Screening for atrial fibrillation: Different approaches targeted to reduce ischemic stroke

Giuseppe Boriani[1], Jacopo F Imberti[1, 2], Marco Vitolo[1, 2]

[1]Cardiology Division, Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Policlinico di Modena, Modena, Italy
[2]Clinical and Experimental Medicine PhD Program, University of Modena and Reggio Emilia, Modena, Italy

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Correspondence to:
Prof. Giuseppe Boriani, MD, PhD, FEHRA, FESC, Cardiology Division, Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Policlinico di Modena, Modena, Italy, phone +39 059 422 58 36, e-mail: giuseppe.boriani@unimore.it

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In the current issue of *Kardiologia Polska* (*Kardiol Pol*, *Polish Heart Journal*), Kalarus et al. [1] report on the NOMED-AF study that evaluated the prevalence of atrial fibrillation (AF) in a sample of the elderly Polish population. This cross-sectional study was performed between 2017 and 2018 on a random sample of 3014 Polish citizens aged ≥65 years, and enrollment was appropriately planned based on geographical and age strata. This scientific contribution is very interesting since it reports on population screening to detect AF based on prolonged cardiac monitoring using a 30-day Holter, which results in a mean duration of rhythm monitoring of 21.9 days [1]. The study found an overall prevalence of AF, defined as AF lasting >30 seconds, of 19.2%, corresponding either to cases of newly diagnosed AF (4.1% prevalence) or cases of previously diagnosed AF (15.1% prevalence). It is noteworthy that in around 20% of the population, AF was underdiagnosed on the basis of medical history alone. This situation occurred also in patients with prior stroke, a setting where detection of AF is very important in preventing recurrences of cardioembolic stroke, which has serious implications for both patients and healthcare systems [2, 3].

The Holter methods applied in the NOMED-AF study allowed continuous monitoring of the cardiac rhythm for 3–4 weeks, and therefore the possibility to detect AF was greatly enhanced as compared to protocols for AF screening based on single-time point screening with hand-held single lead electrocardiography (ECG) devices [4, 5]. The increased diagnostic capabilities of detection of paroxysmal AF can be easily appreciated by considering that in the NOMED-AF study, only 51% of newly detected cases of paroxysmal AF were diagnosed during the first week of recording, while the others were detected in the following weeks. Furthermore, data analysis highlights that the number of newly diagnosed paroxysmal AF was 7-fold higher thanks to ECG monitoring extended for 4 weeks versus 24 hours [1]. This finding is not surprising since it is linked to the dynamic nature of AF and the variable burden of AF [6] and has obvious implications for the potential diagnostic yield of single time-point ECG recording tools versus tools for more prolonged rhythm monitoring [4].

The authors of the NOMED-AF study have to be congratulated for having planned AF screening based on a very comprehensive approach, including also patients with disabling illnesses or dementia, visited at home, thus overcoming the limitations linked to lack of digital literacy, which the use of wearables and digital tools necessarily implies [7].

Atrial fibrillation screening can be done with different approaches, with systematic screening and opportunistic screening presenting a different impact in terms of organization. Moreover, the potential implementation in daily practice of AF screening, specifically when using digital tools, in both cases entails consideration of a series of issues related to data protection, legal aspects, and reimbursement [4, 8]. NOMED-AF was a large-scale national project performed in Poland on several thousands of patients, and similar initiatives and screening projects, such as

STROKESTOP [9], require important investments in terms of personnel and organized pathways for patient evaluation, which makes it problematic to predict in what specific ways AF screening may become a standard practice and how it can be extensively applied in communities. Whatever the approach to AF screening, it is important to apply a defined clinical pathway for managing patients who have positive tests at AF screening, as shown in Figure 1, including a series of steps based on recommendations by consensus guidelines [2, 3].

As a matter of fact, the planning of AF screening programs implies considering the type of screening (systematic or opportunistic), including the choice of specific technologies and digital devices for checking the cardiac rhythm, taking into account the setting of screening, age of the candidates, associated comorbidities, level of education, cognitive status, and digital literacy [4, 7, 8]. Patient targeting may be important to maximize the chance of detecting AF, which is a difficult balance between the possibility to maximize sensitivity and the problems linked to managing a large number of subjects. A series of criteria for patient targeting can be applied, including age, CHA_2DS_2-VASc, or CHA_2DS_2-VA [5], but also biomarkers such as brain natriuretic peptide (BNP) or N-terminal pro-BNP peptide (NT-proBNP) [4, 10, 11]. We think that the large amount of data collected in NOMED-AF deserves further analysis to assess the potential for specific targeting of candidates to AF screening based on clinical criteria (age, CHA_2DS_2-VASc) or biomarkers (NT-proBNP was measured in the study to assess the possibilities to maximize the feasibility of screening programs in daily practice) [5].

