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Rebecca Hoistad
University of North Dakota

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Anticoagulation Therapy for the Elderly with Atrial Fibrillation

Rebecca Hoistad, PA-S

Department of Physician Assistant Studies, University of North Dakota School of Medicine & Health Sciences

Grand Forks, ND 58202-9037



Abstract

- Atrial fibrillation increases in occurrence as we age with about 9% of patients developing it by age 90. When a patient is diagnosed with atrial fibrillation, one of the drugs that they are prescribed is an anticoagulant. The purpose of this drug is to prevent thrombus formation in addition to preventing an ischemic stroke. Today, there are many options available for anticoagulation therapy. The options include aspirin, vitamin K antagonists like warfarin, factor Xa inhibitors like rivaroxaban and apixaban, direct thrombin inhibitors like dabigatran, and antiplatelet agents such as clopidogrel.
- A review of the literature was done of peer reviewed journal articles using the databases PubMed, Dynamed, CINAHL and Clinical Key. A total of 14 articles were used in this paper with the inclusion criteria of being published within the past five years, the patients all have atrial fibrillation, over 65 years old, and are on some form of anticoagulation therapy.
- Previously, warfarin has been one of the few anticoagulation drugs on the market until the newer novel anticoagulants were released. Bell et al. (2016) found that warfarin is still used in 53.6% of the patients, even though the prevalence has decreased by 3.9% between the years of 2011 and 2013. ($p < .001$)
- It was found that patients who were diagnosed with atrial fibrillation needed some form of anticoagulation as compared to no anticoagulation to reduce stroke. Most of the studies compared warfarin versus no anticoagulation treatment. There were not many studies that looked at the newer novel anticoagulants. It was mentioned that there has been a decrease in warfarin use since the newer novel anticoagulants have been released. There are considerations that a prescriber needs to be conscious of before prescribing a specific anticoagulant. Some of these considerations are renal function, other medication usage to avoid drug-drug interactions and age.

Introduction

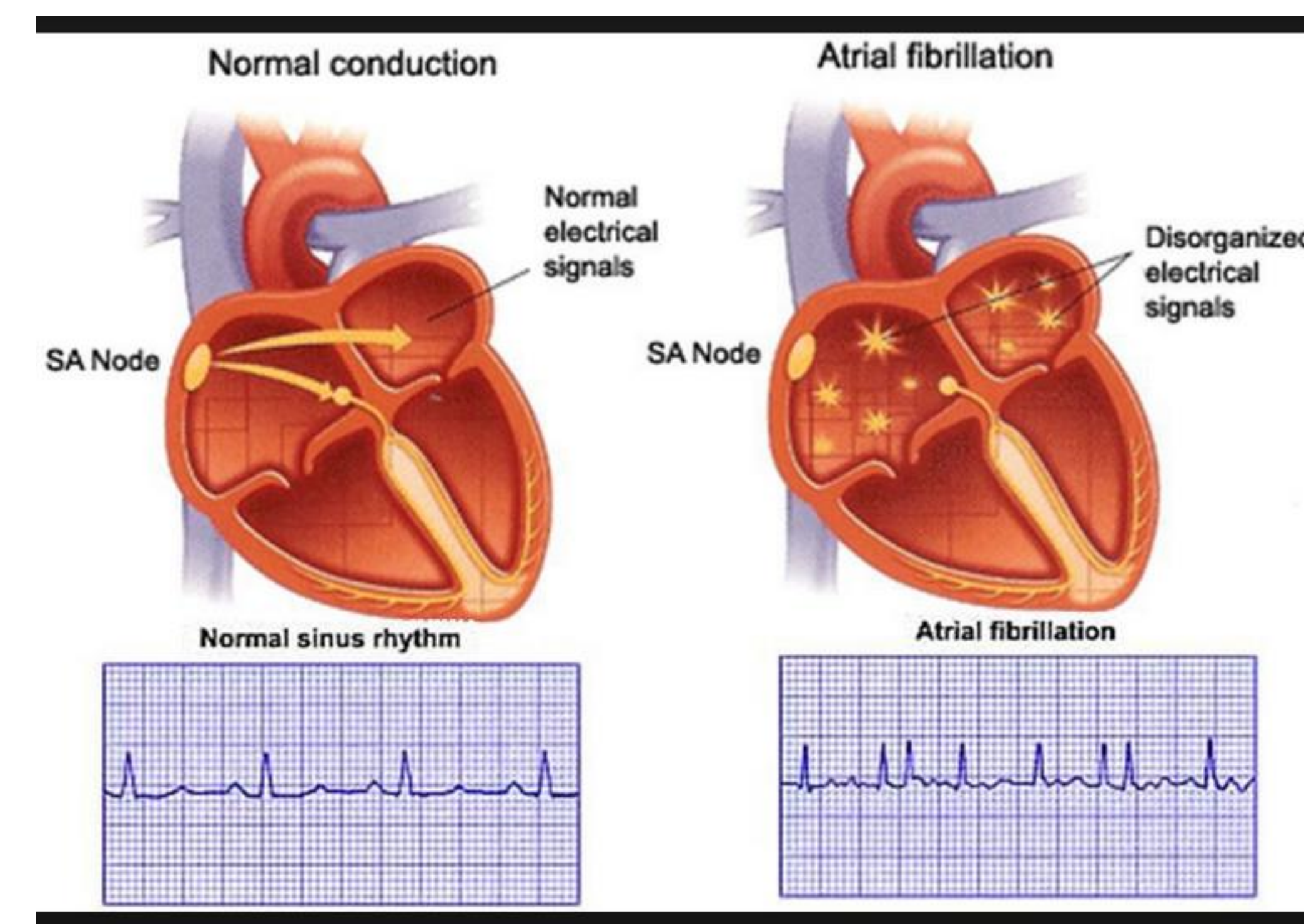
Atrial fibrillation is the most prevalent cardiac arrhythmia worldwide, which is diagnosed in many patients each day and increases as a patient ages. Anticoagulation therapy is a major part of treating the patient and there are many anticoagulants to choose from. The options include aspirin, vitamin K antagonist like warfarin, factor Xa inhibitors like rivaroxaban and apixaban, direct thrombin inhibitors like dabigatran, and antiplatelet agent such as clopidogrel. All of the different types of anticoagulation options can make treatment quite difficult given the diversity. The purpose of this study is to determine what anticoagulants are most effective in preventing clot formation that could lead to a stroke, but have the lowest occurrence of adverse effects such as fatal bleeding. With atrial fibrillation becoming increasingly more prevalent as a person ages and the many options available for anticoagulation, it can be difficult to decide which anticoagulant is most appropriate.

