyses are anticipated:
First, we will assess the relationship between family history and past medical history of disease (ie. are individuals with a family history of MI, more likely to report a past medical history of MI?). My hypothesis is that we would expect to see an increased prevalence of reported disease in those individuals with a positive family history of disease.

The second phase of these analyses will be to look at the relationship between risk factor levels/carotid wall thickness and family history (i.e. are individuals with a family history of MI, more likely to have higher lipid levels?; Do they have thicker arterial walls?). In this analysis, I expect that a positive family history of a disease will be related both to increased levels of known risk factors for that disease in the ARIC cohort and to increased extracranial wall thicknesses. If both the participant's parents age of death was before 50 is their risk factor profile (i.e. BP, dyslipidemia, glycemic status, carotid wall thickness etc.) worse? If differences are found in risk factor levels, the next step is to assess if these differences can be explained by other factors (such as obesity, physical activity, diet etc.).

5. Available family history variables include:
Age and cause of parental death;
Reported parental prevalence and age of onset of the following diseases: Cancer, diabetes, hypertension, stroke, MI.

6. Participant factors Include:
Reported diseases (hypertension, hypercholesterolemia, MI, stroke, diabetes, cancer).
Risk factor measurements (BP, lipids and lipoproteins, glucose and insulin, smoking, BMI).
Carotid Ultrasound variables (intimal-medial wall thickness).