ARIC Manuscript Proposal # 1091

PC Reviewed: _07/26/05	**Status: _A__**	**Priority: _2__**
SC Reviewed: _07/28/05_	**Status: _A__**	**Priority: _2__**

1.a. Full Title:
Favorable risk-factor profile and long term cardiovascular disease incidence among black and whites: the Atherosclerosis Risk in Communities (ARIC) Study

b. Abbreviated Title (Length 26 characters):
Low risk factor profile and CVD

2. Writing Group:
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3. Timeline:August 2005

4. Rationale:
It is well known that traditional risk factors for cardiovascular disease (CVD), such as high blood pressure (BP), high serum cholesterol, current smoking, or diabetes, explain the vast majority of CVD incidence (1) (2). Furthermore, it is well known that CVD risk factor clustering yields high CVD event rates (3). However, there is limited information about the risk in persons with favorable levels of all the major risk factors, i.e., optimal BP, optimal cholesterol, never smoked, and no diabetes, on CVD (4-6). This is natural because large numbers of subjects with favorable risk profiles are needed to clarify the issue.

Evidence from these prior studies was mostly derived from whites (4,5) or had insufficient numbers to analyze blacks and whites separately (6).

Recently, the relative importance of "borderline" risk factors received attention because BP and total cholesterol have continuous relations with CVD events (7-9), and some data indicated that people with an average level of risk factors (below recognized intervention thresholds) account for a sizable proportion of individuals who develop vascular disease (10)(11). Only one study reported the relative importance of borderline risk factors (5); however, participants of the study were only whites.

Thus, we considered that calculating the absolute CVD risk of ARIC subjects with a favorable risk profile or subjects with borderline risk profile would be worthwhile. To our best knowledge, no other studies reported these issues among African Americans.

5. Main Hypothesis/Study Questions:

Relative hazards or incidence rates of CVD in subjects with a low risk profile are much lower than in subjects with risk factors for CVD

Relative hazards or incidence rates of CVD in subjects with a borderline risk profile are lower than in subjects with risk factors for CVD

Relative importance of borderline risk on CVD is small both in whites and blacks.

Population attributable fractions of high or borderline risk profile are higher in blacks than whites and higher in women than men.

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

Dependent variable: CVD incidence (composite endpoint: overall stroke incidence and coronary heart disease incidence), through 2002

Risk profiles follow National guidelines.
For hypertension: the JNC 7 report (12).
For total cholesterol: The National Cholesterol Education Program (NCEP) (13)

Definition of high risk profile
Having one of the following elevated risk factors

Total cholesterol ≥240mg/dl or cholesterol lowering medication use
BP: systolic BP≥140mmHg and/or diastolic BP≥90 mmHg and/or antihypertensive medication use
Smoking: current smoking

Diabetes: Fasting glucose ≥126 mg/dl or nonfasting glucose ≥200 mg/dl or taking diabetes medication or history of diabetes

Definition of borderline risk profile:
No elevated risk factors but having one of these borderline risk factors

Total cholesterol: 200-240 mg/dl
BP: systolic BP 120-140 mmHg and diastolic BP 80-90 mmHg
Smoking: former smoker

Definition of low risk profile:
Total cholesterol <200 mg/dl,
BP: systolic BP <120 mmHg and diastolic BP <80 mmHg,
Smoking: never smoked, and
Diabetes: no diabetes

Independent variable: Subjects with low risk (no borderline or high risk profile), subjects with borderline risk (subjects with borderline risk, but without high risk profile), and subjects with high risk (at least one risk factor).

Adjustment for
Age, education

Basically we will analyze sex and race separately.

Exclusion: history of CHD or stroke, no total cholesterol information, no blood pressure information, no diabetes information, no smoking, and no confounding factors, race other than black and white

The tests of the main hypotheses involve calculating the CVD incidence rates in subjects with low risk or borderline risk. We also calculate their relative risk of compared with subjects with high risk profile, and population attributable fraction of borderline and high risk subjects.

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

× 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)?

Manuscript ARIC#611
Coronary heart disease risk prediction in the Atherosclerosis Risk in Communities (ARIC) Study (Chambless)-Published
Manuscript ARIC#824
Ischemic stroke risk prediction in the Atherosclerosis Risk in Communities study (Chambless)-Published
Manuscript ARIC#865
High Normal Blood Pressure and the Risk of Cardiovascular Disease (Kshirsagar AV)-unpublished
Manuscript ARIC#882
The impact of high normal blood pressure and hypertension on cardiovascular disease and all-cause mortality in women (Powell)-unpublished

11. a. Is this manuscript proposal associated with any ARIC ancillary studies or use any ancillary study data? **____ Yes** **×** **No**

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.

References

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