Supplemental Material

Article title: Age-specific atrial fibrillation incidence, attributable risk factors, and risk of stroke and mortality. Results from the MORGAM Consortium

Supplementary Methods: Description of the included MORGAM cohorts (D1)

DAN-MONICA

The DAN-MONICA study from the Research Center for Prevention and Health includes 11 municipalities from the western part of the suburbs of Copenhagen, Denmark. Random sampling was based on the national population register, stratified by sex and year of birth. The first survey of data collection was carried out in 1982-1984, the second in 1986-1987 and the third in 1991-1992. Surveys 1 and 3 consist of men and women aged 30-70 years and survey 2 consists of men and women aged 30-60 years.

Follow-up was achieved through linkage to the National Cause of Death Register and National Hospital Discharge Register, with endpoint diagnosis based on MORGAM criteria. Follow-up for the cohorts 1, 2, and 3 lasted until 31.12.2010.

Information on prevalent atrial fibrillation (if recorded before the examination date) and incident atrial fibrillation (if recorded during the follow-up period) was obtained from the National Hospital Discharge Register using the Danish modification of ICD: ICD-8 codes 427.93 or 427.94 or the ICD-10 code I48.

Information on incident stroke was obtained from the National Hospital Discharge Register or the Causes of Death Register (either the immediate cause of death, the two intermediate causes, or the underlying cause of death) using the ICD-codes 430-434, 436 (ICD-8) or I60, I61, I63, I64, I69 (ICD-10). Stroke events occurring within 28 days were considered as one event. For stroke events found both in the Hospital Discharge register and the Register of Causes of Death, a stroke diagnosis was given if it was found in either of them.

FINRISK

The FINRISK study is a series of population-based cardiovascular risk factor surveys carried out every five years in five districts of Finland, including North Karelia (in 1982-2002), Northern Savo (former Kuopio, in 1982-2002), Southwestern Finland (in 1982-2002), Oulu Province (in 1997-2002) and the region of Helsinki and Vantaa (in 1992-2002). A stratified random sample was drawn from the national population register; the age-range was 25-74 years. All individuals enrolled in the study received a physical examination, a self-administered questionnaire, and a blood sample was drawn. The cohort is divided in the eastern and the south-western FINRISK cohort.

During follow-up, the National Hospital Discharge Register, the National Causes of Death Register and the National Drug Reimbursement Register were used to identify endpoints. The follow-up extends until December 31st, 2010.

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Information on prevalent atrial fibrillation (if recorded before the examination date) and incident atrial fibrillation (if recorded during the follow-up period) was obtained using the the Finnish modification of ICD: ICD-8 code 427.92, the ICD-9 code 427.3 or the ICD-10 code I48.

In cohorts 01, 02, 03 (since 1998), 24 and 34: For stroke events found in the FINMONICA or FINSTROKE registers, the MONICA diagnostic category was used. For events found in the Hospital Discharge Register or the Register of Causes of Death but not in the FINMONICA or FINSTROKE register, the diagnostic classification was done using hospital discharge code or official underlying, antecedent or direct cause of death ICD codes: ICD-8 codes include 430, 431 (excluding codes 431.01, 431.91 of the Finnish adaptation of ICD-8), 432, 433, 434, 436. ICD-9 codes include 430, 431, 433, 434, 436, but excluding codes 4330X, 4331X, 4339X, 4349X of the Finnish adaptation of ICD-9. ICD-10 codes include I60, I61, I63, I64, I69. Stroke events occurring within 28 days were considered as one event. For stroke events found both in the Hospital Discharge register and the Register of Causes of Death, a stroke diagnosis was given if it was found in either of them. Cohorts 03 (up to 1998): The hospital records were reviewed, and the MONICA diagnostic classification was done for all events which had ICD-8 or ICD-9 code 430-438 or ICD-10 code I60-I69 in the Hospital Discharge Register or the Register of Causes of Death.

