ARIC Manuscript Proposal # 858

PC Reviewed: 01/03/02	**Status: __A___**	**Priority: __2__**
SC Reviewed: 01/07/02	**Status: __A___**	**Priority: __2__**

1.a. Full Title:

Association Between Periodontal Disease and Coronary Calcification

b. Abbreviated Title (Length 26 characters):

Periodontal and Coronary Ca

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

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3. Timeline:

-time for analysis: 1-20-02 to 5-1-02
-expected time of completion of 1st draft: 5-30-02

4. Rationale:

Classical coronary heart disease (CHD) risk factors (e.g. hypercholesterolemia, hypertension, smoking, and diabetes mellitus) are absent in ~30% of patients with myocardial infarction (MI). Disease in these patients may be due to less established risk factors, such as chronic infections. Several observational studies have found a positive association between periodontal disease infection and MI.

A reliable and valid method for assessing periodontal disease is measurement of probing pocket depth. This is the distance from the gingival margin to the clinical attachment point, which is the position where the probe reaches resistance at the base of the pocket. Another technique commonly used to assess periodontal disease is measurement of clinical attachment level (CAL). This is the distance from a fixed landmark on the tooth to the base of the pocket. Both of these techniques were chosen for this study.

To measure CHD, incidence of MI and angina pectoris is usually ascertained. However, this data is not informative of subclinical CHD. A non-invasive technique that is gaining acceptance as an early indicator of coronary artery disease is assessment of coronary calcification. This is measured by cardiac gated computed topography (CT). Coronary calcium scores have been shown to correlate highly with the degree of coronary atherosclerosis in pathologic specimens. In addition, there is growing evidence that they predict incident CHD events in asymptomatic populations.

The aim of this cross-sectional study is to assess the relationship between periodontal disease and coronary artery calcification, using a subset of the Atherosclerosis Risk in Communities (ARIC) cohort.

5. Main Hypothesis/Study Questions:

There is a positive association between extent and severity of periodontal disease, as measured by probing pocket depth and CAL, and coronary calcification.

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

-Variables:
The independent variable is periodontal disease, and the dependent variable is coronary calcium score. Potential confounding variables are: age, gender, center, total cholesterol, triglyceride level, waist to hip ratio, smoking, diabetes, hypertension, HDL-cholesterol, body mass index, socio-economic status, and education.

-Time window:
Periodontal disease was assessed from 1996 to 1998 and coronary calcium levels were measured from 1999 to 2000 in MN and NC. This is a cross sectional study.

-Source:
The source of the study population is a sample of two groups that were extensively characterized for non-traditional risk factors, such as periodontal disease, for ARIC case-control studies. One group was blacks and whites randomly sampled within two age strata, gender, and two carotid intima-media thickness (IMT) categories. The second group was blacks and whites with high mean carotid IMT (>0.935mm for blacks, >1mm for whites) at the first two study visits. The study population is representative of those in this sample who did not have a CVD event and were not lost to follow-up by 1999. The sample size is 360.

-Inclusion criteria:
- Participants from the MN and the NC study centers
- Those between 45-64 years old.

-Exclusion criteria:
- Those with past CHD
- Those with recent significant radiation exposure (or other recent exposure to substances that interfere with coronary calcium recordings)

- Multiple logistic regression will be the primary method used for statistical analysis. Periodontal disease will be a dichotomous variable and coronary calcification will be categorized into four groups (0, 1-99, 100-399, and ≥400).

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

b. If Yes, is the author aware that the file ICTDER02 must be used to exclude persons with a value RES_OTH = "CVD Research" for non-DNA analysis, and for DNA analysis RES_DNA = "CVD Research" would be used? ____ Yes ____ No
(This file ICTDER02 has been distributed to ARIC PIs, and contains the responses to consent updates related to stored sample use for research.)

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

8.b. If yes, is the author aware that either DNA data distributed by the Coordinating Center must be used, or the file ICTDER02 must be used to exclude those with value RES_DNA = "No use/storage DNA"? ____ Yes ____ No

9. The lead author of this manuscript proposal has reviewed the list of existing ARIC Study manuscript proposals and has found no overlap between this proposal and previously approved manuscript proposals either published or still in active status.
ARIC Investigators have access to the publications lists under the Study Members Area of the web site at: http://bios.unc.edu/units/cscc/ARIC/stdy/studymem.html

___X___ Yes _____ No