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REDEFINING ATRIAL FIBRILLATION MANAGEMENT: PERSPECTIVES FOR 2023 GUIDELINES

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Abstract: Objective: Analyze the main 2023 updates for the management of atrial fibrillation (AF) and their impact on clinical practice. Methods: Literature review through searches in the PubMed - MEDLINE (Medical Literature Analysis and Retrieval System Online) databases through the research strategy (Atrial Fibrillation) AND (Management) AND (2023) AND ((Update) OR (Guidelines)). After applying the inclusion and exclusion criteria, 17 articles were selected to form the collection of this study. **Review**: The identification of AF through routine screening, as well as the management of risk factors and comorbidities have become a pillar in its treatment. Rhythm and frequency control strategies are effective approaches and objects of wide debate, highlighting the importance of choosing a personalized treatment for each patient. The need for anticoagulant therapy can be assessed using the CHA2DS2-VASc score, with direct oral anticoagulants (NOAC's) currently being preferred in those who qualify for their use. **Final Considerations**: Catheter ablation is shown to be first-line therapy in a select group of patients with left ventricular dysfunction improving cardiovascular outcomes and survival. It is notable that, given constant updates in the area, continuing medical education becomes essential to guarantee a high standard of care for patients.
Keywords: Fibrillation, Atrial; Management; Guidelines.

INTRODUCTION

The change in the characteristics of the world population in recent decades is notable, given that the number of elderly people has become increasingly larger. Furthermore, according to Saleh and Haldar (2023), the direct relationship between increasing age and the incidence of atrial fibrillation (AF) is clear. Therefore, it is possible to see that the incidence and prevalence of AF are constantly growing. Given this, the present work has unquestionable relevance given the statistical importance of this cardiac arrhythmia and, consequently, its treatment and management. In 2023, new guidelines regarding the management of AF were introduced, aiming to improve the therapeutic approach and enhance clinical results for these patients.

Despite the carrying out of several studies and the constant issuing of new guidelines for the management of AF, many issues still remain conflicting and unclear, a fact that makes homogeneous conduct among health professionals difficult. Still, there are certain topics that have unique relevance in the context of therapeutic management and patient prognosis, such as heart rhythm control, anticoagulation and catheter ablation (Hussain et al., 2023; Papakonstantinou; Tsioufis, 2023). In recent years, the importance of lifestyle and monitoring of risk factors has gained prominence in the context of managing patients diagnosed with AF, a fact that corroborates the hypothesis that there is a clear lack of resources and preparation so that there is also a preventive strategy for this clinical condition (Guerra et al., 2024).

Numerous factors can lead to obstacles in reaching a consensus among healthcare professionals regarding the management of AF. According to Guerra et al. (2024), variables such as financial difficulties linked to obtaining more expensive technological resources and doctors' uncertainty regarding new guidelines recently developed make the existence of a unified protocol a challenge. Undeniably, the administration of anticoagulants in patients with AF is capable of reducing the formation of clots and, consequently, reducing the risk of stroke. However, it is clear that the majority of patients with the disease have other concomitant medical conditions, leading to the need for a medication combination. Polypharmacy is highly related to increased mortality in the population diagnosed with AF, being a risk that needs to be prevented (Caturano et. al., 2023).

At the same time, with the advent of technological developments in the medical field, new ways of approaching AF were developed. The creation of mobile health devices has made digital screening possible, allowing healthcare professionals to monitor the evolution of the patient's condition remotely and in real time (Linz et al., 2024). According to the ACC/AHA/ACCP/HRS 2023 guideline for the Diagnosis and Treatment of Atrial Fibrillation, several variables must be considered in the management of the disease. Among them, the need for preventive actions and screening, in addition to reducing risk factors and the treatment itself. Catheter ablation is currently considered first-line therapy in the treatment of AF in designated patients, highlighting the use of drugs to stabilize the heart rhythm (Joglar et al., 2024; Barrett et al., 2023). It is extremely important that, in the future, the new strategies developed make it possible to reduce the medication burden linked to the treatment of AF, especially in patients who make up risk groups, such as the elderly. (Caturano et al., 2023).

Faced with this current context, a more amplified view of the patient with AF emerges, where the focus is to search for the etiology of the pathology, thus facilitating the unique and specific management of each patient.

In a new guideline, the European Society of Cardiology points to the implementation of classifications based on the AF sufferer's phenotype, with the aid of multimodal images to enhance diagnosis and risk stratification. (Korthals and Eckardt, 2023). In the midst of this scenario, it is clear that there are still challenges in the standardized approach to AF, which adapts to technological advances, but does not fail to individualize the patient and the reality in which they live. Therefore, this review aims to analyze the main updates to the 2023 guidelines for the management of atrial fibrillation and their impact on clinical practice, exploring advances in anticoagulant treatment, rhythm/rate control strategies, risk stratification methods and the importance personalization of treatment.

