

history of stroke/TIA, heart failure, vascular disease, and AF type. Prescribing patterns according to country-specific guidelines are reported in the figure. More than 70% of patients received the correct dose of rivaroxaban, apixaban or dabigatran. Treatment below the recommended doses of rivaroxaban or apixaban was more common in patients from Japan (38.0% [rivaroxaban], 39.4% [apixaban]) than other regions (17.8% [rivaroxaban], 24.0% [apixaban]). Patients on edoxaban were more likely to receive doses below the recommendations compared with the other NOACs; approximately two-thirds of these patients were from Japan. Few patients (3.6%, overall) were treated above the recommended doses. Of those who were treated over the recommended doses, 67.7% had moderate-to-severe CKD. By comparison, 8.9% of patients on recommended doses and 7.1% on non-recommended low-doses had moderate-to-severe CKD.

Conclusion: Since the introduction of NOACs, most patients receive the recommended NOAC doses according to country-specific guidelines. Treatment above the recommended doses is relatively rare compared with non-recommended low dosing. Prescription of non-recommended doses is associated with an increased risk of death compared with patients on recommended doses, even after adjusting for baseline factors.

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Real-world observational data confirm the efficacy of atrial antitachycardia pacing in terminating slow and regular atrial tachyarrhythmias in patients wearing implantable cardiac electronic devices

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Background: Atrial tachyarrhythmias (AT/AF) are frequently observed and are associated with worse prognosis in patients with cardiac implantable electronic devices (CIED). The international MINERVA trial showed that atrial antitachycardia pacing (ATP) terminates slow and regular AT/AF and this translates in a significant prevention of permanent AT/AF in comparison with standard dual-chamber pacing in patients who received a dual-chamber pacemaker for sinus node disease.

Objective: We aimed to expand this evidence also in pacemaker patients with AV block, in patients wearing implantable cardioverter defibrillators (ICD), and in patients with cardiac resynchronization therapy (CRT) ICD.

Methods: Consecutive patients with CIED were prospectively followed by 26 Italian cardiology centers in an observational research. Clinical and device data were collected through in clinic visit and/or remote transmissions of device data. Research endpoints were AF episode cycle length, ATP therapy efficacy in terminating treated AF episodes, AF episode rhythm regularity and number of transitions among different AF detection zones in each AF episode (the 10 AF detection zones comprise 7 zones of 50 ms length for regular rhythms and 3 zones of 100 ms length for irregular rhythms). The ATP efficacy was adjusted by means of the generalized estimating equation (GEE) method and reported together with the 95% Confidence Interval (CI). Logistic regression was used to compare ATP efficacy in AT/AF with median cycle length lower and higher than 200 ms and the odds ratio (OR) together with the 95% CI was reported.

Results: The cohort of 1047 patients with dual-chamber and triple-chamber CIED was composed by 394 patients with dual-chamber pacemaker, 234 patients with dual-chamber ICD and 419 patients with CRT ICD. In a median follow-up of 10.7 months (inter-quartile range: 3.5–16.9 months), 602/1047 (57.5%) patients suffered AT/AF episodes. Device diagnostics stored detailed AT/AF data for 87721 episodes; 33414 episodes were treated by atrial ATP in 356 patients and 11169 (33.4%) episodes were terminated (GEE-adjusted ATP efficacy was 27.3% (95% CI=24.9–29.8%).

AT/AF median atrial cycle length was 260 (inter-quartile range: 220–320). ATP efficacy showed a dichotomous behaviour being 23.7% (95% CI=20.4–27.3%) in AT/AF with median cycle length lower than 200 ms and 28.9% (95% CI=26.3–31.5%) in AT/AF with median cycle length higher than or equal to 200 ms (OR: 0.76, 95% CI=0.63–0.91, p=0.002). Many AF episodes showed rate and rhythm temporal transitions, as shown by a median value of transitions per episode among the 10 detection windows equal to 2.6±1.4.

Conclusion: In a large cohort of patients with dual-chamber and triple-chamber CIED, followed in real-world clinical practice, we confirmed that atrial ATP does terminate a relevant portion of tachyarrhythmia episodes and that ATP efficacy is associated with arrhythmia transitions to slower rates or more regular rhythms.

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Value of interatrial block for the prediction of silent ischemic brain lesions

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Introduction: Previous studies demonstrated that interatrial block (IAB) is associated with atrial fibrillation (AF) in different clinical scenarios. The aim of our study was to determine whether IAB could predict silent ischemic brain lesions (sIBL), detected by magnetic resonance imaging (MRI).

Methods: The study group consisted in 123 patients (36% male) who had presented to the neurology outpatient clinic and had brain MRI performed within 7 days. Patients were asymptomatic in terms of stroke-like symptoms. A 12-lead surface ECG was obtained from each patient. IAB was defined as P-wave duration > 120 ms with (advanced IAB) or without (partial IAB) biphasic morphology in the inferior leads.