The Moli-sani Study

The cohort of the Moli-sani study was recruited in the Molise region from city hall registries using multistage sampling. First, townships were sampled in major areas by cluster sampling; then, within each township, participants aged 35 years or over were selected by simple random sampling. Exclusion criteria were pregnancy at the time of recruitment, lack of understanding (e.g. language difficulties), current multiple trauma or coma, or refusal to sign the informed consent. A total of 24325 men (47%) and women (53%) over the age of 35 years were examined at baseline from 2005 to 2010. Participation rate was 70%.

The cohort was followed-up for a median of 4.2 years (maximum 6.5 years) at December 2011. Follow-up is achieved through record linkage to national mortality registries and hospital discharge registers, validation of stroke events was achieved through hospital record linkage and doctors' medical records using updated MORGAM criteria.

Information on prevalent atrial fibrillation was obtained via medical reports at the baseline visit or an affirmative answer to the question "Have you ever been diagnosed with atrial fibrillation?". The question was not asked during the first year of recruitment of participants to the cohort. Information on incident atrial fibrillation was obtained via hospital discharge records with the ICD-9 code 427.3. Death certificates were derived from the Death Registry of the National Health Service, which provides the underlying cause of death in ICD-9, rarely in ICD-10.

Stroke events were selected for further validation if death certificates presented cerebrovascular disease (ICD-9 codes 430-438) as the underlying, antecedent, or direct cause of death; or hospital discharge records revealed a hospitalization with ICD-9 code 430-432, 434, 436 or ICD-9-CM code 38.12. For all cases selected for further validation, the clinical records were searched and 1) If clinical documentation was found, the event was validated using the MONICA procedure. However, if during the validation of a stroke event, CT or MRI revealed a cerebral infarction or haemorrhage, the stroke event was confirmed even if the MONICA criteria were not fulfilled. 2) If clinical documentation was

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not found, the event validation was based on the death certificate, the hospital discharge form, or a questionnaire to the general practitioner. If these indicated a stroke, the diagnosis was coded as "unclassifiable" and the source of diagnosis as "clinical or death certificate diagnosis", otherwise as "no stroke".

The Northern Sweden MONICA Study

The Northern Sweden MONICA study covered the two northernmost counties of Sweden, i.e. Norrbotten and Västerbotten with altogether 510 000 inhabitants. Population surveys were conducted in 1986, 1990, 1994, 1999, 2004 and 2009, with altogether 10,517 unique participants. On the first two occasions, 2000 persons aged 25 to 64 years were randomly selected per survey, and in the last three surveys, the upper age limit was extended to 74 years and 2500 individuals were invited per survey. A stratified randomized selection procedure by age and sex (250 persons in each sex/10-year age stratum) has been used. The participation rate was 69-81%. In 1999, all people invited to any of the three previous population surveys were re-invited for repeated measurements to be collected.

Follow-up is available for all cohorts until December 2011, using data from the National Swedish cause of death and in-patient care registers. Deaths were collected from the national death register, maintained at the Central Bureau of Statistics, covering all people who were resident in Sweden (citizens and non-citizens) at the time of death. Residents who die abroad or outside the study area are also included. Incident stroke events occurring in the region between 1985 and 2010 and below the age of 75 were collected and validated according to MONICA criteria by two event registers whose accuracy and validity have been tested against national registers.

Information on prevalent atrial fibrillation (if recorded before the examination date) and incident atrial fibrillation (if recorded during the follow-up period) was obtained using the following ICD codes: ICD-8-SV 42792, ICD-9-SV 427D, ICD-10-SE I489 plus the Swedish modification A to F as fifth position differentiating between flutter and fibrillation, and paroxysmal or chronic flutter/fibrillation.

Linkage to the stroke event register was done to recognize non-fatal or fatal stroke events with any diagnostic category. For events found in the Stroke Event Register, the MONICA diagnostic category was used. The diagnosis of fatal and non-fatal events outside the age limits (above 75) and/or outside the region, was obtained from the national diagnosis register. These diagnoses were not validated. For events which were found in the National Registers but not in the Stroke Event Register, the MORGAM diagnostic category was derived from the non-validated ICD-codes as follows: ICD-8-SV: 43090, 43100, 43399, 43499. ICD-9-SV: 430X, 431, 434, 436X. ICD-10-SE: I60, I61, I63, I64.9. Stroke events occurring within 28 days of each other were considered as one event.

