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EDITORIAL COMMENT

Atrial Fibrillation Screening in Asia

Balancing Costs and Benefits for Optimal Outcomes

Hailei Liu, MD, Minglong Chen, MD

Atrial fibrillation (AF) has emerged as a critical global health issue, leading to a 4- to 5-fold increase in the risk of stroke.[1] In Asia, AF is becoming an increasing public health concern, with risk escalating with age.[2] Early identification of AF, followed by the implementation of the guideline-recommended standard AF management, can significantly improve clinical outcomes.[3] Recent years have seen commendable progress in the management of AF patients across Asian countries, leading to improved outcomes.[4] However, despite these advancements, between 1990 and 2021, Asia still accounted for the highest number of incident AF cases globally, with China and India ranking among the top 3 countries in AF/atrial flutter-related mortality and disability-adjusted life years.[5] The absolute prevalence of AF in the Asia-Pacific region in 2023 was approximately 80 million, placing it as the highest globally.[6] Thus, AF continues to represent a substantial public health challenge in this region.

The first critical step in improving AF patient care is the accurate diagnosis of the condition. However, asymptomatic and unrecognized AF is common, which makes early detection challenging, even among high-risk patients.[7,8] Undiagnosed AF is responsible for nearly 25% of AF-related stroke events,[9] emphasizing the clinical relevance of AF screening.[10] Strategies to enhance the identification of AF include longer recording durations and higher screening frequencies.[11] However, the extent to which these approaches translate into improved clinical outcomes remains controversial.[12] For effective translation of these strategies into real-world practice, considerations of cost-effectiveness and feasibility are paramount, with key questions focusing on the following:

1. Population: Who should be screened?
2. Frequency: When should screening occur?
3. Tools: What methods should be used for screening?

Evidence suggests that population-based screening is cost-effective in older adults in well-developed regions.[13,14] However, economic factors, health care costs, and disparities in disease burden and prognosis must be considered when formulating public health policies in different regions. Asia, for instance, has a vastly different economic landscape and health care cost structure compared with Europe or North America. Furthermore, the prevalence, risk factors, and prognosis of AF vary significantly across Asia.[5] Therefore, it is essential to investigate the cost-effectiveness of AF screening strategies tailored to Asian populations to inform region-specific public health policies.

In this issue of *JACC: Asia*, Fu et al[15] report the cost-effectiveness of AF screening in elderly populations, exploring optimal screening strategies based on a community-based AF screening program conducted in 3 counties in Taiwan. This program involved participants aged 20 years and older as of 2020, using a portable device to record a single-lead 30-second electrocardiogram. A Markov decision-analytic model was used to simulate lifetime outcomes and costs for a cohort of 10,000 individuals aged 75 years. A 1-time population screening for AF in this group could prevent 45 ischemic strokes, with an incremental cost-effectiveness ratio (ICER) of $12,493 per quality-adjusted life year gained. Anticoagulation effectiveness in preventing ischemic strokes was identified as the most influential factor in sensitivity analyses. Although initiating screening at age 75 years yielded the lowest ICER, similar values were observed for individuals aged 65 to 80 years. Annual screening within this age group resulted in an ICER of approximately $18,000 per quality-adjusted life year gained. These compelling findings suggest that both 1-time and annual population screening for AF in

From the Division of Cardiology, The First Affiliated Hospital of Nanjing Medical University, Nanjing, China.

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individuals aged 65 to 80 years are cost-effective, with important implications for shaping AF screening strategies in Asian populations. The results also underscore the prioritization of anticoagulation therapy for AF patients at risk of stroke.

Despite the clinical significance of these findings, several limitations should be considered when applying these results to broader clinical practice. First, this study is based on a Markov decision-analytic model rather than a prospective, randomized, controlled trial, introducing the possibility of bias. Second, because the study was conducted in 3 counties in Taiwan, its findings may not be generalizable to other regions, given the economic and health care cost variations across Asia. Third, the study's assumptions regarding stroke risk did not account for differences in stroke risk based on various AF screening strategies. Therefore, further research is needed to determine whether these screening strategies can be cost-effectively implemented in real-world practice.

In conclusion, Fu et al[15] provide valuable insights into the cost-effectiveness of different AF screening strategies for elderly populations from the AF screening program in Taiwan. Their work offers important guidance for the development of AF screening policies in Asia. However, additional randomized trials comparing different screening strategies are needed to address this critical issue and to optimize AF screening and care in this region.

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ADDRESS FOR CORRESPONDENCE: Dr Minglong Chen, Division of Cardiology, The First Affiliated Hospital of Nanjing Medical University, 300#, Guangzhou Road, Nanjing 210029, China. E-mail: chenminglong@njmu.edu.cn.

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