ARIC MANUSCRIPT PROPOSAL FORM

Manuscript # 438

1. a. Title: Serum Magnesium: A Risk Factor for Coronary Heart Disease?
   b. Abbreviated Title: Serum Magnesium and CHD

2. Writing Group:

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3. Timeline:

First draft by 9/96; Final by 12/96

4. Hypotheses:

People in ARIC with lower serum Mg level will have higher incidence rates of coronary heart disease than those with higher serum Mg level.

5. Rationale:

Animal experiments indicate that Mg deficiency accelerates the atherosclerotic process. Clinical studies find that transient hypomagnesemia is common in patients with acute myocardial infarction during the first 2-5 days and may be associated with an increased rate of arrhythmias, reinfarction and death.

ARIC researchers reported, cross-sectionally, an inverse association of serum Mg level with cardiovascular disease, hypertension, carotid arterial wall thickness (Ma et al., J Clin Epidemiol 1995; 48: 927-940). After adjustment for other CVD risk factors, serum Mg remained significantly inversely associated with carotid wall thickness among women.

To our knowledge this will be the first cohort study to assess the relationship between serum Mg levels and CHD incident rates to see whether serum Mg levels are an independent risk factor for CHD.

6. Data:

Incident analysis: ARIC pre-1993 incidence of CHD (dependent variable) vs. Visit 1 serum Mg (independent variable). Visit 2 scrum Mg will be considered too and will be possibly included as a time dependent covariate.

7. Covariates:

age, race, sex, center, hypertension, diabetes, diuretic use, smoking, total cholesterol, HDL cholesterol, fibrinogen, body mass index, waist-to-hip ratio, sports index, alcohol intake, dietary Mg.

Analysis will be done as sex-specific, will be modeled by proportional hazard and Poisson regression.