SUPPLEMENTAL MATERIAL

Development and Validation of a Sudden Cardiac Death Prediction Model for the General Population

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Supplemental Methods

Physical Activity

In ARIC, the level of physical activity was assessed at baseline using the sport index of the Baecke Questionnaire.[1] Sport activity scores range in whole and half increments from 1 – 5, with values <2 indicative of physical inactivity.[2]

In CHS, questionnaires were administered at baseline to estimate each participants' self-reported walking pace, exercise intensity, number of blocks walked weekly and leisure-time activity levels. During the baseline examination, participants were asked they had engaged in any of the following 15 leisure time activities in the prior 2 weeks: swimming, hiking, aerobics, tennis, jogging, racquetball, walking, gardening, mowing, raking, golfing, bicycling, dancing, calisthenics, and riding an exercise cycle. The intensity of each activity has been established and validated by the Minnesota Heart Survey.[3] Participant responses regarding each type of activity, frequency, and duration were used to calculate leisure time physical activity, expressed in kilocalories per week.

Outcome Definitions

Myocardial infarction was defined by a clinical history of cardiac symptoms, elevated cardiac enzymes, and electrocardiographic changes.[4, 5] In ARIC, incident heart failure was defined as the presence of an ICD code for heart failure (ICD 9 428, ICD 10 I50) in a hospitalization or death certificate.[6] In CHS, adjudication by the Events Committee required symptoms, signs, chest radiographic findings, and treatment of heart failure.[4, 7] In both ARIC and CHS, cases of possible stroke were validated using established criteria and were based on interviews with patients, medical records, and brain imaging studies.[4, 8-10] Death from cardiovascular causes in both cohorts was defined as death caused by coronary heart disease,

heart failure, or cerebrovascular disease. Cardiovascular deaths that were not considered to be cases of SCD comprised the non-SCD endpoint. All-cause mortality in ARIC and CHS was identified by a review of obituaries, follow-up calls, medical records, death certificates, and linkage to the National Death Index.

Supplemental Table 1. Calibration metrics after recalibrating prediction models

	ARIC	CHS
Sudden Cardiac Death		
SCD Prediction Score		
Calibration chi-square (p-value)	N/A	14.89 (0.094)
ACC/AHA CVD risk equation		
Calibration chi-square (p-value)	11.47 (0.25)	17.98 (0.021)
Non-Sudden Cardiac Death		
SCD Prediction Score		
Calibration chi-square (p-value)	9.05 (0.43)	43.58 (<0.001)
ACC/AHA CVD risk equation		
Calibration chi-square (p-value)	28.20 (0.001)	21.69 (0.010)
All-Cause Mortality		
SCD Prediction Score		
Calibration chi-square (p-value)	90.16 (<0.001)	71.47 (<0.001)
ACC/AHA CVD risk equation		
Calibration chi-square (p-value)	34.54 (<0.001)	24.16 (0.0022)

Supplemental References

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