Results: sIBL was detected in 61 patients. Patients with sIBL were older (P<0.001), have more left ventricular hypertrophy (LVH) (P=0.02) and higher CHA₂DS₂-VASc score compared to those without (P<0.001). P-wave duration was significantly longer in patients with sIBL (124 [110.5–129] ms vs 107 [102–116.3] ms) (P<0.001). IAB was diagnosed in 36 patients (59%) with sIBL (+) and in 11 patients (18%) with sIBL (-); p<0.001. Multivariate Cox regression analysis identified age [Odds ratio (OR), 1.061; 95% confidence interval (CI), 1.012 - 1.113; p=0.014], CHA₂DS₂-VASc score (OR, 1.758; 95% CI, 1.045 - 2.956; p=0.034), LVH (OR, 3.062; 95% CI, 1.161 - 8.076; p=0.024) and presence of IAB (including both partial and advanced) (OR, 5.959; 95% CI, 2.269 - 15.653; p<0.001) as independent predictors of sIBL.

Table 1. Prediction of sIBL by using multiple logistic regression analysis

	OR	CI 95%	P value
Age	1.061	1.012–1.113	0.014
Gender	1.025	0.352–2.987	0.964
CHA ₂ DS ₂ -VASc	1.758	1.045–2.956	0.034
LVH	3.062	1.161–8.076	0.024
I-IAB	5.959	2.269–15.653	<0.001

Conclusion: IAB is a strong predictor of sIBL and can be easily diagnosed by performing surface 12-lead ECG.

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Identifying the undiagnosed AF patient through “Know Your Pulse” community pharmacy based events held in ten countries during Arrhythmia Alliance World Heart Rhythm Week 2017

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Introduction: Atrial fibrillation (AF) is the most common arrhythmia, it is frequently asymptomatic with a third of people with AF currently undiagnosed. A manual pulse rhythm check can help improve detection rates and use of mobile ECG technology can help in its diagnosis.

Previous studies have shown the value of Community Pharmacy in helping to opportunistically screen for people with various conditions including AF. Arrhythmia Alliance (A-A) hosts the annual Arrhythmia Alliance World Heart Rhythm Week and the campaign theme was “identifying the undiagnosed person with arrhythmia”.

A-A partnered with The International Pharmacist for Anticoagulation Care Taskforce (iPACT) to host pulse awareness events (“Know Your Pulse” events – a proprietary A-A campaign) across ten countries during Arrhythmia Alliance World Heart Rhythm Week.

Aims: – Raise public awareness of pulse rhythm and connection to AF
– Demonstrate effectiveness of opportunistic population screening for AF in Community Pharmacy setting, using a manual pulse check and single lead mobile ECG technology

Method: An e-learning platform was developed to support education and dissemination materials for display in pharmacies. A secure web based application was developed for all pharmacists to enter patient relevant data and findings.

Resources for public use in the participating countries, translated into local lan-

guage, included posters and public information leaflets on AF and pulse rhythm. Pharmacists were instructed to take the pulse manually, assess symptoms and risk factors. Whenever an abnormal heart rate or rhythm was detected, the patient was referred to a physician with a letter containing additional information. Where feasible, the manual pulse check was supplemented by use of a mobile single lead ECG.

Results: Ten countries participated, and 3,974 participants were involved in the awareness campaign. For the screening event, a total of 2,573 patients were included in the final analysis. The majority were female (68.9%); mean age approx. 65 years. Risk factors identified: hypertension (48.9%), diabetes (19.8%) and peripheral heart disease (15.4%). The least common was having had a stroke, Transient Ischaemic Attack or Thromboembolism, (1.1%).

Mean heart rate detected was 72.7bpm. Bradycardia detected in 107 people and tachycardia in 14 people. An irregular pulse was detected in 212 patients (8.3%). AF confirmed in 35 people, a detection rate of 1.4%.



Know Your Pulse

Conclusion: Opportunistic screening for AF in people over the age of 65 years is recommended in ESC guidelines on the management of AF. The experience gained from conducting this initiative in various health care settings suggests that community pharmacies may be a good location for identifying undiagnosed people with AF.

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Prevalence of silent vascular brain lesions among patients with atrial fibrillation and no known history of stroke

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Background: Patients with atrial fibrillation (AF) have an increased risk of stroke. However, the total burden of ischemic or hemorrhagic brain lesions in AF patients remains largely unknown. We assessed the prevalence of such lesions on cerebral magnetic resonance imaging (cMRI) in a large and unselected cohort of AF patients.

Methods: Swiss-AF is a prospective multicenter observational AF cohort study in Switzerland (n=2,415; 13 sites). cMRI was performed in all eligible patients based on a standardized protocol. All scans were reviewed in a central core lab according to standardized criteria.

Results: cMRI scans were available in 1,736 patients. 230 (13%) patients had a previous history of stroke (95% ischemic and 5% hemorrhagic) and 159 (9%) a history of a transient ischemic attack (TIA). Among the 1,388 patients without a history of stroke or TIA, 366 (26%) were women and the mean age was 72±9 years. Of these, 1,234 (89%) were on OAC and the mean CHA2DS2-VASc Score was 2.8±1.4. Two hundred and seven (15%) patients had silent ischemic infarctions, 222 (16%) lacunes and 269 (19%) microbleeds. Only 819 (59%) patients had no evidence for silent vascular brain lesions.

