ARIC Manuscript Proposal #773

PC Reviewed: 02/15/01  Status: A  Priority: 1
SC Reviewed: 03/01/01  Status: A  Priority: 1

1.a. Full Title: Ancillary study of the QT prolongation index, ultra-short term heart rate variability and baroreflex sensitivity

b. Abbreviated Title (Length 26 characters): QTI, ultra-short term HRV & BRS

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

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3. Timeline: Analyses that require currently available data (QTI) will begin July 1, 2001. Analyses that require further processing of currently available data (ultra-short HRV and in particular, BRS) will begin pending acquisition of research funds necessary to support additional programming requirements. To this end, we prepared an ancillary study proposal and submitted it to the NHLBI for a K-23 award on October 1, 2000. Please see copies of the abstract from the K-23 application and a letter approving the ancillary study from the ARIC Steering Committee (attached).

4. Rationale: This proposal poses study questions in response to expert panel recommendations on a subject, autonomic dysfunction, for which there is an acknowledged paucity of evidence. This deficiency has precluded the elaboration of definitive remarks in official technical reviews and position statements. The putative role of autonomic abnormalities as antecedents and early markers of common illnesses that impose a heavy burden of suffering and cost on society, including diabetes mellitus, hypertension and atherosclerotic cardiovascular disease, adds relevance to the study questions.
5. **Main Hypothesis/Study Questions:**

The general aims of this proposal are to evaluate simple, noninvasive, low-cost methods for identifying autonomic failure and to determine their appropriateness for use in clinical studies, epidemiologic investigation and medical practice. The specific aims of this proposal are to assess the validity and reliability of the QT prolongation index (QTI), ultra short-term heart rate variability (HRV) and baroreflex sensitivity (BRS) in non-ARIC volunteers using measurement protocols previously employed in ARIC; then, in the ARIC cohort, to determine the population distribution, correlates and frequency of their abnormal levels at Visit 1; to describe their change over time in the context of evolving metabolic disorders and morbidities that impair autonomic function; and to estimate their value as predictors of incident diabetes mellitus, hypertension and atherosclerotic cardiovascular events.

6. **Data (variables, time window, source, inclusions/exclusions):**

This proposal requests access to the extant ARIC data analysis files, and their periodic updates, for cohort data collected by ARIC and the ancillary study of heart rate variability. Specifically, we will derive QTI (%) and ultra-short term HRV (ms) from the standard, twelve-lead electrocardiogram and BRS from the beat-to-beat measures of heart rate and the simultaneous, automatic, intermittent measures of blood pressure recorded by the Dinamap device during the postural change protocol. The requested data will include pertinent demographic (age; gender; race; education), historical (prevalent coronary heart disease; stroke; diabetes; hypertension; current smoking status; syncope) medication (use of beta-antagonists; antiarrhythmics; tricyclic antidepressants) and laboratory measures (fasting glucose; insulin; potassium).

7.a. Will the data be used for non-CVD analysis in this manuscript?  ____ Yes  __X__ No

8.a. Will the DNA data be used in this manuscript?  ____ Yes  __X__ No