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Commentary

Catheter ablation of atrial fibrillation in older patients: The need for a comprehensive evaluation and management

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Atrial fibrillation (AF) affects approximately one-third of individuals aged 80 years and over and is associated with a wide range of adverse clinical outcomes, including heart failure (HF), ischemic stroke and systemic embolic events, recurrent hospitalizations, cognitive impairment and dementia, poor quality of life, and death [1]. The cornerstones of AF prevention and treatment include managing comorbidity and risk factors, preventing stroke and thromboembolism, and optimizing symptoms through rate and rhythm control with dynamic and periodic reassessments [1]. Compared to younger patients, older individuals with AF experience the major burden of these adverse outcomes. Despite this, they remain at a higher risk of not receiving appropriate oral anticoagulant treatment (OAT) and adequate intervention for optimizing comorbidity management, symptom control, and quality of life [2]. However, in recent years, the proportion of older patients receiving adequate OAT steadily increased following the availability of direct oral anticoagulants (DOACs), though rhythm control remains significantly underused in elderly patients [3].

Several factors contribute to this trend. First, even in recent guidelines, this strategy should be considered in persistently symptomatic patients or to reduce cardiovascular (CV) death and hospitalization [1]. As a result, some “therapeutic inertia” in restoring sinus rhythm in older patients in the real-world clinical practice is expected. Second, implementing this strategy may be challenging in very old patients. Older individuals are often poor candidates for long-term antiarrhythmic drug therapy, and many of these medications are contraindicated because of comorbidities, drug interactions, or potential adverse events [4]. Third, while AF catheter ablation (AFCAB) represents the most effective first-line rhythm control strategy for selected patients, its application in older adults is complex. Most randomized clinical trials focus on younger, highly selected patients, providing limited information for real-world clinical scenarios. Additionally, there is little evidence of

clinical benefit for older adults, particularly those aged 80 and over. Although a recent observational cohort study demonstrated that older patients may achieve “procedural success” similar to younger individuals, they also face a greater risk of all-cause mortality and hospitalizations [5]. Furthermore, a systematic review of 108,419 patients who underwent AFCAB found that, compared to younger patients, those aged 75 years and older experienced higher rates of arrhythmia recurrence, procedure-related complications and safety endpoint occurrences [6].

In this shortage of data, the study by Agarwal et al., published in this issue of the European Journal of Internal Medicine, represents an interesting contribution [7]. The Authors retrospectively analyzed the National Readmissions Database (NRD) from 2016 to 2019 to investigate the in-hospital peri-procedural complications, as well as overall and cause-specific 30-day and 180-day readmissions, in octogenarians and nonagenarians undergoing AFCAB, compared to patients younger than 80 years. Among 58,500 weighted AFCAB procedures, 8,716 (14.9 %) were performed in octogenarians, and 1,228 (2.1 %) in nonagenarians. Compared to patients under 80, octogenarians and nonagenarians included a higher proportion of females, had a greater baseline thromboembolic risk, a higher burden of CV and non-CV comorbidities, and were more likely to be malnourished and frail. In the descriptive analysis, compared to younger patients, octogenarians and nonagenarians had twice the in-hospital mortality and pulmonary complication rates, as well as longer hospital stays. Their 30-day and 180-day readmission rates were also significantly higher, with a greater overall proportion of patients not being discharged at home. After performing logistic regression, the Authors concluded that, compared to patients under 80, octogenarians had higher odds of peri-procedural pulmonary complications, lower odds of routine home discharge, and higher odds of 180-day AF- and HF-related readmissions. Similar results were observed

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in nonagenarians, who also had higher odds of 30-day and 180-day all-cause, AF- and HF-related readmissions.

The Authors should be congratulated for providing readers with a snapshot of the current US landscape of AFCAB in the oldest patients. However, the results of this study must be interpreted considering the inherent limitations of observational retrospective studies, some of which were partially addressed by the Authors. Beyond these limitations, the study deserves some further comments.

First, although the Authors state that the low use of OAT in their sample “is in line with a previous study from the US Medicare Database”, the reported rate (< 50 %) appears very low for such a high-risk population, especially in the DOAC era and within a cardiology setting. Unfortunately, it was not possible to determine the clinical reasons for OAT undertreatment. This is particularly relevant in patients receiving a rhythm control strategy, as OAT may frequently be discontinued in this group.

