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EDITORIAL

A Holistic Approach to Improving Outcomes in Atrial Fibrillation: The AF-CARE Pathway

Michael Griffin[1], Mark T. Mills[1,2,*]

[1]Liverpool Centre for Cardiovascular Science at University of Liverpool, Liverpool John Moores University and Liverpool Heart & Chest Hospital, Liverpool, UK
[2]Department of Cardiology, Liverpool Heart & Chest Hospital NHS Foundation Trust, Liverpool, UK
*Correspondence: marktmills1@gmail.com (Mark T. Mills)

Abstract

In 2024, the European Society of Cardiology (ESC) released an updated guideline for the comprehensive management of atrial fibrillation (AF). This editorial summarises the holistic AF-CARE approach (CARE comprising Comorbidity management, Avoidance of stroke, Reduction of symptoms, plus Evaluation and dynamic reassessment) which is advocated in the guidance.

Key words: atrial fibrillation; anticoagulation; stroke; catheter ablation

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Introduction

Atrial fibrillation (AF), the most common sustained arrhythmia, is a major cause of stroke and heart failure and frequently results in hospital admission. In the next two decades, direct costs of AF are projected to account for 1–4% of total National Health Service (NHS) expenditure, the majority due to acute hospitalisations (Burdett and Lip, 2022). As such, clinicians across hospital specialties are likely to regularly encounter patients with AF, and should be familiar with its basic management, as well as when to refer for additional support. The most recent European Society of Cardiology (ESC) guidelines introduce a structured, patient-centred approach to AF management with a helpful mnemonic: CARE, indicating Comorbidity management, Avoidance of stroke, Reduction of symptoms, plus Evaluation and dynamic reassessment (Van Gelder et al, 2024). Here we provide an overview of these four treatment pillars, to aid clinicians in integrating this approach within their practice. If adhered to, this strategy is associated with improved clinical outcomes (Romiti et al, 2022).

'C'—Comorbidity Management

It is now well-recognised that a range of comorbidities contribute to the incidence, recurrence and progression (e.g., from paroxysmal to persistent) of AF, as well as reducing the effectiveness of treatments. It is unsurprising, therefore, that

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systematic identification and optimisation of these conditions is front-and-centre for this comprehensive care pathway.

Hypertension in patients with AF is linked with recurrence as well as increasing the risk of stroke. The treatment target for the majority of patients should be <130/80 mmHg, with a more relaxed systolic target of <140 mmHg in those over 85 years of age, frail patients or when lower blood pressures are poorly tolerated. Similarly, heart failure and diabetes mellitus are each present in approximately one-third of patients with AF, and outcomes improve when these factors are addressed. In heart failure, achievement of euvolaemia with diuretics reduces symptoms and aids rate control. Newer diabetic agents such as sodium-glucose co-transporter-2 (SGLT2) inhibitors and glucagon-like peptide 1 (GLP-1) agonists are preferred due to their dual benefits of improving glycaemic control alongside prognostic benefit in heart failure and weight reduction respectively (Pandey et al, 2021). Comprehensive guidance has been published separately by the ESC on the management of AF and other cardiovascular disorders in the presence of diabetes (Marx et al, 2023).

Treatment of these comorbidities should be combined with the addressing of broader lifestyle factors. Obesity and physical inactivity are increasingly prevalent in modern society and contribute to AF initiation and maintenance. In one randomised controlled trial, overweight or obese individuals enrolled in a structured weight management program experienced a 10% reduction in body weight alongside significantly greater reductions in AF symptom burden and severity scores (Abed et al, 2013). Alcohol intake ideally should be limited to no more than three drinks per week, as excess increases the risk of AF recurrence, ischaemic stroke, and bleeding on anticoagulation.

‘A’—Avoidance of Stroke

Ischaemic stroke is the most feared presentation or complication of AF, and its risk is elevated no matter the pattern (paroxysmal, persistent or permanent). Mitigation of this risk is achieved using oral anticoagulation (OAC). The identification of patients that may benefit from OAC has traditionally been achieved using the CHA_2DS_2-VASc score, which includes a point for female sex. However, recent guidelines update this, noting that female sex is a risk modifier rather than a risk factor *per se*, and that setting different treatment thresholds for men and women can overcomplicate risk assessment.

The new recommendation is to instead use the CHA_2DS_2-VA score, which is otherwise identical with the omission of female sex. A score of 2 or more is given a class I (strong) indication for OAC, whereas a score of 1 leads to a class IIa indication—meaning that OAC should generally be started unless there are significant risk factors for bleeding. Direct oral anticoagulants (DOACs) are preferred over vitamin-K antagonists owing to their superior efficacy and safety profile.

