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Overview of nurses' role in management of patient with atrial fibrillation

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Abstract
Atrial fibrillation (AF) is a common cardiac arrhythmia; it is not considered a benign arrhythmia. It leads to decreased quality of life, a high risk of developing thromboembolism, and an increased mortality rate. Although overall mortality increased by 90 %, many health professionals did not consider atrial fibrillation to be a modifiable cardiovascular risk factor. Nurses can make a significant contribution to detecting and managing these increasingly common diseases. AF is mainly developed among elderly people, and many of them are treated by nursing staff. In addition, many nurses' numerous diseases, conditions, and risk factors cause or contribute to AF, including cardiac and metabolic disorders, specific surgical procedures, diet, and lifestyle. Since most episodes are symptomatic, nurses should consider any patient with an irregular pulse with AF and direct suspected cases to electrocardiograms. Management of AF aims to reduce symptoms and prevent complications with antithrombosis, cardiovascular stimulation, anti-arrhythmia therapy. Nursing care, provided to patients and their families facing the re-establishment and maintenance of these subjects' biological and psychosocial aspects, helps personalize care, reduce harm from AF, and improve clinical management and prognosis.

Keywords: atrial fibrillation, nursing management, nursing care

Introduction

Atrial fibrillation is a type of heart rhythm. There are four main types of atrial fibrillation paroxysmal, persistent, long-term persistent, and permanent atrial fibrillation. The type of Atrial fibrillation varies depending on the frequency and response of Atrial fibrillation treatment. [National Heart Lung and Blood Institute (NHLBI, 2019)]. It is due to abnormal electrical activity within the heart's atria, causing fibrillate. Is characterized as a tachyarrhythmia, which means that the heart rate is often fast. This arrhythmia may be paroxysmal (less than 7 days) or persistent (more than 7 days). Due to irregular heart rhythms, the blood flow in the heart is turbulent, with a high risk of thrombosis (blood clots) eventually being removed and causing stroke. Atrial fibrillation is the leading cause of heart attack in people with heart attacks (Vera M, 2021). This paper provides an overview of critical issues that nurses should take into account. The article explains that nurses consider the opportunities and responsibility for detecting AF and supports patients in understanding their situation, treatment options and long-term monitoring needs. Nurses have great opportunities and responsibilities to play an essential role in the detection of AF. The need for personalized patient education, support, and ongoing monitoring for AF patients is reflected in the literature [National Institute for Health and Care Excellence (NICE)].

Atrial fibrillation is disorganized and uncoordinated atrial musculature caused by the over-rapid production of atrial impulses. AF represents the loss of synchrony between the atria and the ventricles in the broadest sense. Typically, it is characterized as a 'storm' of electrical energy that travels in spinning wavelets across both atria, causing the upper chambers to quiver - or fibrillate - at a rate of approximately 300-600 times a minute (Hubbard, 2004) [7]. Early detection, assessment and diagnosis are crucial to reducing the risk of complications. A comprehensive clinical history helps determine a personalized treatment plan for AF management. The characteristics of the electrocardiogram (ECG) are summarized as follows:

1. Rhythm: grossly irregular; the marked irregularity of the ventricular response is one of the most distinguishing features of AF (Fig 1).
2. Atrial rate: 360-600 beats per minute, although immeasurable on the surface ECG.
3. Ventricular rate: this varies - it may be less than 50 beats/minute to more than 200.
4. P wave: there is no P wave; there will be an irregular undulating baseline, the deflections of which are called fibrillatory waves and are of varying shapes, amplitude and direction.
5. P-QRS relationship: QRS complexes occur at irregular intervals in random association with fibrillation waves. The ventricular rate is slower than the atrial rate and will depend on the number of impulses conducted through the AV node to the ventricles.

Fig 1: Rhythm strip showing atrial fibrillation (Buttner & Burns, 2021)

Background

Normally, a special heart cell produces electrical signals passing through the heart. Electricity causes contraction of the heart muscles, resulting in a heart rate. An arrhythmia means the heart is not beating in the proper rhythm. This may lead to minor symptoms such as heart attacks and death. Because different rhythmic disorders require additional treatment, it is important to diagnose the exact types of rhythmic disorders. Arrhythmia is an abnormal pattern or pattern of the heartbeat. When having an arrhythmia, the heart may beat too quickly or too slowly, or a patient may experience an irregular rhythm in which the heart feels as if it is "skipping a beat**".** Some types of arrhythmias may not be serious. Other types may be of great concern because they can cause fainting, heart failure, or even sudden death (Johns Hopkins Medicine, 2022).

