Supplemental material

Incident Atrial Fibrillation and the Risk of Stroke in Adults with Chronic Kidney Disease: The Stockholm CREatinine Measurements (SCREAM) Project

Figure S1. Flow chart

Stockholm CREatinine Measurements Project (SCREAM)
1st January 2006 and 31st December 2011.
Moderate kidney dysfunction (eGFR< 60 ml/min/1.73 m²)

Exclusion
    eGFR> 60 ml/min/1.73 m²
    implausible values (<0.3 mg/dL and >17.0 mg/dL)
    in-hospital measurements
    age < 18 years
    missing information for age and/or sex
- history of atrial fibrillation at baseline: using the ICD-10 code "I48"
- ongoing dialysis or history of transplant
- non-resident/migration before first eGFR < 60 ml/min/1.73 m²
- death at the same day as first eGFR < 60 ml/min/1.73 m²

Study cohort
Individuals with moderate kidney dysfunction and no prior atrial fibrillation diagnosis
N= 116 184

No atrial fibrillation
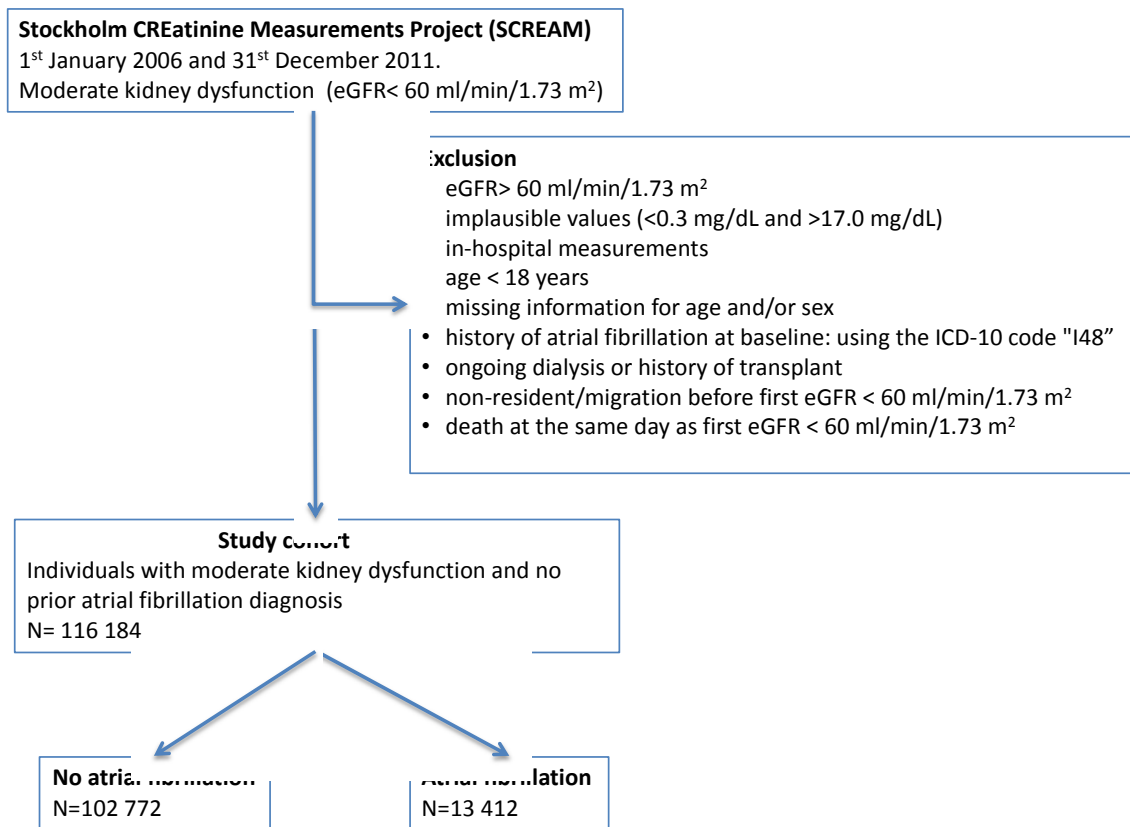N=102 772

Atrial fibrillation
N=13 412

Table S1. Study definitions including a) co-morbidities, b) use of medication; c) outcomes; and d) CHA$_2$DS$_2$-VASc-score.