Conclusion: In this large population of AF patients with a high prevalence of OAC, patients had a high burden of silent vascular brain lesions on MRI, including a substantial number of silent infarctions and microbleeds. The clinical impact of these findings needs to be addressed in future studies.

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Mass screening for atrial fibrillation using n-terminal pro b-type natriuretic peptide - preliminary results from the strokestop 2 study

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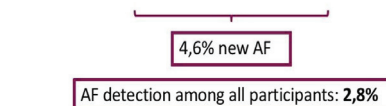
Background: Atrial fibrillation (AF) is common among the elderly and a significant risk-factor for embolic ischemic stroke. AF is often asymptomatic and therefore undiagnosed. We have previously reported a yield of 3% of newly diagnosed AF using intermittent ECG screening in a 75-year-old population. N-terminal pro b-type natriuretic peptide (NT-proBNP) levels are elevated in patients with AF, and prior studies indicate that NT-proBNP elevation can predict development of AF. In patients with known AF, NT-proBNP levels seem to be in proportion to stroke risk.

Purpose: We aim at reporting preliminary data on the yield of systematic screening for AF in a 75/76-year-old population using NT-proBNP and handheld ECG recordings in a stepwise screening procedure.

Methods: All individuals born in 1940 and 1941 residing in the Stockholm region (n=28,712) were randomised in a 1:1 fashion to be invited to a screening program for AF or to serve as a control group. Participants free of AF (n=6127) had NT-proBNP analysed. Individuals with NT-proBNP ≥ 125 ng/L (n=3636, 59%) were offered extended ECG-screening whereas individuals with NT-proBNP < 125 ng/L (n=2491, 41%) had a single one-lead ECG recording.

Results: In participants with NT-proBNP ≥ 125 ng/L 169 (4.6%, 95% CI 4.0–5.4) were diagnosed with AF, of these 32 (24%) were diagnosed on their first ECG recording. One participant with NT-proBNP < 125ng/L was diagnosed with AF on a single-lead ECG. Oral anticoagulation (OAC) treatment was initiated in 93% of those with new AF. In the population randomized to screening OAC treatment was commenced in 1% (158/13845).

NT-proBNP:	>900ng/L	125-900ng/L	<125ng/L
Index ECG	16%	0,4%	1 (0,04%)
Prolonged screening	8%	3,6%	N/A
Total	24%	4,0%	0,04



AF detection

Conclusions: NT-proBNP-enriched systematic screening for AF identified a significant proportion of participants with untreated AF. Oral anticoagulation treatment was highly accepted in the group diagnosed with AF.

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Incident comorbidities in patients with atrial fibrillation initially with a CHA2DS2-VASc score of 0 (males) or 1 (females): how frequent should we reassess stroke risk in these patients?

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Background: Oral anticoagulants (OACs) are not recommended for low risk patients with atrial fibrillation (AF), that is, a CHA2DS2-VASc score of 0 in males or 1 in females. However, stroke risk is not static, and CHA2DS2-VASc scores would continuously increase in many patients.

Objectives: In the present study, we aimed to investigate the incidence of CHA2DS2-VASc score changes in AF patients initially with a baseline score of 0 (males) or 1 (females). Second, we aimed to propose a reasonable timing interval at which stroke risk should be reassessed for AF patients who were initially deemed to be at "low-risk", such that OACs could be prescribed in a timely manner to prevent ischemic stroke.

Methods: We studied 14,606 AF patients who did not receive anti-platelet agents or OACs with a baseline CHA2DS2-VASc score of 0 (males) or 1 (females). The CHA2DS2-VASc scores of patients were followed up and updated until the occurrence of ischemic stroke or mortality or December 31, 2011. The associations between the prescription of warfarin and risk of adverse events (ischemic stroke, intra-cranial hemorrhage, or mortality) once patients' scores changed were analyzed. The decile values of durations to incident comorbidities and from the acquisition of new comorbidities to ischemic stroke were studied.

Results: The CHA2DS2-VASc scores of patients continuously increased (Figure). During a mean follow up of 4 years, 7,079 (48.5%) patients acquired at least one new stroke risk factor component(s) with an annual risk of increasing CHA2DS2-VASc score of 12.1%/year. Use of warfarin once patients had a CHA2DS2-VASc score of 1 (males) or 2 (females) were associated with a lower risk of adverse events (adjusted hazard ratio 0.530; 95% confidence interval 0.371–0.755). Among 6,188 patients who newly acquired heart failure, hypertension, diabetes mellitus or vascular diseases, 80% would acquire these comorbidities after 4.2 months of AF diagnosis. Among 596 patients who experienced new-onset comorbidities and subsequent ischemic stroke, the duration from the acquisition of incident comorbidities to the occurrence of ischemic stroke was longer than 4.4 months for 90% of patients.