ARIC Manuscript Proposal # 1148

PC Reviewed: 04_/_18_/06	**Status: __A__**	**Priority: _2__**
SC Reviewed: _04/19/06_	**Status: __A__**	**Priority: _2__**

1.a. Full Title: The effect of postprandial lipemia on cardiovascular outcomes

b. Abbreviated Title (Length 26 characters): Postprandial lipemia, outcomes

2. Writing Group:

Writing group members: Vijay Nambi, Eric Boerwinkle, Richey Sharrett, Lloyd Chambless, Ron Hoogeveen, Christie Ballantyne

I, the first author, confirm that all the coauthors have given their approval for this manuscript proposal. _VN____ **[please confirm with your initials electronically or in writing]**

F**irst author**: **Vijay Nambi**

Address: Baylor College of Medicine
6565 Fannin Street, M.S. A-601
Houston TX 77030

Phone: 713-798-5034 Fax: 713-798-7885
E-mail: vnambi@bcm.tmc.edu

Corresponding/senior author (if different from first author correspondence will be sent to both the first author & the corresponding author): Christie Ballantyne

Address: Baylor College of Medicine
6565 Fannin Street, M.S. A-601
Houston TX 77030

Phone: 713-798-5034 Fax: 713-798-3057
E-mail: cmb@bcm.tmc.edu

3. Timeline:

Measurement of postprandial lipids was performed in 602 individuals during visit 1, between 1990 and 1993, and values are already available. Hence, statistical analysis can be performed shortly after manuscript proposal is approved and preliminary statistical analysis should be completed within 3 months, after which a draft manuscript will be presented to the steering committee.

4. Rationale:

Postprandial lipemia as measured by postprandial triglycerides and remnant lipoproteins has been correlated with atherosclerosis of various vascular beds, including an association with asymptomatic carotid atherosclerosis in the ARIC study and coronary artery disease in other studies. Fasting and nonfasting triglycerides were shown to be equally predictive of fatal and nonfatal coronary heart disease in the Multiple Risk Factor Intervention Trial (MRFIT). However, no data exist on the impact of an abnormal postprandial lipid response and the development of major cardiovascular outcomes.

As noted above, postprandial triglycerides were noted to be an independent risk factor for carotid intima–media thickness (IMT) in the ARIC study, but only in nonobese whites. We will examine whether postprandial lipemia is associated with major cardiovascular outcomes 10–15 years after lipid measurement.

5. Main Hypothesis/Study Questions:

Postprandial lipemia will be independently associated with coronary heart disease (CHD) as defined by occurrence of definite or probable myocardial infarction (MI), definite CHD death, coronary revascularization, and silent MI by ECG in both cases and controls. The association of postprandial lipemia with stroke, another significant atherosclerotic endpoint, will also be tested. Because of the lack of association of cholesterol with stroke in the ARIC study, it will not be included as part of the primary outcome measure.

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

Data will be analyzed by the CCSS. All patients (cases and controls) who had postprandial lipids measured will be included in the analysis. The original cohort was selected as a stratified random sample. Cases and controls were stratified by age (10-year groups), IMT, race, and community. Cases included those with carotid atherosclerosis as evidenced by thicker IMT. Among whites, cases were defined as those with an IMT in approximately the 95th percentile and higher, and among blacks, those with an IMT in approximately the 90th percentile and higher (to facilitate recruitment). Controls included those with IMT in less than the 75th percentile for both races. Individuals with the following self-reported manifestations of cardiovascular disease were excluded: a history of angina on effort; physician-diagnosed heart attack, transient ischemic attack, or stroke; or intermittent claudication. Postprandial triglycerides, triglyceride-rich lipoprotein triglycerides (TRL-TG), retinyl palmitate (RP), and apolipoprotein B-48–to–apolipoprotein B-100 ratio were measured at 3.5 and 8 hours. The area under the curve (AUC) for triglycerides was defined as time of blood draw (3.5 or 8 hours) multiplied by the difference between the mean value of triglycerides at that time and the baseline fasting value. The 8-hour AUC was found to best discriminate between cases and controls. The 602 patients (444 whites [170 cases, 274 controls], 158 blacks [59 cases, 99 controls]) who were eligible and participated in the original study will be analyzed with respect to the association of the AUC for triglycerides at 8 hours and 3.5 hours, TRL-TG, and RP with CHD as defined by occurrence of definite or probable MI, definite CHD death, coronary revascularization, and silent MI by ECG (primary outcome measure). The association of the AUC for TG at 8 hours and 3.5 hours, TRL-TG, and RP with the risk of stroke will also be evaluated. The effect will then be tested after adjustment for age and sex, and then with the addition of traditional cardiovascular risk factors including hypertension, smoking, and baseline lipid abnormalities and in addition body mass index. Analysis will be performed by SUDAAN to account for the sampling design.

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://www.cscc.unc.edu/ARIC/search.php

__X____ Yes _____ No

10. What are the most related manuscript proposals in ARIC (authors are encouraged to contact lead authors of these proposals for comments on the new proposal or collaboration)?

There are no manuscripts or proposals related to the follow-up of the postprandial study.

11. a. Is this manuscript proposal associated with any ARIC ancillary studies or use any ancillary study data? Yes #1993.01 [Pubs Cmte changed this to yes]

11.b. If yes, is the proposal
___ A. primarily the result of an ancillary study (list number* __)
___ B. primiarly based on ARIC data with ancillary data playing a minor role (usually control variables; list number(s)* _____ _____ _____)
*ancillary studies are listed by number at http://www.cscc.unc.edu/aric/forms/

12. Manuscript preparation is expected to be completed in one to three years. If a manuscript is not submitted for ARIC review at the end of the 3-years from the date of the approval, the manuscript proposal will expire.