The Tromsø Study

The Tromsø Study is a population-based study in the municipality of Tromsø in northern Norway, with seven surveys conducted every 6-8 years between 1974 and 2016. For the present analyses, data from the third (1986-87) and fourth (1994-95) surveys was used (n=13 878), and the national population registry was used to define the study population. All men born 1925 to 1966 and all women born 1930 to 1966 living in Tromsø were invited to participate in the third survey of the Tromsø Study. The fourth survey was conducted in 1994-95 and is the largest survey so far, inviting all inhabitants in the municipality aged ≥25 years.

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Follow-up is available until December 2010 through linkage to the National Cause of Death Registry and the discharge diagnosis registry at the University Hospital of North Norway. Deaths were collected from the Causes of Death Registry maintained at Statistics Norway, covering subjects registered as living in Norway at the time of their death, without regard to whether the death took place in Norway or abroad. Data on mortality, causes of death, including first-ever fatal cardiovascular events, are identified through linkage to the Registry.

Information on prevalent atrial fibrillation (if recorded before the examination date) and incident atrial fibrillation (if recorded during the follow-up period) was obtained from the hospital medical records, recorded on an electrocardiogram and validated by a physician, with the following exclusions: 1) Episode(s) of atrial fibrillation occurring only within the 28 day-period after an acute myocardial infarction; 2) Episode(s) of atrial fibrillation occurring only within the 28 day-period after other acute cardiac events (e.g. heart failure, pulmonary oedema); 3) Episode(s) of atrial fibrillation occurring only within the 28 day-period after surgery; and 4) Episode(s) of atrial fibrillation occurring the terminal last 7 days before death.

Incident stroke was defined as a focal or global neurological impairment of sudden onset and lasting more than 24 h (or leading to death) and of presumed vascular aetiology. Information on imaging (CT, MRI, angiography) and/or spinal tap was used to classify stroke events as either cerebral infarction, intracerebral haemorrhage, subarachnoidal haemorrhage or unclassifiable stroke. Strokes were classified as ischemic only when imaging had ruled out haemorrhagic stroke. Stroke events occurring within 28 days of each other were considered as one event.

The registration of fatal recurrent stroke events is based on diagnoses from the national Causes of Death Registry. These were classified as cause of death code ICD-8: 430-434, 436; ICD-9: 430, 431, 433,434, 436, and ICD-10: I60, I61, I63, I64, I69.

Supplementary Tables: Tables S1-S7

Table S1. Sample characteristics at baseline and during follow-up for the DAN-MONICA cohort (n = 5611)

Characteristics	Median (IQR) or n (%)	Missing values (%)
Age at the date of baseline examination (years)	50.8 (41.4 - 60.7)	0.0
Men	2855 (50.9%)	0.0
BMI (kg/m^2)	24.9 (22.6 - 27.7)	0.1
Systolic blood pressure (mm Hg)[a]	125.0 (114.0 - 139.0)	0.0
Total serum cholesterol (mmol/l)	6.0 (5.3 - 6.8)	0.3
Daily smoker	2404 (42.8%)	0.0
History of diabetes	166 (3.0%)	0.0
Taking antihypertensive drugs	497 (9.2%)	3.4
Hypertension[b]	1542 (28.1%)	2.3
Average daily consumption of alcohol (g)	9.0 (3.0 - 19.0)	0.5
C-reactive protein (mg/L)	1.4 (0.6 - 3.1)	6.2
N-terminal-pro B-type natriuretic peptide (pg/mL)	(-)	100.0
log10(N-terminal-pro B-type natriuretic peptide (pg/mL))	(-)	100.0
Creatinine (mg/dL)	0.8 (0.7 - 0.9)	6.0
Estimated glomerular filtration rate[c]	94.1 (82.3 - 103.3)	6.0
Documented or self-reported history of MI or stroke	232 (4.1%)	0.1
AF during follow-up	142 (2.5%)	0.0
Stroke during follow-up	216 (3.8%)	0.0
Death during follow-up	691 (12.3%)	0.0
Follow-up time (years)	10.0 (10.0 - 10.0)	0.0
Time-to AF among those with AF during follow-up (years)	6.7 (3.7 - 8.3)	
Time-to death among those who died during follow-up (years)	5.9 (3.3 - 8.1)	
Time-to stroke among those with stroke during follow-up (years)	5.7 (3.1 - 7.7)	