According to cardiovascular disease prevention studies, 30% of patients with AF are not diagnosed. Of those diagnosed with AF, half were untreated or untreated. Increasingly important is identifying and treating people in a timely manner, and nursing staff are a key component in facilitating this process. (Royal College of Nursing, 2022). Atrial fibrillation is documented as the commonest grave cardiac arrhythmia, In the United States (US), it affects 2.3 million individuals (nearly 2% of individuals younger than sixty-five years of age have AF, while nearly 9% of individuals aged sixty-five years or older) have AF, and in the European Union (EU) 4.5 million individuals (nearly 0.12%–0.16% of people younger than forty-nine years of age, 3.7%–4.2% of people aged 60–70 years, and 10%–17% of people aged eighty years or older) have AF (Hamed *et al*., 2022). Some types of heart rhythms occur in people with severe heart disease and cause sudden heart failure. This kills 100,000 people in the United Kingdom (UK) every year. These deaths could have been avoided if the arrhythmias had been diagnosed earlier. The United Kingdom has over two million people experiencing heart rhythm or heart rate problems. Most people with an abnormal heart rhythm can lead an everyday life if properly diagnosed (Hildebrandt *et al*., 2011).

Arrhythmias can affect all age groups, but atrial fibrillation is more common in older people. Drinking alcohol in excess or being overweight increases the likelihood of developing atrial fibrillation. May also be at risk of developing an arrhythmia if r heart tissue is damaged because of an illness, such as having had a heart attack or heart failure. Atrial fibrillation (AF) is the most common type, where the heart beats irregularly and faster than normal. AF is a common cause of stroke. Having atrial fibrillation means a risk of stroke is five times higher than for someone whose heart rhythm is normal [National Health Services (NHS, 2022)]. Common triggers for an arrhythmia are viral illnesses, alcohol, tobacco, changes in posture, exercise, drinks containing caffeine, certain over-the-counter and prescribed medicines, and illegal recreational drugs.

Causes of atrial fibrillation

There are many causes of atrial fibrillation. Congenital heart disease, advanced age, underlying heart disease (valvular disease, coronary artery disease, structural heart disease), hypertension, increased alcohol consumption, and obstructive sleep apnea are common causes of atrial fibrillation. Any process that causes inflammation, stress, damage, and ischemia to the structure and electrical system of the heart can lead to the development of atrial fibrillation (Fig 2). In some cases, the cause is iatrogenic (Nesheiwat *et al*., 2022) [10].

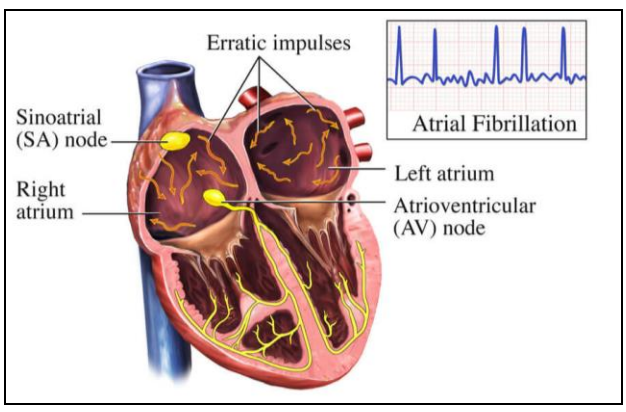

Fig 2: Image shows the heart's electrical system during atrial fibrillation.

Risk Factors

Atrial fibrillation has increased worldwide. The prevalence of atrial fibrillation increases with age and is well known. It has been estimated that the number of individuals with atrial fibrillation will double or triple by 2050. Although the world white prevalence of atrial fibrillation is approximately 1%, it is found in approximately 9% in individuals over the age of 75. At the age of 80, the lifetime risk of developing atrial fibrillation jumps to 22%. Furthermore, atrial fibrillation is more common in males and is more common in whites than in blacks. In addition, some surgical procedures are carried out (such as thoracotomy and coronary artery bypass grafting), and dietary and lifestyle factors (including excessive alcohol or caffeine consumption and emotional or physical stress) cause or contribute to atrial fibrillation (Greener, 2010) [3].