The primary aim of a screening program for AF detection is to identify previously unknown or untreated cases of AF, usually asymptomatic, and to prescribe oral anticoagulants in patients at risk, according to the risk stratification for stroke [2, 3]. This objective is supported by evidence that asymptomatic and symptomatic AF are associated with the same risk of stroke and thromboembolic events [12] and that the risk of stroke associated with single time-point ECG screen-detected AF is high enough to warrant treatment with oral anticoagulants, to effectively reduce the occurrence of stroke and thromboembolic events [13].

The STROKESTOP study was the largest randomized trial evaluating outcome implications of systematic screening of AF and involved almost 30 000 people, aged 75–76 years, who were randomized to receive, or not, an invitation for AF screening, performed using a handheld ECG with recordings twice a day for 14 days [9]. Only around 50% of those invited for screening actually participated, and this influenced the outcomes since the overall results showed a small net benefit on hard outcomes among patients invited to screening compared with the standard of care. Even if the analysis was limited to individuals who actually participated, the program showed a 24% relative risk reduction in ischemic stroke [9].

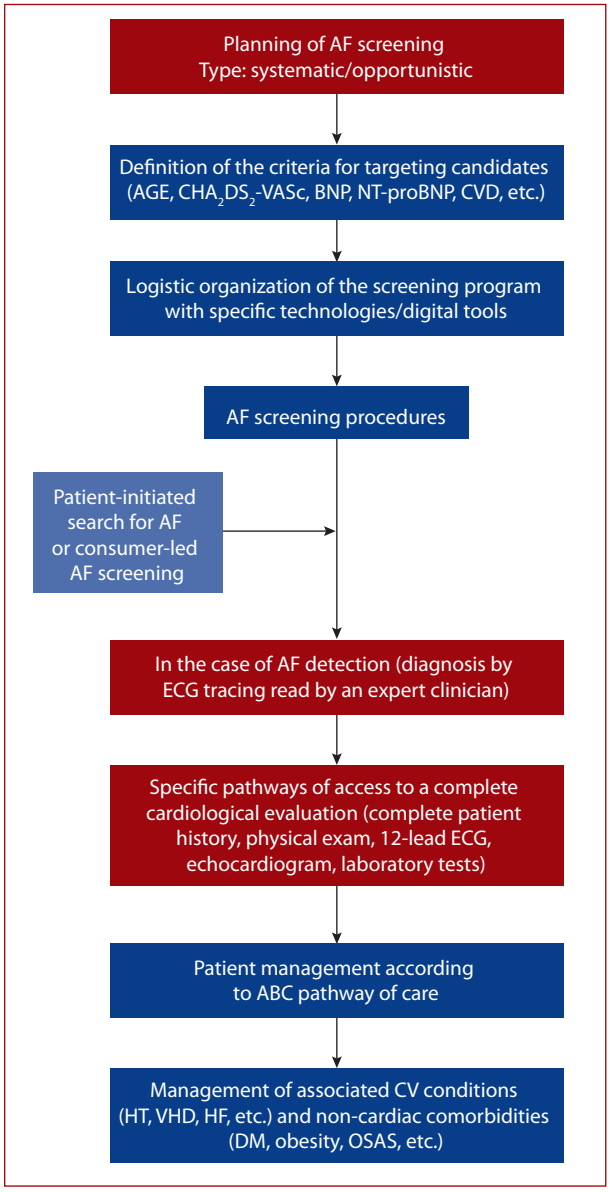

Figure 1. Organization of AF screening, with appropriate clinical pathways for patient evaluation and decision-making

Abbreviations: AF, atrial fibrillation; BNP, brain natriuretic peptide; CV, cardiovascular, CVD, cardiovascular disease; DM, diabetes mellitus; HF, heart failure; HT, hypertension; OSAS, obstructive sleep apnea syndrome; VHD, valvular heart disease

The field of AF screening is still characterized by some controversy on the net benefits associated with treatment with oral anticoagulants in patients at risk of stroke with AF detected during screening. A systematic review by the US Preventive Services Task Force, performed on 26 studies, concluded that the current evidence is insufficient to assess the actual balance of benefits and harms for AF screening [14]. The document delivered by the US Preventive Services Task Force recognized that in patients with screening-detected AF, prescription of anticoagulants was associated with a lower risk of first stroke and mortality, but it also reports that the increased risk of major bleed-

ing requires additional evaluations [14]. Given the current status of knowledge, we personally think, following many guidelines, that AF screening has to be recommended for subjects aged ≥65, but all screening candidates should be adequately informed on the scopes and implications of searching and detecting AF.

The increasing interest in AF screening is well-founded since reducing the burden of AF-associated stroke is a priority for healthcare systems, and the target can be achieved by different methods and approaches. It is crucial to consider appropriate organization, not only for the initial phases of screening but also for the following steps, with specific pathways for the necessary medical evaluation of AF and associated conditions finally leading to prescription of oral anticoagulants when appropriate (Figure 1). In this regard, also the emerging trend towards consumer-led screening, using smartphones or smartwatches [15], should be appropriately managed by clinicians, with the same integrated clinical approach.

Article information

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