BMI: body mass index; MI: myocardial infarction; AF: atrial fibrillation; IQR; interquartile range.
[a]Mean of two measurements.
[b]Systolic blood pressure ≥140 mm Hg and/or taking antihypertensive drugs.
[c]Using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula with creatinine.

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Table S2. Sample characteristics at baseline and during follow-up for the FINRISK cohort (n=24490)

Characteristics	Median (IQR) or n (%)	Missing values (%)
Age at the date of baseline examination (years)	53.6 (46.7 - 59.9)	0.0
Men	11990 (49.0%)	0.0
BMI (kg/m^2)	26.9 (24.3 - 29.9)	1.7
Systolic blood pressure (mm Hg)[a]	140.0 (127.0 - 155.0)	1.8
Total serum cholesterol (mmol/l)	5.9 (5.2 - 6.7)	2.0
Daily smoker	5206 (21.5%)	1.3
History of diabetes	1581 (6.5%)	0.0
Taking antihypertensive drugs	4284 (19.1%)	8.4
Hypertension[b]	13700 (58.4%)	4.2
Average daily consumption of alcohol (g)	2.0 (0.0 - 9.0)	3.1
C-reactive protein (mg/L)	1.3 (0.7 - 2.8)	78.5
N-terminal-pro B-type natriuretic peptide (pg/mL)	55.8 (28.7 - 102.2)	79.8
log10(N-terminal-pro B-type natriuretic peptide (pg/mL))	1.7 (1.5 - 2.0)	79.8
Creatinine (mg/dL)	0.9 (0.8 - 1.0)	78.8
Estimated glomerular filtration rate[c]	85.0 (73.7 - 94.6)	78.8
Documented or self-reported history of MI or stroke	1575 (6.4%)	0.0
Reporting Unit Aggregate		0.0
FIN-EAS	15522 (63.4%)	
FIN-WES	8968 (36.6%)	
AF during follow-up	716 (2.9%)	0.0
Stroke during follow-up	900 (3.7%)	0.0
Death during follow-up	2143 (8.8%)	0.0
Follow-up time (years)	10.0 (8.9 - 10.0)	0.0
Time-to AF among those with AF during follow-up (years)	6.0 (3.6 - 8.0)	
Time-to death among those who died during follow-up (years)	5.9 (3.3 - 7.8)	
Time-to stroke among those with stroke during follow-up (years)	5.1 (2.7 - 7.6)	

BMI: body mass index; MI: myocardial infarction; AF: atrial fibrillation; IQR; interquartile range.
[a]Mean of two measurements.
[b]Systolic blood pressure ≥140 mm Hg and/or taking antihypertensive drugs.
[c]Using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula with creatinine.

Table S3. Sample characteristics at baseline and during follow-up for the Moli-sani Study cohort (n=15549)

