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TREATMENT OF ATRIAL FIBRILLATION IN THE EMERGENCY ROOM

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SUMMARY

Introduction: The most common arrhythmia is atrial fibrillation (AF). This condition has increased in prevalence in recent decades. Identification in the emergency is important, as it enables immediate intervention, reducing the chances of cardiovascular complications, including, for example, thrombosis and stroke. The emergency department (ED) approach to AF includes three main aspects: sustainably lowering the heart rate, rhythm control, and preventive measures, when eligible. Objective: To analyze the management of patients with atrial fibrillation in the emergency department. Methodology: This is an integrative review of the last 4 years, from 2021 to 2025, using the Virtual Health Library (VHL) as a research source. The databases used were Medline, IBECS, and LILACS. The descriptors were: "management", "atrial fibrillation", "emergency", and "treatment". A total of 7 articles were found, which were submitted to the selection criteria. The inclusion criteria were articles that were related to the proposal studied and made available in full. The exclusion criteria were articles made available in the form of abstracts. Results and Discussion: Deceleration of the rapid ventricular response is the most common treatment. Drugs such as metoprolol and diltiazem can be used for this purpose. The use of oral drugs associated with intravenous helps in immediate and sustained reduction. Cardioversion is used to control the rhythm, especially electric cardioversion, as it presents greater benefits. Pharmacological treatment can also be used, although with less efficacy, for treatment in refractory cases or by patient choice. Men with CHA_2DS_2-VASc ≥ 2 points and women ≥ 3 points are indicated for anticoagulation to prevent complications, such as in the case of stroke. The identification and respective management of the patient in the ND is important to reduce the patient's morbidity and mortality. Conclusion: From this perspective, the importance of adequate management of AF in the ND is evidenced to improve the patient's prognosis.

Keywords: Atrial Fibrillation. Emergency. Treatment. Handling.

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INTRODUCTION

The most common arrhythmia in the world is atrial fibrillation (ZAPATA, 2023). The prevalence of AF has doubled in recent decades, due to the aging of the population (ZAPATA, 2023). There is currently a value of close to 60 million cases (ZAPATA, 2023). In the United States, there are between 3 and 6 million patients with this condition, and up to 16 million people in this country are expected to have this condition by 2050 (ZAPATA, 2023). This condition is the most common dysrhythmia in the emergency room, accounting for 0.5% of attendances and with an admission rate of up to 70% (ZAPATA, 2023). The increase is occurring at a global level, with major health implications (ZAPATA, 2023).

Identification in the emergency room is important, as it enables immediate intervention, increasing the chances of minimizing cardiovascular complications, including, for example, thrombosis and stroke, since they have an increased risk of developing these conditions (ZAPATA, 2023; MANZO-SILBERMAN *et al.*, 2023). In addition, arrhythmia is associated with an increase in mortality, reaching 2 times more in women and 1.5 times in men, when compared to patients without the condition (ZAPATA, 2023). There is an increased risk of heart failure, in addition to increased hospitalization and mortality in these patients (VINSON *et al.,* 2023).

Regarding the pathophysiology, AF is related to the induction of ventricular remodeling, at the cellular and extracellular level, there is an altered distribution of collagen, thickening of collagen fibers, and increased density of this compound (VELLIOU *et al.*, 2023). These alterations are related to the thinning and dilation of the ventricular walls, in addition to an increase in the mass of the left ventricle and myocardial stiffness (VELLIOU *et al.*, 2023). This promotes a reduction in cardiac contractility and impaired diastolic relaxation, which may potentiate the development of, for example, heart failure, (VELLIOU *et al.*, 2023). Another factor is irregularity and increased heart rate (VELLIOU *et al.*, 2023). There is a decrease of up to 30% in cardiac output, in addition to an increase in systemic vascular resistance (VELLIOU *et al.*, 2023).

The initial treatment of this disease involves the emergency department (ED) (ZAPATA, 2023). The need to implement measures to control the frequency or rhythm, in addition to the initiation of anticoagulation in the indicated cases, aiming at thromboembolic prevention, delays the evolution of the disease, in addition to the reduction of AF symptoms and improved quality of life (ZAPATA, 2023).

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Poor control of this condition can lead to an AF with a rapid ventricular response, promoting a decrease in myocardial blood flow and cardiac output, which, if sustained, can promote damage to the myocardium (ZAPATA, 2023).

The ND approach to AF includes three main aspects, the objective being to achieve a sustained decrease in heart rate in patients with rapid ventricular response, to control the rhythm by cardioversion or pharmacological agents, and preventive measures, when eligible, for cerebrovascular accident (CVA) (VINSON *et al.,*2023). Reducing the frequency and use of cardioversion is important to reduce hospitalization of patients with AF and prevention measures to reduce the chances of developing stroke (VINSON *et al.,* 2023).