METHODOLOGY

Bibliographic review developed according to the criteria of the PVO strategy, an acronym that represents: population or research problem, variables and outcome. Used to prepare the research through its guiding question: "How are updates to the 2023 guidelines for the management of atrial fibrillation redefining the clinical approach to this cardiac condition with a focus on anticoagulant treatment, rhythm/rate control, risk stratification and personalization of treatment?" The searches were carried out through searches in the PubMed - MEDLINE (Medical Literature Analysis and Retrieval System Online) databases. The search terms were used in combination with the Boolean terms "AND", "OR": (Atrial Fibrillation) AND (Management) AND (2023) AND ((Update) OR (Guidelines)).

From this search, 154 articles were found, subsequently submitted to the selection criteria. The inclusion criteria were: articles in English; published from March 2023 to March 2024 and which addressed the themes proposed for this research, studies such as Review, cross-sectional descriptive study, prospective randomized trial, clinical trial, observational study, cohort, case control, available in full. The exclusion criteria were: duplicate articles, available in abstract form, which did not directly address the proposal studied and which did not meet the other inclusion criteria. After applying the search strategy in the searched database, a total of 154 articles were found. After applying the inclusion and exclusion criteria, 17 articles were selected to compose the collection of the present study.

REVISION

The European Heart Rhythm Association (EHRA) guideline recommends performing a rhythm strip or 12-lead ECG in patients over 65 years of age in a timely manner, and routinely in patients over 75 years of age or in those at high risk of accident cerebrovascular accident, as the preferred method for screening for atrial fibrillation (AF). Additionally, ECG, followed by monitoring by Holter, wearable devices, pulse taking, or auscultation, and, in a minority, by implantable loop recorders (ILRs) or implantable cardiac devices (ICDs), can enhance screening. However, according to Guerra et al. (2024), routine ECG screening is not widely performed in clinical practice, due to lack of time, preventive resources or undervaluing the importance of screening, with only 28% of doctors in university hospitals and 42% in non-university hospitals reporting its realization.

A new aspect of the 2020 guidelines is the identification and management of risk factors and comorbidities, which have become a mainstay in the treatment of AF, with a Class I recommendation. unhealthy lives, less than half have access to specific programs, and less than 10% enjoy a comprehensive approach. This situation highlights the lack

of health resources focused on preventive strategies, making it difficult to implement recommendations that could have a significant impact on the treatment and natural evolution of the disease.

Management of AF is limited by its low detection rate. The target population, screening method, and timing of analysis must be defined using mHealth technology to reduce costs and increase the effectiveness of AF screening, and to identify candidates for early rhythm control, as described in the EAST-AFNET 4 trial.

However, there are substantial challenges to achieving this goal, including government legislation regarding the protection of data from mobile devices, the reduced ability of elderly users to handle mobile devices, the reliability of devices and the privacy of data when stored in databases. Reducing the burden of AF complications through early diagnosis and systematic rhythm screening appears possible if these problems are addressed (Barrett et al., 2023).

The 2020 EHRA/ESC guidelines, following the ABC (Atrial Fibrillation Better Care) approach, strongly recommend Novel Oral Anticoagulants (NOACs) as the first pharmacological choice in all newly diagnosed patients with AF, taking into consideration, their risk profile according to the CHA2DS2-VASc score. Vitamin K inhibitor anticoagulants (VKAs) were indicated only for AF secondary to implantation of mechanical valve prostheses or marked mitral stenosis. Transition to NOAC is strongly recommended in patients treated with VKA who are unable to maintain an acceptable INR value or who have limitations to adequate monitoring, unless specific contraindications exist. (Rottura et al., 2023). According to Guerra et al. (2024), most professionals already use this class as the first-line anticoagulation. Although Novel Oral Anticoagulants (NOACs) are associated with a lower rate of hemorrhagic strokes and intracranial hemorrhages compared to warfarin, contemporary data have revealed that a considerable proportion of patients who meet criteria for anticoagulant therapy are not treated, and adherence rates to treatment recommendations are as low as 50% (Papakonstantinou; Tsioufis, 2023).

The estimated risk of bleeding strongly influences clinical decisions about the use of anticoagulants in patients with atrial fibrillation (AF). Each increase in the HAS-BLED score was associated with a lower likelihood of anticoagulation, even after adjustment for embolic risk (OR: 0.62, 95% CI: 0.55 to 0.71, $p < 0.0001$).

