

**SUPPLEMENTAL MATERIAL**

**Supplemental Table I: Longitudinal Association of Incident Atrial Fibrillation (AF) with Brain MRI Abnormalities in the ARIC Ancillary MRI Substudy, 1993-2006, Excluding Participants with Subclinical Cerebral Infarctions**

Brain MRI Variable	No AF (n=694)	AF (n=14)	Model 1		Model 2	
	N (%)	N (%)	Odds Ratio (95% CI)	P	Odds Ratio (95% CI)	P
<b>Worsening Sulcal Grade</b>	464 (67%)	12 (86%)	2.70 (0.59-12.5)	0.20	2.42 (0.50-11.7)	0.27
<b>Worsening Ventricular Grade</b>	511 (74%)	14 (100%)	Not able to be estimated since all participants with AF had worsening ventricular grade			

Logistic regression was used for dichotomous outcomes to calculate odds ratios.

Model 1: Adjusted for age, race and sex

Model 2: Adjusted for age, race, sex, center, education, occupation, cigarette smoking, body mass index, hypertension, diabetes, prevalent coronary heart disease, prevalent congestive heart failure, anticoagulant medication use

MRI=Magnetic Resonance Imaging, SD= Standard Deviation, cm<sup>3</sup>= Cubic Centimeters

**Supplemental Table II: Cross-Sectional Association of Prevalent Atrial Fibrillation (AF) with Brain MRI Abnormalities in the ARIC Ancillary MRI Substudy, 2004-2006, Excluding Participants with Subclinical Cerebral Infarctions**

Brain MRI Variable	No AF (n=722)	AF (n=20)	Model 1		Model 2	
	Mean (SD)	Mean (SD)	Difference (95% CI)	P	Difference (95% CI)	P
<b>White Matter Hyperintensity Volume, cm<sup>3</sup></b>	11.2 (9.7)	9.7 (5.3)	-2.1 (-6.2-2.0)	0.31	-3.3 (-7.5-0.89)	0.12
<b>Total Brain Volume, cm<sup>3*</sup></b>	1054 (107)	1033 (101)	-14.7 (-36.9-7.5)	0.19	-14.9 (-37.8-8.0)	0.20
	N (%)	N (%)	Odds Ratio (95% CI)	P	Odds Ratio (95% CI)	P
<b>Sulcal Grade <math>\geq 4</math></b>	246 (35%)	12 (60%)	2.1 (0.81-5.3)	0.13	2.2 (0.81-6.0)	0.12
<b>Ventricular Grade <math>\geq 4</math></b>	328 (47%)	13 (65%)	1.6 (0.60-4.1)	0.36	2.1 (0.73-6.1)	0.16

Linear regression was used for continuous outcomes to calculate differences, and logistic regression for dichotomous outcomes to calculate odds ratios.

Model 1: Adjusted for age, race and sex

Model 2: Adjusted for age, race, sex, center, education, occupation, cigarette smoking, body mass index, hypertension, diabetes, prevalent coronary heart disease, prevalent congestive heart failure, anticoagulant medication use

\*Additionally adjusted for intracranial volume.

MRI=Magnetic Resonance Imaging, SD= Standard Deviation, cm<sup>3</sup>= Cubic Centimeter