Characteristics	Median (IQR) or n (%)	Missing values (%)
Age at the date of baseline examination (years)	55.3 (47.4 - 64.3)	0.0
Men	7456 (48.0%)	0.0
BMI (kg/m^2)	27.7 (24.9 - 30.9)	0.0
Systolic blood pressure (mm Hg)[a]	138.0 (126.0 - 153.0)	0.0
Total serum cholesterol (mmol/l)	5.5 (4.8 - 6.3)	0.7
Daily smoker	3112 (20.0%)	0.1
History of diabetes	1034 (6.7%)	0.5
Taking antihypertensive drugs	4678 (30.2%)	0.5
Hypertension[b]	8752 (56.4%)	0.2
Average daily consumption of alcohol (g)	7.0 (0.0 - 27.0)	5.9
C-reactive protein (mg/L)	1.6 (0.8 - 3.2)	2.1
N-terminal-pro B-type natriuretic peptide (pg/mL)	51.5 (27.4 - 93.6)	7.0
log10(N-terminal-pro B-type natriuretic peptide (pg/mL))	1.7 (1.4 - 2.0)	7.0
Creatinine (mg/dL)	0.8 (0.7 - 0.8)	1.9
Estimated glomerular filtration rate[c]	95.9 (86.8 - 103.5)	1.9
Documented or self-reported history of MI or stroke	432 (2.8%)	0.4
AF during follow-up	213 (1.4%)	0.0
Stroke during follow-up	56 (0.4%)	0.0
Death during follow-up	278 (1.8%)	0.0
Follow-up time (years)	3.8 (3.1 - 4.5)	0.0
Time-to AF among those with AF during follow-up (years)	2.0 (1.1 - 3.0)	
Time-to death among those who died during follow-up (years)	2.3 (1.3 - 3.3)	
Time-to stroke among those with stroke during follow-up (years)	2.2 (0.9 - 3.2)	

BMI: body mass index; MI: myocardial infarction; AF: atrial fibrillation; IQR; interquartile range.
[a]Mean of two measurements.
[b]Systolic blood pressure ≥140 mm Hg and/or taking antihypertensive drugs.
[c]Using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula with creatinine.

Table S4. Sample characteristics at baseline and during follow-up for the Tromsø Study cohort (n=13878)

Characteristics	Median (IQR) or n (%)	Missing values (%)
Age at the date of baseline examination (years)	51.1 (44.5 - 65.4)	0.0
Men	6863 (49.5%)	0.0
BMI (kg/m^2)	24.9 (22.8 - 27.4)	0.3
Systolic blood pressure (mm Hg)[a]	136.5 (124.5 - 152.0)	0.0
Total serum cholesterol (mmol/l)	6.4 (5.6 - 7.3)	0.2
Daily smoker	5212 (37.6%)	0.1
History of diabetes	364 (2.6%)	0.1
Taking antihypertensive drugs	1208 (10.3%)	15.3
Hypertension[b]	6275 (50.8%)	10.9
Average daily consumption of alcohol (g)	2.0 (0.0 - 5.0)	71.3
C-reactive protein (mg/L)	(-)	100.0
N-terminal-pro B-type natriuretic peptide (pg/mL)	(-)	100.0
log10(N-terminal-pro B-type natriuretic peptide (pg/mL))	(-)	100.0
Creatinine (mg/dL)	(-)	100.0
Estimated glomerular filtration rate[c]	(-)	100.0
Documented or self-reported history of MI or stroke	878 (6.3%)	0.0
AF during follow-up	672 (4.8%)	0.0
Stroke during follow-up	625 (4.5%)	0.0
Death during follow-up	1995 (14.4%)	0.0
Follow-up time (years)	10.0 (10.0 - 10.0)	0.0
Time-to AF among those with AF during follow-up (years)	6.1 (3.6 - 8.1)	
Time-to death among those who died during follow-up (years)	5.5 (2.9 - 7.8)	
Time-to stroke among those with stroke during follow-up (years)	5.7 (2.7 - 7.9)	

BMI: body mass index; MI: myocardial infarction; AF: atrial fibrillation; IQR; interquartile range.
[a]Mean of two measurements.
[b]Systolic blood pressure ≥140 mm Hg and/or taking antihypertensive drugs.
[c]Using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula with creatinine.

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Table S5. Sample characteristics at baseline and during follow-up the Northern Sweden MONICA Study cohort (n=7423)