Criteria	Punctuation
Cardiac insufficiency	1 point
Hypertension	1 point
Age > 75 years	2 point
Diabetes Mellitus	1 point
History of cerebrovascular accident (CVA)	2 point
Vascular disease	1 point
Age between 65 and 74 years old	1 points
Women	1 point

Table. CHA2DS2 – VASc

Adapted from Saleh and Haldar, 2023. Stroke risk assessment using the CHA2DS2 - VASc score, with anticoagulation indicated for a score > 2 in men or a score > 3 in women. Anticoagulation must be considered for a score > 1 in men or a score > 2 in women.

Criteria	Punctuation
Hypertension	1 point
Change in liver or kidney function	1 point for each change
stroke	1 point
Previous bleeding	1 point
INR lability	1 point
Advanced age	1 point
Drugs or alcohol	1 point for each change

Table 2. HAS-BLED

Adapted from Saleh and Haldar, 2023. A score > 3 denotes a higher risk of bleeding, and it is important to control the risk factors contained in the score itself. This score does not contraindicate the use of anticoagulants.

Rate control reduces the rapid ventricular rate associated with AF and is typically the initial treatment approach. This is achieved with medications that prolong atrioventricular node (AVN) refractoriness, for example beta blockers, calcium channel blockers (diltiazem, verapamil), digoxin and, less frequently, amiodarone. During rest, a target heart rate of less than 110 beats per minute (bpm) is adequate; however, a more aggressive target of less than 80 bpm is recommended if patients remain symptomatic, tachycardiomyopathy is suspected, or have a biventricular pacemaker.

Rhythm control is the preferred strategy in most AF phenotypes, with lower rates of persistent AF with risk of recurrence (72%) and asymptomatic paroxysmal AF (77%). However, between these two approaches, there is no treatment superior to the other, since there is no difference in mortality between these strategies. Therefore, the doctor and patient must individualize the use of each treatment, taking into consideration, the eligibility and availability of the treatment, aiming for the approach that brings the most improvement in quality of life, symptom relief and with the lowest risk of adverse effects (Olanisa et al., 2023).

The results observed in evaluating the impact of rate and rhythm control on quality of life highlight the subjective nature of this outcome measure. Although some studies suggest a better quality of life with rhythm control, others do not make a significant distinction when compared to rate control strategies. This diversity in findings may be influenced by differences in the instruments used to measure quality of life, the patient populations studied, and the duration of follow-up. The final decision on treatment strategies must integrate individual patient preferences and the influence of AF symptoms on daily functioning.

From such data, a clear preference for beta-blockers for all proposed categories is evident, despite the 2020 ESC guidelines recommending beta-blockers or non-dihydropyridine calcium channel blockers (ND-CCBs) as first choice for rate control in patients with left ventricular ejection fraction of at least 40% (class I, level of evidence B). This broad consensus is particularly surprising considering data suggesting superiority of ND-CCBs in terms of efficacy in rate control, relief of atrial fibrillation-related symptoms, and prevention of atrial fibrillation progression.

The quest for rapid patient stabilization, restoring sinus rhythm, and enabling early discharge is broadly aligned with the 2020 European guidelines on atrial fibrillation, supporting restoration of sinus rhythm (SR) as the first option in all patients with symptoms when atrial fibrillation cannot be ruled out as the cause. Synchronized cardioversion is the primary approach for the emergency management of AF in hemodynamically compromised patients and is also performed electively for early persistent AF. Pretreatment with antiarrhythmic medications (AADs), usually amiodarone, can further increase the likelihood of success and reduce the risk of relapse if continued long term. To

reduce the risk of thromboembolic stroke, at least 3 weeks of prior anticoagulation are required before performing non-emergency cardioversion if the onset of AF occurs after 48 hours. Otherwise, the procedure must be postponed or performed with transesophageal echocardiography to exclude thrombus in the left atrial appendage.

The study by Guerra et al. (2024) showed that, in clinical practice, most professionals prefer to use ablation as first-line therapy for symptomatic paroxysmal AF, persistent AF with low risk of recurrence and persistent AF with low associated AF, with the minority of doctors preferring Use these treatments only after failure of electrical cardioversion or antiarrhythmic medications. This preference may be due to the fact that ablation provides better outcomes, such as a reduced rate of mortality, hospitalization, and recurrence of AF or any recurrence of atrial arrhythmia, in addition to an improvement in LVEF.

