

ARIC Manuscript Proposal # 730

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Status: A
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Priority: 2
Priority: 2

1.a. Full Title: Periodontal disease, diabetes, and atherosclerosis.

b. Abbreviated Title (Length 26 characters): Periodontitis, diabetes & atherosclerosis

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

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3. Time Line

Obtain data set:	June 2000
Begin statistical analysis:	June 2000
Complete statistical analysis:	Summer 2000
Complete manuscript:	Summer 2000

4. Rationale:

The purpose of the present study is to determine whether periodontal infection in diabetics contributes to the extent of subclinical atherosclerotic disease (as measured by IMT and plaque shadowing) compared to diabetics without periodontal disease and non-diabetics. It is well established that individuals with diabetes are at greater risk for developing more severe and progressive periodontal disease (*Yalda et al 1994*). This association has been demonstrated in various epidemiologic studies and is consistent in insulin and non-insulin dependent diabetics (*Cohen et al 1970, Hogoson et al 1989, Katz et al 1991*). Diabetes is also associated with greater morbidity and mortality in individuals with coronary heart disease (CHD). While we know diabetics experience more of subclinical atherosclerotic disease and that periodontitis may also play a role in progression of CHD by initiation of an inflammatory response, we have little knowledge of the combined effect of these two pathological processes on of subclinical atherosclerotic disease.

5. Main Hypothesis:

Diabetics with periodontal disease have a higher prevalence of subclinical atherosclerotic disease than diabetics without periodontal disease and non-diabetics.

6. Data:

Outcome variables: The outcomes will be intimal-medial wall thickness (IMT) and plaque/shadowing as determined by Carotid Artery B-mode Ultrasound Measurements.

Main independent variables. The main independent variables are prevalent periodontal disease (as measured by gingival bleeding, probing pocket depth, and periodontal attachment loss) and diabetic status.

Covariables. The covariables will be age, sex, race/field center, education, body mass index, hypertension, smoking, familial history of coronary heart disease, serum cholesterol, HDL, LDL, triglycerides, diabetic medications.

Time window. This study will be a cross-sectional study of the data obtained from ARIC cohort members at Visit 4.

Inclusions/exclusions. This study will include all ARIC cohort members for whom periodontal measures, diabetes information, and ultrasound data were completed at Visits 3/4.

References:

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- Hugoson A, Thorstensson H, Falk H, Kuylenstierna J (1989). Periodontal conditions in insulin-dependent diabetics. *J Clin Periodontol* 16:215-223.
- Katz PP, Jr. Wirthlin MR, Szpunar SM, Selby JV, Sepe SJ, and Showstack JA (1991). Epidemiology and Prevention of Periodontal Disease in Individuals with Diabetes. *Diabetes Care* 14(5): 375-85. .
- Mattila KJ, Valle MS, Nieminen MS, Valtonen VV, and Hietaniemi (1993). Dental infections and coronary atherosclerosis. *Atherscl* 103:205-211.
- Beck JD, Garcia R, Heiss G, Vokonas P, and Offenbacher S (1996). Periodontal disease and cardiovascular disease. *J Periodontol* 67(Supplement):1123-1137.