Characteristics	Median (IQR) or n (%)	Missing values (%)
Age at the date of baseline examination (years)	55.4 (47.8 - 63.1)	0.0
Men	3691 (49.7%)	0.0
BMI (kg/m^2)	27.0 (24.2 - 30.3)	0.3
Systolic blood pressure (mm Hg)[a]	132.0 (120.0 - 147.0)	0.1
Total serum cholesterol (mmol/l)	6.1 (5.4 - 7.0)	0.3
Daily smoker	1371 (18.6%)	0.5
History of diabetes	381 (5.1%)	0.0
Taking antihypertensive drugs	1310 (17.9%)	1.6
Hypertension[b]	3201 (43.6%)	1.0
Average daily consumption of alcohol (g)	2.0 (0.0 - 5.0)	2.3
C-reactive protein (mg/L)	1.1 (0.5 - 2.3)	3.7
N-terminal-pro B-type natriuretic peptide (pg/mL)	50.8 (26.3 - 96.4)	10.5
log10(N-terminal-pro B-type natriuretic peptide (pg/mL))	1.7 (1.4 - 2.0)	10.5
Creatinine (mg/dL)	0.7 (0.6 - 0.8)	3.4
Estimated glomerular filtration rate[c]	98.9 (89.1 - 107.0)	3.4
Documented or self-reported history of MI or stroke	508 (6.8%)	0.0
AF during follow-up	278 (3.7%)	0.0
Stroke during follow-up	258 (3.5%)	0.0
Death during follow-up	515 (6.9%)	0.0
Follow-up time (years)	10.0 (7.8 - 10.0)	0.0
Time-to AF among those with AF during follow-up (years)	5.5 (3.1 - 7.6)	
Time-to death among those who died during follow-up (years)	6.0 (3.8 - 8.0)	
Time-to stroke among those with stroke during follow-up (years)	5.3 (2.6 - 7.4)	

BMI: body mass index; MI: myocardial infarction; AF: atrial fibrillation; IQR; interquartile range.
[a]Mean of two measurements.
[b]Systolic blood pressure ≥140 mm Hg and/or taking antihypertensive drugs.
[c]Using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula with creatinine.

Table S6. Multivariable-adjusted HR for AF by age groups, additionally adjusted for interactions

	Age at study entry (years)			
	40-49 (n=24914)	50-59 (n=21824)	60-69 (n=13441)	≥70 (n=6772)
BMI (per 5 kg/m² increase)	1.40 (1.17 - 1.68, <0.001)	1.37 (1.23 - 1.52, <0.001)	1.37 (1.25 - 1.50, <0.001)	1.17 (1.06 - 1.29, 0.001)
History of diabetes	0.57 (0.18 - 1.80, 0.339)	1.42 (1.00 - 2.01, 0.052)	1.26 (0.96 - 1.65, 0.101)	1.59 (1.23 - 2.07, <0.001)
Daily smoker	1.13 (0.79 - 1.63, 0.501)	1.14 (0.89 - 1.45, 0.306)	1.15 (0.92 - 1.45, 0.224)	1.00 (0.78 - 1.27, 0.992)
Hypertension[a]	1.40 (0.98 - 2.00, 0.068)	1.20 (0.95 - 1.52, 0.129)	1.32 (1.07 - 1.64, 0.011)	1.29 (1.02 - 1.63, 0.034)
Total serum cholesterol (per mmol/l increase)	0.92 (0.78 - 1.08, 0.293)	0.86 (0.79 - 0.94, 0.001)	0.88 (0.82 - 0.96, 0.003)	0.96 (0.89 - 1.05, 0.373)
Average daily alcohol consumption (per 20g increase)	1.18 (1.02 - 1.36, 0.024)	1.17 (1.05 - 1.30, 0.005)	1.13 (1.00 - 1.28, 0.046)	0.92 (0.79 - 1.08, 0.325)
History of MI or stroke	4.63 (2.57 - 8.34, <0.001)	1.90 (1.37 - 2.62, <0.001)	1.67 (1.32 - 2.12, <0.001)[c]	1.58 (1.28 - 1.95, <0.001)[c]
eGFR[b] (per 10 units increase)	1.07 (0.91 - 1.27, 0.420)	0.93 (0.84 - 1.03, 0.194)	1.00 (0.92 - 1.09, 0.980)	0.88 (0.81 - 0.96, 0.004)
C-reactive protein (per mg/L increase)	0.94 (0.83 - 1.06, 0.313)	1.00 (0.97 - 1.03, 0.981)	1.01 (0.99 - 1.02, 0.242)	1.01 (0.99 - 1.02, 0.330)
Nt-proBN (pg/mL) (per 10-fold increase)	5.56 (2.71 - 11.39, <0.001)	4.77 (3.27 - 6.97, <0.001)	5.49 (4.10 - 7.34, <0.001)	7.56 (5.60 - 10.20, <0.001)

Adjusted for age, sex, BMI, total serum cholesterol, daily cigarette smoking, history of diabetes, hypertension, daily consumption of alcohol, study site, cholesterol*cholesterol interaction, FINRISK East*time interaction.

