
b. Abbreviated Title (Length 26 characters): Determinants of aortic, tricuspid, and mitral regurgitation in African-Americans

2. Writing Group: John King, R. Scott Wilson, James Towery, Alan Penman, Kenneth Butler, Michael McMullan, Herman Taylor, Tom Mosley.

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

First author:
John J. King, M.D.
Address: 287 Azalea Ct., Brandon, MS 39047
Phone: 601 906-7506 Fax: 601 992-4812
E-mail: jjking66@bellsouth.net

Corresponding/senior author (if different from first author correspondence will be sent to both the first author & the corresponding author):
Thomas Mosley, Jr., Ph.D.
Address: Department of Medicine (Geriatrics)
University of Mississippi Medical Center
2500 North State St.
Jackson, MS 39216-4505
Phone: 601-984-2763 Fax: 601-815-3422
Email: tmosley@umsm.edu

3. Timeline: Data analysis: June – July 2006
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4. Rationale:
There is a paucity of information regarding the prevalence of valvular lesions in African-Americans. Most of the current prevalence data stems from predominately white cohorts (e.g., the Framingham Study) or small cohorts of selected patients. The exception would be the Strong Heart Study with its American Indian population. The ARIC echocardiogram cohort consisted of 2,445 African-Americans between the ages of 49 and 75 who underwent transthoracic echocardiography. It is our intention to use this information to determine the prevalence of regurgitant valvular lesions in African-Americans and to identify the clinical correlates of these lesions. There currently is no information regarding regurgitant valvular lesions and their correlates in an African-American cohort of this size.

Singh et al. has shown in a predominately white cohort between the ages of 28 and 62 that the prevalence of regurgitant valvular lesions was significantly higher than previously suspected. This study reported on mitral and aortic regurgitation. Its variance with previously published prevalence estimates was likely due to the use of color Doppler flow imaging which has replaced the pulsed Doppler methodology used in older prevalence studies. This study identified a number of determinants of valvular regurgitation. More severe mitral regurgitation
was associated with age, left atrial enlargement, lower BMI, hypertension and left ventricular enlargement.

Jones et al. demonstrated in the Strong Heart Study in an American Indian population (45 to 74 years old) that the prevalence of mitral regurgitation was greater than 20%. Mitral regurgitation was independently associated with female sex, age, renal dysfunction, prior myocardial infarction, mitral stenosis, and mitral valve prolapse. Interestingly, it was not associated with diabetes or dyslipidemia. The Strong Heart Study cohort had a high incidence of diabetes which makes it useful as a comparison to the ARIC cohort.

It is our intention to describe the prevalence of regurgitant valvular lesions in the middle-aged and elderly African-American ARIC Jackson cohort. We will also examine clinical correlates of these lesions. We anticipate differences from previously published prevalence data in the ARIC African-American cohort given the high incidence of diabetes, dyslipidemia, and hypertension.

References


5. Main Hypothesis/Study Questions:

What is the prevalence of aortic, mitral, and tricuspid regurgitant lesions in the Jackson African-American cohort? Does prevalence differ by age or sex?

What are the correlates of regurgitant lesions?

What are the (cross-sectional) associations between regurgitant lesions and LV parameters and geometric patterns (LVH, concentric LVH, eccentric LVH, and LV concentric remodeling)?

6. Design and analysis (study design, inclusion/exclusion, outcome and other variables of interest with specific reference to the time of their collection, summary of data analysis, and any anticipated methodologic limitations or challenges if present).

This will be a descriptive / cross-sectional analysis of the prevalence and clinical determinants of mitral, tricuspid, and aortic regurgitation. The main variables will include all aortic, mitral, and tricuspid valve variables in the echo dataset. Covariates will include age, sex, education, BMI, hypertension, systolic and diastolic BP, dyslipidemia (total cholesterol, HDL LDL), diabetes, smoking, drinking, and previous history of CHF or MI. Also: left atrial diameter, LV internal
diameter, LV septal thickness, LV posterior wall thickness, LV systolic and diastolic dysfunction variables, LV ejection fraction, LV fractional shortening, and LV regional wall motion. (LV relative wall thickness and mass – and hence LV geometric pattern - will be calculated from LV internal diameter, LV septal thickness, and LV posterior wall thickness.)

For the univariate and bivariate analyses, persons with mitral stenosis, aortic stenosis, and valves that are not able to be assessed will be excluded, as well as persons with missing echo data. For the multivariable analysis, persons with prevalent CHD or CHF will also be excluded.

For categorical echo variables, covariate-adjusted prevalence ORs and 95% CIs will be calculated using SAS Proc Logistic, with presence/absence of valve regurgitation as the “dependent” variable. Data will be analyzed for each valve separately. The analysis will follow closely what was done in Singh J et al (reference #4) and Jones E et al (reference #3).

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)?

   1. MS #529: Distribution and associations of valvular lesions in the Jackson ARIC cohort - Eigenbrodt M. Withdrawn 09/29/97.

   2. MS #790: Aortic valve sclerosis as a marker for cardiovascular morbidity and mortality in the African-American cohort: The Atherosclerosis Risk in Communities Study – Taylor HA. Published 07/16/03.
3. MS #938: The relationship between aortic valve sclerosis, subclinical cerebral abnormalities, and cardiovascular morbidity and mortality in middle aged African-Americans: the Atherosclerosis Risk in Communities study – Taylor HA. Published 05/05/03.

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. primarily 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/](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.