The objective of this study is to analyze the management of patients with atrial fibrillation in the emergency department.

METHODOLOGY

This is an integrative review of the last 4 years, from 2021 to 2025, using the Virtual Health Library (VHL) as a research site, with the following databases: Latin American and Caribbean Health Sciences (LILACS), Medline, and IBECS. The descriptors that were used: were "management", "atrial fibrillation", "emergency", and "treatment". A total of 62 articles were found, which were submitted to the selection criteria.

The inclusion criteria used were language-independent articles, from the period 2021 to 2025, made available in full and related to the proposal studied. The exclusion criteria were: case reports, articles in the form of abstracts, and articles that were not related to the proposal studied.

After selection, 7 articles remained. The articles were submitted to a rigorous analysis for data collection. The results were shown descriptively.

RESULTS AND DISCUSSION

In ED, slowing the rapid ventricular response is the most common treatment (VINSON *et al.,* 2023). Medications such as diltiazem, which is a calcium channel blocker, and metoprolol, which is a beta-adrenergic receptor blocker, are effective for slowing heart rate with rapid onset (VINSON *et al.,* 2023). Although it acts quickly, its effect is also fast and there is a possibility of a return of the rapid ventricular response, and this drug can be used again as a bolus (VINSON *et al.,* 2023). In case of a response again or if this response persists, continuous infusion of esmolol or diltiazem can be chosen to control

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heart rate (VINSON *et al.,* 2023). One of the strategies for frequency-reducing agents, with prolonged action, is the use of oral medications such as diltiazem XR or metoprolol tartrate (VINSON *et al.,* 2023). Their association with their intravenous equivalents helps in immediate and sustained reduction (VINSON *et al.,* 2023). This strategy can help reduce the need for hospitalization (VINSON *et al.,* 2023).

Cardioversion is used to restore sinus rhythm in patients with intermittent AF (VINSON *et al.,* 2023). This procedure in the emergency room is associated with a decrease in hospitalization (VINSON *et al.,* 2023). In the emergency room, synchronized electrical cardioversion with as many joules as possible is recommended to the patient to successfully optimize the first shock and limit the risk and time of sedation (VINSON *et al.,* 2023). In the absence of the first shock, a second one can be made after 1 minute (VINSON *et al.,* 2023). To improve the efficiency of cardioversion, it is recommended to manually raise the pressure to decrease the transthoracic impedance and provide more current to the heart (VINSON *et al.,* 2023).

If after these cardioversion procedures there is no response to improve rhythm, a viable option is the use of ibutilide 1 mg in 10 minutes, if the patient is eligible, followed by another attempt at electrical cardioversion (VINSON *et al.,* 2023).

In the event of failure of electrical cardioversion, one measure that can be adopted is drug cardioversion (VINSON *et al.,* 2023). It is a less effective measure, but it can be used in these cases and in cases of refusal to use electric power or patients poor in sedation (VINSON *et al.,* 2023). One of the most commonly used first-line drugs is procainamide, which is recommended in normotensive patients without heart problems (VINSON *et al.,* 2023). Pharmacological cardioversion with increased lactate levels was associated with reduced efficacy, and electrical cardioversion was recommended, as it was not associated with lactate levels (GUPTA *et al.*, 2025).

The use of thromboprophylaxis is important, as AF has ischemic stroke as a complication (VINSON *et al.,* 2023). A higher risk of stroke is observed in females in these cases when compared to males (JOHNSON *et al.*, 2024). Prophylaxis is responsible for reducing the risk of presenting this condition by up to two-thirds and mortality by 25% (VINSON *et al.,* 2023). In the ND, it provides an important point for identifying the disease and initiating prevention, to reduce the risks of complications and thus improve morbidity and mortality (VINSON *et al.,* 2023). A score on the CHA_2DS_2-VASc ≥ 2 points in men and ≥ 3 points in women if prophylactic anticoagulation is recommended (VINSON *et al.,* 2023).

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It was observed, as an antithrombotic treatment, that the use of direct oral anticoagulants has benefits when compared, for example, to vitamin K antagonists, a shorter duration of non-valvular AF, and the number of institutionalizations (MOSTAZZA *et al.*, 2021).

CONCLUSION

From this perspective, the high frequency of atrial fibrillation in the emergency room and the importance of identification, followed by treatment to improve the patient's prognosis, since non-treatment is associated with complications such as stroke, is evidenced. Treatment is usually given by controlling the frequency, rhythm and, when indicated, anticoagulant. Anticoagulant plays an important role in preventing long-term complications in these patients.

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