

## ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #518

### **1. Title:**

Does Anti-Hypertensive Therapy Predispose to Development of Diabetes Mellitus?

### **2. Writing Group:**

(lead) TW Gress, FJ Nieto, E Shayar, MR Wofford, FL Brancati

### **3. Hypothesis:**

Once the presence of hypertension and other confounding variables (e.g. BMI, co-morbid conditions) are accounted for, there is no independent relationship between anti-hypertensive agents and the risk of diabetes mellitus.

### **4. Background:**

The hypothesis that anti-hypertensive therapy promotes the development of Type 2 diabetes mellitus is controversial. Most previous studies have lacked data on important confounding variables. Many of these studies have been limited by small sample size and limited data on minority populations at high risk for diabetes and hypertension. The larger, prospective studies of this relationship were based on administrative data sets that lacked crucial clinical details including: a) blood pressure b) presence of hypertension c) co-morbid conditions (e.g. IHD, COPD). Because these factors influence the decision to start anti-hypertensive therapy and the choice of the particular agent, they represent major potential confounders.

Therefore, we plan to examine the relationship between treatment with antihypertensive medications and subsequent development of diabetes mellitus using the ARIC cohort. ARIC's major advantages over other studies include a large sample size, a significant proportion of minorities, and data on important physiologic characteristics including blood pressure.

### **5. Design:**

Prospective cohort study

### **6. Study Variables:**

Outcome: Incident diabetes mellitus over six years of follow-up

Exposure: Treatment with anti-hypertensive medication. This will be examined in categories of anti-hypertensive medications that will include thiazide diuretics, beta-blockers, calcium channel blockers, angiotensin converting enzyme inhibitors, and multi-drug regimens

Other: Hypertension, systolic blood pressure, family history of diabetes mellitus, body mass index, fasting serum glucose, socioeconomic status, age, gender, race,

alcohol use, smoking, physical activity, hyperlipidemia, coronary heart disease, peripheral vascular disease, cerebrovascular disease, chronic obstructive pulmonary disease, asthma, cancer

**7. Analysis:**

Contingency tables and logistic regression. Will also use person-years approach to account for changes in blood pressure medications after baseline.