The study by Kheshti et al. demonstrated the positive aspects of ablation, which showed a 47% reduction in the risk of recurrence in patients with paroxysmal AF without prior treatment. This results in a better quality of life for patients, mainly in relation to better exercise tolerance, lower morbidity and complications.

Catheter ablation has become the treatment of choice for many patients over the past two decades, especially for those with paroxysmal atrial fibrillation (AF) and those with heart failure with reduced ejection fraction (<40%), significantly reducing the burden of AF and cardiovascular hospitalizations (Hussain et al., 2023). In cases of long-standing, persistent AF, however, successful outcomes are less than ideal, as no single catheter ablation strategy has demonstrated sustained prevention of tachyarrhythmia recurrence. Catheter ablation for AF has established itself as the superior alternative for maintaining sinus rhythm and improving quality of life, offering a potentially curative treatment through electrical isolation of the pulmonary veins. Current guidelines recommend AF ablation in cases of failed antiarrhythmic drug (AAD) use; however, the role of ablation as a first-line treatment option for AF is gaining prominence.

Currently, guidelines from the European Society of Cardiology and the American College of Cardiology offer a narrow recommendation for AF ablation as first-line therapy, limiting it to a highly selected group of patients. This recommendation applies to patients with symptomatic (class IIa) or persistent (class IIb) paroxysmal AF who do not present major risk factors for AF recurrence, such as increased size of the left atrium, prolonged duration of AF and renal dysfunction, in addition to take the patient's preferences into account.

AF is the most prevalent arrhythmia in clinical practice, associated with a significant reduction in patients' quality of life due to its strong connection with acute events such as stroke, pulmonary embolism, hemorrhagic events and heart failure. In this context, new studies on the management of AF seek to reduce morbidity and mortality related to this condition. Currently, many studies discuss rhythm and frequency control strategies as effective approaches, highlighting the importance of personalized treatment based on the patient's personal characteristics, pre-existing symptoms, comorbidities and individual preferences. According to Olanisa et al. (2023), choosing the type of intervention is complex and depends on several factors. The aforementioned systematic review indicates that heart rate control generally results in fewer complications and risks, and is preferably used when recovery and maintenance of sinus rhythm are challenging, especially in patients with long-lasting AF. On the other hand, an approach focused on

rhythm control, using catheter ablation or antiarrhythmic medications, improves quality of life and reduces the risk of developing heart failure.

Although the management of AF has evolved significantly, the choice between rate or rhythm control is still a subject of debate. Previous studies and meta-analyses suggested that there was no significant difference in survival rates between rate- or rhythm-focused therapies. This observation was corroborated by the results of Olanisa et al. (2023), who found no significant impact on overall mortality rates when comparing rhythm and frequency control groups. Likewise, according to Chung et al. (2023), there were no clinical benefits or significant statistical differences in primary and secondary outcomes, such as death from cardiovascular causes, cerebrovascular events and hospitalizations between the two therapeutic strategies.

However, the discussion remains open to updates. Olanisa et al. (2023) suggest that with a thorough analysis of specific metrics and patient details such as medication intolerance, AF classification, bleeding history, age, and underlying conditions, a different interpretation of risks, particularly of stroke, can be obtained. brain (stroke). Some studies show benefits from rhythm control, while others find no substantial differences. Additionally, Chung et al. (2023) comment that, if the EAST-AFNET 4 study had used a more modern tool for rhythm control, in addition to antiarrhythmic drugs, the results could have been different. In this randomized trial, patients who underwent catheter ablation had better control than those who received antiarrhythmic pharmacological therapy. Regardless of the intervention used, early initiation of treatment for rhythm control has demonstrated benefits by reducing cardiovascular complications, especially in younger patients under the age of 75 years.

Early reversal of atrial fibrillation (AF) minimizes the persistence of symptoms, highlighting the need for rapid and early approaches to heart rhythm correction (Barrett et al., 2023). In this context, the strategy known as "Pill in your Pocket" stands out, approved by guidelines in the USA and Europe. This approach aims to reverse new-onset irregular rhythms in the home environment, especially in patients with a structurally normal heart. Oral antiarrhythmic medications with rapid absorption and short half-life are used, such as propafenone and flecainide, class Ic, generally accompanied by frequency controllers such as beta-blockers or calcium channel blockers. These drugs, particularly class Ic, were the most used in the study, although amiodarone and sotalol were also chosen in cases of structural heart disease.

Although guidelines recommend the "Pill in Your Pocket" mainly for new-onset AF, the study also included some cases of persistent AF, despite its not fully proven efficacy, possibly due to the initial effects of atrial remodeling. According to Reiffel et al. (2023), the ideal patients for this therapy are those with acute or recent AF and minimal or no structural heart disease, as they are more likely to reverse the rhythm and have a lower risk of complications.