Assessment of symptoms for rhythm control

Initial assessment of AF patients will include their medical history (past and recent), symptoms, and a physical examination. Their past medical history helps choose treatment options, while their recent history helps identify possible causes such as coexisting heart diseases and triggers (e.g., alcohol, infection, or a new cardiac event). The issue of pregnancy should be raised with any female of childbearing age who presents with AF, as this will influence appropriate treatment options available (Wann *et al*., 2011) [14]. While many patients with AF may be managed initially in primary care, chest pain, pre-syncope, syncope, acute breathlessness, bradycardia, tachycardia, and hypotension may indicate that more urgent assessment in the hospital or ambulatory care is necessary. Despite satisfactory heart-rate control, patients with ongoing symptoms may be considered suitable for a 'rhythm control' approach. 'Rhythm control' means that attempts to maintain or restore sinus rhythm will be made. Three approaches are available: antiarrhythmic drugs, cardioversion (electrical or chemical) and/or ablation. The likelihood of successful rhythm control endeavors is higher when treating patients in the early stages of developing AF. The NICE guidelines indicate when rate vs. rhythm control endeavors should be considered. After comprehensive discussions between experts, the final decision on the best management strategy must be made. (and another clinician when relevant) and the patient (Elliott, 2014) [2].

Taking the patient's history

The effectiveness of history is based on the ability of health professionals to communicate and listen well and to have good clinical knowledge. Patients suffering from AF are often very anxious and require a detailed explanation of their situation and treatment options to alleviate their concerns and improve compliance. To facilitate this, it is necessary to collect the necessary information. A comprehensive history will include biographical details, current complaints, past medical histories, family histories, personal and social histories, and system review. The components of history taking will structure the patient's story and format the written record (Holding, 2011). Complete histories should focus on symptoms such as heart attacks, chest pain, breathing problems, increased vascularization of the lower extremities, exertion, dizziness, etc. Furthermore, history is essential to identify risk factors such as hypertension, heart rate history, structure or heart failure, obstruction of sleep apnea, obesity hypoventilation syndrome, smoking, alcohol intake, illicit drug use, history of rheumatic fever/heart disease, history of pericarditis, hyperlipidemia, among others. A physical exam should include the patient's overall appearance (obese), examination of the patient neck for signs of JVD, and carotid bruits circumference. Cardiovascular examination should carefully excrete all four heart positions and palpate apical impulses. A pulmonary examination must include a pulmonary assessment, a percussion, and, if necessary, special tests to assess the lung state. Extremes should be evaluated for edema, peripheral pulses at both the upper and lower extremities, and indicative signs. (Nesheiwat *et al*., 2022) [10].

Medical Management

The patient's hemodynamic stability and risk classification are based on the acute treatment of atrial fibrillation. If the patient has hemodynamic instability, it is recommended to modify the heart rate with anticoagulant therapy immediately. A transesophageal echocardiogram (TEE) is recommended before any cardioversion. However, cardioversion may be performed without prior TEE if the patient is in hemodynamic stability due to atrial fibrillation with a rapid ventricular response. If patients have a rapid ventricular response, it is recommended to use beta-blockers or calcium channel blockers to start rate control. These medications can be used as intravenous (IV) pushes or drips. Usually, the patient receives a Bolus and then begins to inject if the symptoms are not resolved. Digoxin is considered to be a rate control drug but is not recommended for first-line drugs due to side effects and resistance. Amiodarone is also considered a rhythm control agent, but it is not the first line of therapy in acute settings. Amiodarone is also considered to control heart rate, but it is recommended to consult a cardiology physician before using it.

Monitoring

The challenge facing primary care, in particular, is the awareness and adaptation of the changing health needs of patients. There is a need to monitor a wide range of patients to improve the detection of AF in the first place. Subsequently, arrangements must be made to ensure that AF patients receive appropriate treatment. This can be very common at the time of initial presentation and diagnosis, including primary care, secondary care, tertiary care, and warfarin clinics. Once the patient's condition is stable, and the management plan has been agreed upon, an appropriate review appointment must be scheduled every year. (NICE, 2014a). A detailed discussion of some

of the points to be considered during the appointment of AF review. These are based on the authors' clinical experience and NICE guidelines. People at high risk of a stroke but do not have an anticoagulant may be prioritized, and a review is required to discuss the matter further. The audit tool also identifies those with known contraindications to anticoagulation. Adopting an objective approach to the review of patients with known AF seems very desirable to supplement the current attempts at stroke prevention (Elliott, 2014) [2].

Patient education and support

Whether patients are initially treated with primary or secondary care, nurses often understand patients' conditions and can provide appropriate education and support. Clarification of AF and treatment options is essential to reduce anxiety and promote the management plan for future treatment (Holding, 2011). Offering individualized patient education checking their understanding of AF (cause, effects, and possible complications) and treatment options is fundamental to delivering the package of care outlined as a priority within the NICE guidelines (2020). Signposting patients to cardiovascular charities for further help, advice, and support may prove supportive in some cases, while other patients will require formal assessment and subsequent provision of psychological support, appropriate to their needs [National Institute for Health and Care Excellence (NICE)] (NICE, 2020).