a) Co-morbidities

Comorbidity	International Classification of Diseases 10th Revision (ICD-10) codes
Stroke, transient ischemic attack or systemic embolism	I63, I64, I69, G45, I74
Gastrointestinal bleeding	K226, K250, K252, K254, K256, K260, K262, K264, K266, K270, K272, K274, K276, K280, K282, K284, K286, K290, K625, K661, K920, K921, K922, I850, I983
Urogenital bleeding	N02, R319, N939, N950, N501A
Other bleeding	H113, H313, H356, H431, H450, H922, I312, J942, M250, R04, R58, T810, D500, D629
Transfusion	DR029, DR033, Z513
Hypertension	I10-15
Diabetes	E10-14, purchase of antidiabetic drugs (ATC: A10) within 5 months up to 1 month after index date
Vascular disease	I21, I252, I70-73
Myocardial infarction	I21, I252
Ischemic heart disease	I20-25
Percutaneous coronary intervention	Procedure code FNG
Coronary artery by-pass grafting	Procedure codes FNA, FNB, FNC, FND, FNE, FNF, FNH, FNJ, FNK, FNW
Peripheral arterial disease	I70-73
Pulmonary embolism	I26
Deep venous thrombosis	I801, I802
Composite venous thromboembolism	I26, I801, I802
Coagulation or platelet defect	D65-69
Valvular atrial fibrillation	I342, I050, I052, Q232, Z952, Z954 or procedure codes FG, FJE, FJF, FK, FM
Other valvular disease	I34-39 (except I342)
Aortic stenosis	I350, I352
Aortic insufficiency	I351, I352
Rheumatic aortic disease	I060-062
Mitral insufficiency	I340
Mitral stenosis non-rheumatic	I342
Rheumatic mitral stenosis	I050-052
Phrosthetic heart valve (Biological)	Z953
Phrosthetic heart valve (Mechanic)	Z952
Pacemaker or implantable cardiac defibrillator	Z950, Z450, procedure code FPE
Renal Failure	N18, N19
Liver disease	K70-77, procedure codes JJB, JJC
Thyroid disease	E00-07
Chronic obstructive pulmonary disease	J43, J44
Cancer	any diagnosis in the domain C within the previous 3 years
Alcohol use	E244, F10, G312, G621, G721, I426, K292, K70, K860, 0354, P043, Q860, T51, Y90, Y91, Z502, Z714
Dementia	F00-03

b) Medications

Medication	Anatomical Therapeutic Chemical (ATC) Classification System codes
Aspirin	B01AC06
Dipyridamole	B01AC07
Combination of aspirin and dipyridamole	B01AC30
Clopidogrel	B01AC04
Statins	C10AA
Amiodarone	C01BD01
Ticagrelor	B01AC24
Non-steroidal anti-inflammatory drugs	M01A
Ticlopidine	B01AC05
Prasugrel	B01AC22
Macrolides	J01FA
Quinolone	J01M
Dronedarone	C01BD07
Selective serotonin re-uptake inhibitors	N06AB
Proton pump inhibitors	A02BC
-Azole antibiotics	J02AB, J02BC
Paracetamol	N02BE01
Combination of sulfonamides and trimethoprim	J01EE
Metrodinazole	J01XD01

c) Study outcomes

Outcome	ICD-10 code	Source of information
All cause Stroke	I60-64	*Hospitalization or death
Ischemic Stroke	I63	*Hospitalization or death
Intracerebral Bleeding	I60, I61	*Hospitalization or death
Intracranial Bleeding	I62, S064-066, I60, I61	*Hospitalization or death
Death		First or second cause of death in the National Population registry

 * Principal and first secondary diagnosis issued at a discharge hospitalization anytime since the inception of the ICD-10th version in Sweden (1997).

d) CHA_2DS_2-VASc score

CHA_2DS_2-VASc	Score
Age $\geq$ 65 and < 75	1
Age $\geq$ 75	2
Female sex	1
Heart failure	1
Hypertension	1
Stroke, Transient ischemic attack or systemic embolism	2
Vascular disease	1

Table S2. Stepwise Cox regression model for the outcome all-cause stroke

	Model 1* Hazard ratio (95% CI)	Model 2** Hazard ratio (95% CI)
eGFR 45-60	2.03 (1.88-2.18)	2.09 (1.93-2.26)
eGFR 30-44	1.84 (1.64-2.06)	1.88 (1.67-2.11)
eGFR <30	1.83 (1.47-2.27)	1.86 (1.50-2.31)

eGFR: estimated Glomerular Filtration Rate (ml/min/1.73m^2)

* Model 1: Adjustments were made for: age, sex, eGFR (ml/min/1.73m^2), history of intracranial bleeding, history of heart failure, anemia, hypertension, diabetes, vascular disease, prior history of stroke, percutaneous coronary intervention, coronary artery by-pass grafting, peripheral arterial disease, pulmonary embolism, deep venous thrombosis, valvular disease, liver disease, thyroid disease, chronic obstructive pulmonary disease, cancer, alcohol abuse, dementia, aspirin, clopidogrel, selective serotonin re-uptake inhibitors and proton pump inhibitors.

** Model 2: as for model 1, and warfarin use.