Once the effectiveness and safety of the medication has been proven in the first supervised administration, treatment can be continued in a home or outpatient setting, significantly reducing costs, emergency visits and hospitalizations.

Comparing antiarrhythmic drugs with other procedures, catheter ablation has shown greater effectiveness in maintaining normal heart rhythm. Techniques such as cryoablation and radiofrequency have significantly improved quality of life and been successful in maintaining sinus rhythm, although they have not generated consistently positive

results in patients with persistent AF. Hybrid ablation, a multidisciplinary and minimally invasive technique, emerged as an innovation to prevent the recurrence of tachyarrhythmia, showing promising results despite the risks inherent to any procedure.

Furthermore, catheter ablation has improved cardiovascular outcomes, and although post-procedural complications are rare, there is an increased risk of thromboembolic events. According to Joglar et al. (2024), the risk of stroke in the first 30 days after ablation is 0.8%. This reinforces the importance of oral anticoagulation before, during and after ablation. Anticoagulation with warfarin substantially reduces the risk of arterial thromboembolism and stroke, an efficacy corroborated by several randomized clinical trials. The New Oral Anticoagulants (NACOs), according to Angeli et al. (2023), also present lower rates of hemorrhagic strokes and intracranial hemorrhages compared to warfarin. However, many patients eligible for anticoagulant therapy remain untreated. In this context, automated internet tools were developed to help the medical team assess the risks of stroke and bleeding and adjust anticoagulant therapy on an individual basis, based on predictive scores such as CHA2DS2-VASc and HAS-BLED. Such online devices are crucial to ensure that therapeutic decisions are shared with patients, promoting greater satisfaction and adherence to treatment, reducing conflicts and improving patients' understanding of their own health condition (Pan et al., 2023).

Risk stratification is essential in the management of atrial fibrillation (AF), as pointed out by Diemberger et al. (2023). This process helps determine the appropriate therapeutic approach, identifying high-risk patients for whom more aggressive strategies are indicated, such as oral anticoagulation and invasive interventions. The European Society of Cardiology (ESC), as highlighted by Korthals and Eckardt (2023), emphasizes the importance of risk stratification in recent guidelines guiding patient selection for advanced therapies, including implantation of cardiac resynchronization devices (CRT) and implantable cardioverter defibrillators, particularly in those at high risk of events such as sudden cardiac death.

Furthermore, patients' quality of life is profoundly impacted by the choice between rhythm and frequency control strategies, according to Uruthirakumar et al. (2023).

To personalize treatment based on risk stratification allows not only more effective therapy but also a significant improvement in the patient's well-being.

Despite the clarity and relevance of the new guidelines, Guerra et al. (2024) identify significant challenges in its adoption in clinical practice. Economic barriers, lack of specific resources, and high-cost treatments are practical difficulties that prevent the full implementation of recommendations. Clinicians' skepticism about the robustness of the evidence supporting the new guidelines and the perceived redundancy in recommendations, exacerbated by the increase in the number of guidelines published annually since 2018, also contribute to resistance to change.

Continuous and appropriate medical education is critical to overcoming lack of compliance with guidelines and ensuring that patients benefit from the most effective and safe treatments based on up-to-date evidence. Effective implementation of the guidelines can significantly reduce the incidence of serious complications, such as stroke and bleeding, promoting standardization of care and cost reduction, while ensuring a high standard of care for patients.

FINAL CONSIDERATIONS

The 2023 guideline updates for the management of atrial fibrillation (AF) represent a significant milestone in the field of cardiology, providing new approaches that promise to improve clinical outcomes for patients with this condition. This study reviewed the main changes introduced, highlighting the emphasis on identifying and managing risk factors and comorbidities, as well as the preference for the use of direct oral anticoagulants (NOACs) for the prevention of thromboembolic events. It was found that implementing these guidelines can not only improve the effectiveness of treatments, but also personalize the therapeutic approach according to the specific needs of each patient. Catheter ablation has emerged as a first-line therapy in selected cases, proving its positive impact on patient survival and quality of life. The implications of these findings are vast. Adoption of the new guidelines can potentially reduce morbidity and mortality associated with AF, improve patients' quality of life, and optimize healthcare resources. However, the review also highlighted significant challenges in implementing these recommendations into clinical practice, including economic barriers and the need for continuing medical education. To overcome these obstacles, it is essential that healthcare professionals receive adequate training and that healthcare policies are developed to facilitate access to advanced technologies and therapies.

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