ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #557

l. Full title: Unprovoked hypokalemia is more frequent in African Americans
Abbreviated Title: Hypokalemia in African Americans

2. Writing Group:
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3. Timeline:
Analyses will begin following publications committee approval. Ms expected for ARIC review by May 1998.

4. Rationale:
Healthy adults not receiving any potassium depleting medication generally have less than 1% prevalence of hypokalemia. Causes of unprovoked hypokalemia include renal disorders and disorders in aldosterone regulation along with congestive heart failure and hepatic insufficiency. Consequences of long-term hypokalemia may include hypertension and ventricular arrhyimias contributing to increased morbidity and mortality. Hypokalemia also impairs both insulin release and cellular sensitivity to insulin resulting in a worsening of diabetes(1). In summary, long-term hypokalemia can result in significant risk for development of CVD and CHD related outcomes.

The prevalence of hypertension is alarmingly higher in the Black population when compared to the White population in the US. This difference also generalizes to stroke mortality(2), and heart disease mortality rates in age groups under 85 years of age(3). The detection of a higher prevalence of unprovoked hypokalemia in the African American population would point to areas of research leading to better understanding of the marked differences in disease rates between Black and White populations in the US.

5. Hypothesis:
The main hypothesis is that unprovoked hypokalemia will be more frequent in the African American population. Raw frequencies of provoked and unprovoked hypokalemia will be presented and contrasted for race separately by gender for both

ARIC Exam 1 and exam 2. Serum K distributions will be presented for race and gender subgroups along with descriptive statistics for potential confounders. Potential confounders will include gender, age, BMI, serum lipids, serum creatinine, dietary K intake at baseline, and socioeconomic status. Known confounders will be selected by means of assessment for significant association with both race/ethnicity and unprovoked hypokalemia. Finally the prevalence of unprovoked hypokalemia at exam 1 and exam 2 will be contrasted between Blacks and Whites with adjustment for known confounders

6. Data Requirements:

Data to be used will include serum K and creatinine from the blood chemistry files from visit 1 and 2 (CHMA,CHMB), and other potential confounders from the derived variable files from Visits 1 and 2 (DERIVE05, DERIVE23), along with serum lipids from visits 1 and 2 (LIPA, LIPB). Individuals on K sparing diuretics will be excluded form the analysis.

REFERENCES:

1. Weiner,ID, Wingo CS "Hypokalemia-Consequence, Causes and Correction", Journal of the American Society of Nephrology, 1997 July;8(7) 1179-1188.
2. Khaw, KT, Barrett-Connor E., "Dietary Potassium and Stroke Related Mortality: a 12 year prospective population study. N. Engl. J. Med. 316:235-240, 1987.
3. 1996 Chartbook on Cardiovascular Lung, and Blood Diseases NIH NHLBI May 1996.