Evaluation

Aside from a detailed history and examination, the ECG is critical in diagnosing atrial fibrillation. In ECGs, atrial fibrillation is a typical narrow, complex pattern of irregular irregularity without distinctive p-waves. Laboratory work is needed to determine the cause of atrial fibrillation., for example, a complete blood count (CBC) for infection, basic metabolic panel (BMP) for electrolyte abnormalities, thyroid function tests to evaluate for hyperthyroidism, and a chest x-ray to evaluate the thorax for any abnormality. It is essential to evaluate patients for lung embolism (e.g., d-dimer CT scans), as right-sided heart pressure can lead to heart failure and ventricular fibrillation. Using the PERC and/or Wells criteria, the patient should be risk-stratified for pulmonary embolism using the PERC and/or Wells criteria. In addition, these patients should perform transesophagic echocardiograms to assess the thrombosis of the ventricular fibrillation and cardiac structure in the secondary. Importantly, transesophageal echocardiograms (TEEs) are always performed before cardiac transplantation to minimize the risk of stroke in these patients. (Nesheiwat *et al*., 2022) [10].

Nursing Interventions and Management

The main aim of the treatment is to maintain adequate heart performance and tissue flow and ensure that patients do not develop thromboembolism. The medical team should be notified immediately if the patient's heart rate is rapid and if the systolic blood pressure is less than 90mmHg (Resuscitation Council UK, 2000). In emergency cardioversion, explaining the procedure and reassuring the patient to resolve the hemodynamic complications are important. Careful positioning of these patients is essential to avoid the exacerbated condition. If the patient is breathless, administration of oxygen may be useful. In order to reduce the patient's anxiety, they should explain the cause of the symptoms and suggest what can be done to correct them. If the patient has chest discomfort, it should be asked if oxygen therapy is useful in this case, as this indicates myocardial insufficiency. In the acute phase, patients require continuous heart monitoring. All AF patients need anticoagulants, and their effects need continuous monitoring. In addition, proper education on the purpose of intravenous/oral drugs is essential. Once the sinus rhythm is restored, treatment therapy for patients may need to be taught. Patients receiving digoxin must be taught to take pulses, recognize toxicity symptoms, and understand the importance of regular blood digoxin level measurement (Hubbard, 2004) [7].

Nurse counseling

Despite these advances, nurses still need to help patients achieve educational, advice, and support needs, often not optimal. For instance, one-quarter of patients in the AF AWARE survey could not explain AF, and 51% of cardiologists wanted more patient information. Doctors tend to underestimate patients' understanding of the advantages and satisfaction of AF therapy while overestimating complications knowledge. According to the study, about one-third of patients reported fear of AF (29%), the anxiety of AF (5%), and fear of AF such patients need reassurance and counseling. It should be noted that one-third of AF patients experience persistent depression and anxiety in newly diagnosed patients. During this period, nurses can help relieve the psychological burden of AF. Nurses can also help patients to achieve realistic expectations for treatment. In the AWARE study, 83% reported symptoms, and 27% reported symptoms at least once a week. Although symptoms often deteriorate, 75 percent of patients are satisfied with AF treatment. The authors argue that relatively high proportions of patients are satisfied with the treatment, but a worry about illness and lasting symptoms may show that the patient is experiencing the disease 'feel resigned to their situation rather than able to affect it through their own actions or via consultations with their physician' (Greener, 2010) [3]

Conclusion

Patients with atrial fibrillation may be ill at an acute stage but usually respond quickly to treatment. During this period, nurses can provide patients with physical support and help alleviate their fears and fears. AF increases the risk of stroke, heart failure and death, but many health professionals underestimate the risk factors for

modifiable cardiovascular diseases. Consequently, nurses should be vigilant about the risk of AF when measuring pulse rates. However, the most recent AF medications can improve the effectiveness and safety of the drug. As the number of AF patients increases, nurses can help identify, prevent and manage these common causes of mortality and morbidity.

Recommendations

The potentially devastating effects of AF are increasingly worrying to our aging population, and we must ensure that AF is detected and that patients receive personalized care packages. The improvement in the management of stroke prevention is the key to significantly reducing the burden of stroke. However, AF management is broader than stroke prevention, including patient education, psychological support, and interventions to minimize or relieve symptoms. It is also crucial to take into account long-term monitoring issues, including the review of patients, to determine whether long-term treatment is safe and effective.

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Conflicts of interest

The authors declare no conflict of interest to declare for publication

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