

ARIC Manuscript Proposal #807

PC Reviewed: 07/03/01

Status: A

Priority: 2

SC Reviewed: 07/03/01

Status: A

Priority: 2

1.a. Full Title:

Relationship between endodontic inflammation and cardiovascular outcomes

b. Abbreviated Title (Length 26 characters): Endo inflammation and CVD

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

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3. Timeline:

Preliminary analysis of Dental ARIC data should be completed by the September 2001 deadline for submission of abstracts for the March 2002 AADR Annual Meeting. The submitted manuscript will incorporate data from two additional sources: the Veterans Administration Dental Longitudinal Study (DLS) and the Population Study of Women in Gothenburg (PSWG). Several new endodontic variables need to be collected at both of these sites, and though funding for the study has been approved by NIDCR, at the present time the start date has not been formalized. It is anticipated that manuscript preparation will be completed two years after the project start date.

4. Rationale:

Numerous epidemiologic studies have found associations between periodontal disease (PD) and CVD, leading researchers to propose that in response to gram-negative anaerobic bacterial endotoxins found in PD, certain individuals produce an overabundance of localized inflammatory cells and cytokines, which then are released into the systemic circulation and ultimately cause vascular damage and cardiovascular events. It is reasonable to expect a similar link between inflammation of endodontic origin and CVD, given the predominance of gram-negative anaerobes associated with endodontic infections and the evidence of cytokine production in inflamed pulp and periapical granulomatous tissues. To date, no epidemiologic studies have addressed the relationship between endodontic inflammation and CVD.

5. Main Hypothesis/Study Questions:

The primary study hypothesis is that a greater history of endodontic inflammation is associated with a greater likelihood of experiencing adverse cardiovascular outcomes.

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

With respect to the Dental ARIC portion of the manuscript: Data from the cross-sectional Dental ARIC Study (i.e., Visit 4 of ARIC) will be used to address the study question. Data from the entire cohort of Dental ARIC participants will be analyzed. The main exposure variable will be self-reported history of RCT, obtained from the question, “Have you ever had RCT?” Additional analyses will address the question, “If (you have had RCT), have you had more than one?” The manuscript will contain a section describing the validity of these questions in comparison to a gold standard (radiographic evaluation). The main outcome variable(s) will be C-IMT and prevalent CHD at baseline (i.e., ARIC Visit 4). Potential confounding variables include those factors generally controlled for in models assessing the relationship between PD and cardiovascular outcomes, namely: age, race, sex, BMI, education, smoking, diabetes, history of hypertension, serum cholesterol (including high density and low density subfractions), family history of heart disease, and alcohol use. In addition, systemic inflammatory mediators (e.g., IL-1) and other systemic inflammatory diseases (e.g., arthritis) will be controlled for, as will medications that affect immune function. PD also will be a covariate, dichotomized as $\geq 60\%$ of sites with ≥ 3 mm attachment loss vs. $< 60\%$.

With respect to DLS and PSWG portion of the manuscript: Since the exposure data in Dental ARIC are primarily from questionnaires, we will use findings from these other two studies to help validate the exposure. These studies include questions as well as radiographic data that can quantify the prevalence of periapical lesions due to endodontic problems.

7.a. Will the data be used for non-CVD analysis in this manuscript? ☐ Yes ☒ 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 ☒ 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/csc/ARIC/stdy/studymem.html>

☒ Yes ☐ No