KARDIOLOGIA POLSKA

Polish Heart Journal
The Official Peer-reviewed Journal
of the Polish Cardiac Society
since 1957

Online first
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ISSN 0022–9032 e-ISSN 1897–4279

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Article type: Editorial

Received: December 3, 2022

Accepted: December 4, 2022

Early publication date: December 5, 2022

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

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Conflict of interest: GB: small speaker fee from Bayer, Boston, Boehringer Ingelheim, Brystol Myers Squibb, Janssen and Sanofi. All the disclosures occurred outside the submitted work. Other authors have no disclosures to declare

In the current issue of the *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 on the basis of geographical and age strata. This scientific contribution is very interesting since it reports on a population screening for detecting AF based on prolonged cardiac monitoring using 30-day Holter, resulting 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 s, of 19.2%, corresponding to either 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 by medical history alone, and this occurred also in patients with prior stroke, a setting where detection of AF has very important implications for

preventing recurrences of cardioembolic stroke, of great impact both for affected patients and the health care system [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 ECG devices [4, 5]. The increased diagnostic capabilities with regard to detection of paroxysmal AF can be easily appreciated by considering that in the NOMED-AF study only 51% of newly detected 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-times 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 on the basis of 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 that use of wearables and digital tools necessarily imply (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, has in both cases to consider 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 that make problematic to predict in what specific ways AF screening may become a standard practice, and how it can be extensively applied in the communities. Whatever the approach to AF screening, it is important to apply a defined clinical pathway for managing patients who have a positive test at AF screening, as shown in the 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 programmes implies to make a series of considerations on 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, the age of the candidates, the associated comorbidities, the level of

education, the cognitive status and digital literacy [4, 7, 8]. Patient targeting may be important in order to maximize the chance of detecting AF, in a difficult balance between the possibility to maximize sensitivity and the problems linked to management of a large number of subjects. For patient targeting a series of criteria can be applied, including age, CHA_2DS_2-VASc or CHA_2DS_2-VA [5], but also biomarkers such as BNP or NT-proBNP [4, 10, 11]. We think that the large amount of data collected in NOMED-AF deserve further analysis, with the aim to assess the potential for specific targeting of the candidates to AF screening on the basis of clinical criteria (age, CHA_2DS_2-VASc) or biomarkers (NT-proBNP was measured in the study, in order to assess the possibilities to maximize the feasibility of screening programmes in daily practice) [5].

The primary aim of a screening programme for AF detection is to identify previously unknown or untreated AF, usually asymptomatic, for prescribing oral anticoagulants in patients at risk, according to risk stratification for stroke [2, 3]. This background is supported by the 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 the outcome implications of a 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 conditioned the outcome, since the overall results showed a small net benefit on hard outcomes among patients invited to screening compared with standard of care, even if the analysis limited to individuals who actually participated to the program showed a 24% relative risk reduction in ischemic stroke [9].

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 screen-detected AF, prescription of anticoagulants was associated with lower risk of first stroke and mortality, but also reports that the increased risk of major bleeding requires additional evaluations [14]. In view of the current status of knowledge we personally think, in accordance with 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 on AF screening is well founded, since reducing the burden of AF-associated stroke is a priority of health care systems and the target can be achieved by different methods and approaches, even if it is crucial to consider an 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). With 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

Conflict of interest: None declared.

Funding: None.

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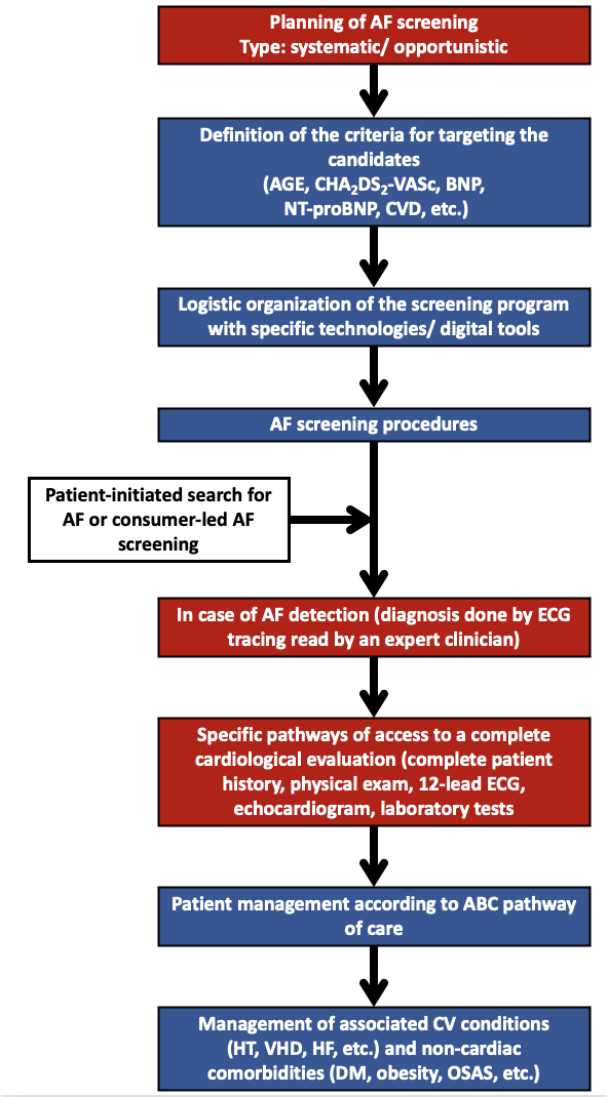

Figure 1. The organization of AF screening, with appropriate clinical pathways for patient evaluation and decision making

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