BMI: body mass index; MI: myocardial infarction; AF: atrial fibrillation; HR: hazard ratio; eGFR: estimated glomerular filtration rate; Nt-proBN: N-terminal-pro B-type natriuretic peptide.

p values in parentheses apply to HRs for each unit increase in risk factor within each age group, whereas [c] denotes significant HR differences between age groups.

[a]Systolic blood pressure ≥140 mm Hg and/or taking antihypertensive drugs.

[b]Using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula with creatinine.

[c]Significantly different from age 40-49 years, *p*<0.008; all other between-groups differences *p*>0.008.

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Table S7. Unadjusted HR for AF by age groups

	Age at study entry (years)			
	40-49 (n=24914)	50-59 (n=21824)	60-69 (n=13441)	≥70 (n=6772)
BMI (per 5 kg/m^2 increase)	1.65 (1.46 - 1.87, <0.001)	1.46 (1.34 - 1.60, <0.001)	1.39 (1.29 - 1.50, <0.001)	1.11 (1.03 - 1.19, 0.008)
History of diabetes	1.24 (0.51 - 3.01, 0.638)	1.97 (1.41 - 2.75, <0.001)	1.61 (1.26 - 2.06, <0.001)	1.46 (1.17 - 1.82, <0.001)
Daily smoker	1.10 (0.82 - 1.48, 0.523)	1.05 (0.85 - 1.30, 0.623)	0.95 (0.78 - 1.17, 0.637)	0.87 (0.72 - 1.07, 0.187)
Hypertension[a]	2.16 (1.62 - 2.88, <0.001)	1.71 (1.40 - 2.10, <0.001)	1.65 (1.36 - 1.99, <0.001)	1.52 (1.24 - 1.86, <0.001)
Total serum cholesterol (per mmol/l increase)	1.12 (1.00 - 1.26, 0.058)	0.93 (0.85 - 1.00, 0.066)	0.88 (0.83 - 0.94, <0.001)	0.94 (0.89 - 0.99, 0.021)
Average daily alcohol consumption (per 20g increase)	1.26 (1.12 - 1.42, <0.001)	1.20 (1.10 - 1.32, <0.001)	1.11 (1.00 - 1.24, 0.055)	0.95 (0.83 - 1.09, 0.466)
History of MI or stroke	6.72 (3.90 - 11.58, <0.001)	2.93 (2.20 - 3.90, <0.001)	2.15 (1.75 - 2.64, <0.001)	1.78 (1.51 - 2.10, <0.001)
eGFR[b] (per 10 units increase)	1.01 (0.86 - 1.19, 0.895)	0.91 (0.83 - 1.00, 0.041)	0.99 (0.92 - 1.07, 0.866)	0.87 (0.80 - 0.94, <0.001)
C-reactive protein (per mg/L increase)	0.97 (0.88 - 1.06, 0.473)	1.01 (0.99 - 1.04, 0.189)	1.01 (1.00 - 1.02, 0.094)	1.01 (1.00 - 1.02, 0.017)
Nt-proBN (pg/mL) (per 10-fold increase)	3.01 (1.40 - 6.44, 0.005)	4.92 (3.38 - 7.16, <0.001)	5.30 (4.07 - 6.92, <0.001)	7.17 (5.53 - 9.31, <0.001)

BMI: body mass index; MI: myocardial infarction; AF: atrial fibrillation; HR: hazard ratio; eGFR: estimated glomerular filtration rate; Nt-proBN: N-terminal-pro B-type natriuretic peptide.
[a]Systolic blood pressure ≥140 mm Hg and/or taking antihypertensive drugs.
[b]Using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula with creatinine.