Additionally, the updated guidelines cite the growing number of patients with AF diagnosed using cardiac implantable electronic devices (CIEDs, e.g., permanent pacemakers). The literature suggests the stroke risk in this cohort is lower than with ‘clinical’ AF, and that, accordingly, the benefits of anticoagulation are less

clear (Griffin et al, 2024). The mandate for anticoagulation in the 2024 guidelines, hence, is weaker with a IIb recommendation (can be considered). Although AF burden (amount of time spent in AF) is likely associated with stroke risk in such cases, the exact duration cut-off beyond which anticoagulation is beneficial remains uncertain.

When considering anticoagulation, bleeding risk assessment should be carried out using any of the available risk scores, such as the National Institute for Health and Care Research (NICE)-recommended ORBIT score. Guidelines place importance on frequent re-evaluation of risk, and modification of risk factors if possible. If the risk of bleeding is perceived to be prohibitive for OAC, referral to a cardiologist for consideration of percutaneous or surgical left atrial appendage closure to reduce stroke risk should be considered.

'R'—Reduction of Symptoms

Once stroke risk has been addressed, the next priority is to select the strategy for addressing the patient's symptoms. The guidelines emphasise that many patients will require a combination of both rate and rhythm control and that shared decision making is crucial throughout the patient journey.

During acute admissions, rate control should usually be the initial therapeutic approach. The guidelines recommend this be done in parallel to the treatment of underlying triggers of AF (for example, sepsis or thyrotoxicosis). Beta-blockers, diltiazem, verapamil and digoxin are all appropriate first-line agents in patients with a left ventricular ejection fraction (LVEF) $\geq$40%, whereas in patients with LVEF $<$40% diltiazem and verapamil should be avoided. A lenient rate control strategy, targeting a rate of $<$110 bpm is no worse than stricter rate control in the majority of patients (Olshansky et al, 2004). A lower target can be used in patients who have persistent symptoms at the initial target heart rate.

A rhythm control strategy, as mentioned, is often additive to rate control therapies and includes options of anti-arrhythmic drug (AAD) therapy, electrical cardioversion and catheter ablation. Catheter ablation has undergone a significant evolution in the last two decades, and there is now clear evidence of the advantages of maintaining sinus rhythm in certain patient groups. Generally, ablation is reserved for individuals with persistent symptoms despite medical therapy (or those intolerant to medical therapy), and those with AF-associated heart failure. Given that AF tends to become more persistent and difficult to treat over time, it is unsurprising that the largest benefit of ablation is early (within the first year) in the patient's AF journey (Kirchhof et al, 2020).

'E'—Evaluation and Dynamic Reassessment

The final pillar of AF-CARE is the most significant alteration to the previous iteration of the guidelines. It stems from two related recognitions that, first, the risk profile, symptom status and preferences of an individual are dynamic and the optimal treatment strategy can alter over time; and second, that other cardiac problems may develop after the onset of AF and require a change in therapy (for example, se-

vere mitral valve disease). Both necessitate systematic and frequent reassessment of a patient's needs, for which the guidelines strongly advocate a multidisciplinary approach.

Evaluation of a patient is greatly assisted by cardiac imaging, such as transthoracic echocardiography. Reassessment with imaging may detect a deterioration in left ventricular function, or alternatively an increase in left atrial size, which would make switching to a rhythm control strategy more or less attractive, respectively.

Conclusion

AF is a common but extremely heterogeneous condition for which an individualised treatment approach is absolutely necessary. To care for these patients optimally, clinicians must account for many nuances, as well as stay up-to-date with the rapidly evolving evidence base. AF-CARE provides a structured, holistic approach with the patient at the centre. An emphasis on dynamic care and frequent reassessment is a positive step, ensuring treatment is appropriate at all points in a patient's AF journey.

Key Points

- The AF-CARE pathway is a practical, multifaceted approach to the management of patients with AF.
- Comorbidities such as hypertension, diabetes and obesity contribute to AF incidence and progression.
- Prevention of stroke with oral anticoagulation is indicated in the vast majority of patients with AF.
- Rate control is usually first-line in the acute setting, but rhythm control options are now being used earlier in the patient journey.
- Dynamic re-evaluation (often with the aid of imaging) is critical.

Availability of Data and Materials

Not applicable.

Author Contributions

Both authors (MG and MTM) made substantial contributions to the conception of this article, were involved in drafting the manuscript for important intellectual content, and gave final approval of the version to be published. Both authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Ethics Approval and Consent to Participate

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Conflict of Interest

The authors declare no conflict of interest.

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