Second, approximately one-third of patients undergoing ablation had persistent AF, placing them at a very high risk of AF recurrence and poor procedural success. Even after excluding the blanking period, 16 % of patients had AF-related readmission within six months. In these patients, a “pace and ablate” strategy might be a compelling alternative, particularly for older, frail patients with a low likelihood of successful ablation, a high risk of recurrence, concerns about sedation/anesthesia risks, poor pulmonary function, or severe lung disease [8].

Third, the study sample primarily included patients with a low comorbidity burden and at least fair health conditions. Malnutrition and dementia were observed in fewer than 5 % and 10 % of patients, respectively, while some degree of frailty was observed in <20 %, significantly lower than previous, more robust estimates [9]. This suggests that cardiologists planning the procedure deliberately selected the best candidates for AF ablation.

Nevertheless, despite this careful selection, the oldest patients still experienced high short-term rates of AF recurrence and clinical complications, leading to nearly 30 % hospital readmission within six months. Consequently, the net clinical benefit of this procedure at the individual patient level remains uncertain, with the potential for harm in some cases.

So, what key takeaways can we draw from this study, and how could we improve? The key message is that operators’ technical expertise alone is not sufficient for success. In very old patients, there is a narrow therapeutic window to achieve net clinical benefit when performing CV procedures. Moreover, regardless of procedural success or failure, these patients face an inherently high risk of non-CV complications and hospitalizations, which may lead to irreversible declines in health status, disability, and quality of life [10].

Advancements in CV technology and improvement in operator skills have made procedures that were once purely due to age a viable option, even for the oldest patients. As a result, there is an urgent need to redefine selection criteria, shifting the focus from the “disease” to the “patient”. The lack of a patient-centered approach is evident in the separate analysis of patients aged 80–89 years and those aged 90 years and older. From the perspective of a caring physician or an interventional cardiologist, does it truly matter whether a patient is 87 or 91 years old? At such an advanced stage of life, “chronological” age provides little clinical insight, whereas “biological” age is far more relevant in determining prognosis and guiding medical decision.

Furthermore, listing individual medical conditions is not sufficient to accurately describe a patient’s overall health status (the “metrics” of aging) and does not facilitate personalized clinical decision-making [11]. Given the pioneering integration of multidisciplinary evaluations within the Heart Team for older patients with severe aortic stenosis candidate to aortic valve replacement, there is a strong rationale to extend this approach to AF ablation and other cardiologic procedures in older patients.

Pre-procedural assessment should align with age-appropriate standardized tools, such as the Comprehensive Geriatric Assessment (CGA) –

which “measures” the key geriatric domains including malnutrition, sarcopenia, frailty, polypharmacy, cognitive and functional status – or other validated surrogates like the Clinical Frailty Scale, which have been shown to prevent procedural futility or harm in various CV procedural settings [12,13]. Building on these considerations, this clinical scenario highlights the essential role of frailty in identifying and quantifying biological aging. Frailty serves as a crucial determinant in predicting the clinical trajectory of older adults, underscoring its importance in guiding individualized medical decisions and optimizing patient outcomes. This is particularly relevant in AF patients, where frailty directly impacts clinical management and the risk of adverse outcomes [9].

Furthermore, within this assessment, identifying and addressing malnutrition or respiratory issues, ensuring an age-appropriate therapeutic reconciliation, and optimizing CV, renal, respiratory and metabolic function through prehabilitation interventions might help reduce overall frailty and increase the likelihood of procedural benefit at the individual level.

As physicians, we fully recognize that therapeutic interventions should never be denied solely based on age (ageism). At the same time, our mission is to provide the best possible care for every patient, regardless of age. There is no doubt that sinus rhythm restoration through AFCAB has the potential to improve quality of life [14], reduce both CV and non-CV hospitalizations [14] and, most importantly, lower the risk of developing dementia or worsening cognitive impairment, even in older patients [15].

Additionally, this is an opportunity to emphasize the importance of integrating rhythm control strategies within a broader, patient-centered approach to care – such as the “ABC pathway”. This structured framework has been shown to be associated with a lower risk of adverse outcomes, including dementia, even in patients with high level of clinical complexity [16].

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