ARIC MANUSCRIPT PROPOSAL #702

PC Reviewed: 01/06/00	**Status: __D__**	**Priority: _____**
SC Reviewed: _____	**Status: _____**	**Priority: _____**

1.a. Full Title: Prognostic implications of echocardiographically determined left ventricular mass in an African-American population: the Atherosclerosis Risk in Communities Study

b. Abbreviated Title (Length 26): Prognosis of LVH in blacks

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

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3. Timeline: 6 months

4. Rationale:
Increased in echocardiographically-determined left ventricular mass (LV mass) confers a significant risk for future cardiovascular events, independent of the presence of other major risk factors. Studies over the past three decades suggest that, for equal levels of hypertension, African-Americans (AA's) have greater LV wall thickness than whites, even thought, the available evidence has not shown consistent difference with regard to LV mass. Furthermore, even in the absence of hypertension, young adult AA's tend to have greater wall thickness compared with whites, suggesting that there may be inherent differences in ventricular structure between AA's and whites which may account for their excess of cardiovascular disease compared with whites.

5. Main Hypothesis:
LV mass, either adjusted by BSA or height$^{2.7}$ will significant predict incident cardiovascular events and total mortality in AA's, independent of other major risk factors, particularly of the level of blood pressure.

6. Data (variables, time window, source, inclusions/exclusions):
Source:
African-American cohort that participated in ARIC study from Jackson (MS)

Visit 1 data:
1. Clinical interview, physical examination, Lab, etc.
2. Echocardiographic study

Independent variables:
1. Demographic variables (age, gender)
2. Echo M-mode derived measurements (LV mass, Systolic performance parameters)
3. Major risk factors for Atherosclerosis including hypertension, diabetes, smoking, hyperlipidemia and obesity status
4. Blood pressure, Heart rate
5. Anthropometric measurements

Follow-up:
The participants were followed-up to 12/31/96.
Dependent variable:
1. Cardiovascular (combined) endpoint (coronary heart disease events, cerebrovascular events and all couse mortality).

Statistical analyses:
Cox Proportional Hazard model.
In the multivariate model, will be included:
1. LV mass determined by M-mode 2D-guided Echo, using ASE convention formula (as a continuous variable); it will also be explored the role of LVH (categorical) in the model.
2. To adjust LV mass by BSA or heigth$^{2.7}$, we will add theses variables in the model as a covariates.
3. Hypertension status, defined in ARIC as BP 140/90 +/or history of antihypertensive medication
4. Diabetes Mellitus (criteria-2 in ARIC, with cut-off point in 126 mg%)
5. Smoking status (Present, past, ever)
6. Age as continuous variable if the assumption of linearity is met; otherwise it will be categorized in groups (50-59. . .60-69. . .70-or+)
7. To adjust for lipids, initially we will include in the model either total cholesterol or LDL cholesterol treated as continuous variable; in case of no linearity assumption is met, they will be categorize either by quartiles or based on

the INH classification. We will also explore the generic categorical variable hyperlipidemia based on the antecedent of taking lipid-lowering drugs.

8. Gender
9. Obesity will be added to the model as categorical variable; we will also explore BMI as continuous variable.
10. Waist/Hip ratio will also be tested.

We will be careful for no overloading the model, trying to keep a ratio between events/covariates at least equal to 10.

Censor observations will be defined as:

1. Those observations that did not attained the endpoint by 12/31/96, or
2. Lost to follow-up

Uncensored observations will be defined as:

1. Those participants that reached any of the components of the composite endpoint in a follow-up to 12/31/96

Time event will be measured in days from the visit 1 corresponding to the echo examination up to 12/31/96 or before it got uncensored. The average follow-up time will be 2-3 years approximately.

Exclusion criteria:

1. Preexisting cardiac disease (CHD, valvular heart disease, etc.)
2. Unsatisfactory M-mode echocardigram