Statement of the Problem

With increases of Atrial Fibrillation as a person ages, studies are needed to show if the new oral anticoagulants are superior to warfarin.

Research Question

In patient diagnosed with Atrial Fibrillation, is there an anticoagulation therapy that is superior to the others for use in the elderly?



Pathophysiology

The heart contracts due to electrical impulses or action potentials that travel from the sinoatrial (SA) node to the atrioventricular (AV) node. The action potentials travel from the SA node through the myocardium of the atrium and cause a contraction. In a patient with atrial fibrillation, these electrical impulses become unorganized and result in multiple stimulations of the myocardium, which causes the atrium to contract in an uncoordinated fashion. This uncoordinated contraction leads to the atrium being unable to fully contract and empty blood from the chambers. This can leave blood in the atrium and this blood can start to clot, which could then travel to the brain and cause a stroke.



Literature Review

- Ng et al. (2015) did a subgroup analysis of the AVERROES trial determines that patients over 85 had less risk of hemorrhagic bleeding when on apixaban compared to aspirin.
- A study done by Yamashita et al. (2016) determined that in the elderly over 85, stroke risk increased whether the patient was on anticoagulation or not.
- An analysis looked at the ROCKET AF study done by Hankey et al. (2014) evaluated the risk of intracranial hemorrhage comparing warfarin versus rivaroxaban. They found that there was no major different of intracranial hemorrhage between these two medications.
- Staerk et al. (2016) did a study using the RE-LY, ATRISOTLE, and AVERROES trials to study the different anticoagulation therapies. They found that the new novel anticoagulants continue to rise in use, but warfarin is still superior in patients with renal failure.
- An analysis done by Piccini et al. (2016) used the ROCKET AF study to look at the effects that multiple medications had on the use of warfarin or rivaroxaban in patients with atrial fibrillation. They found that as the number of multiple medications increases, so does the chance of bleeding in patients with atrial fibrillation.



Discussion

- Atrial fibrillation is a common disease that people are diagnosed with more and more as they age. There are many different medications that are prescribed when a diagnosis of atrial fibrillation is made. One of the new additions to their medication regimen is an anticoagulant.
- Previously, warfarin had been the anticoagulant of choice and most people had been placed on warfarin for ischemic stroke prophylaxis. There are many things to consider when choosing an anticoagulant. While on warfarin patients need to have blood tested regularly to make sure it maintains at recommended levels. Warfarin does take more time to get to a therapeutic level and can be very difficult to keep patients at this acceptable level. There are also many interactions with different drugs and even certain foods.
- The new addition of the novel oral anticoagulant agents is appealing to both patients and providers. With this medication, the patient does not have to have blood drawn multiple times a week to check their therapeutic level. The downside to these medications with them being newer, is their cost and they should not be used in patients with renal impairment. Many of the patients with atrial fibrillation taking anticoagulant therapy are elderly and cannot afford the new novel oral anticoagulants. The prescriber needs to consider the patient's current medication list, their renal function as well as if the patient will be able to afford the medication.

Applicability to Clinical Practice

When a patient is diagnosed with a new disease, there needs to be a conversation between the provider and the patient. With the addition of atrial fibrillation as a diagnosis to their list of previous diagnoses, the provider and the patient need to sit down and discuss the patient's options. Together they need to decide which anticoagulant would be the best for that specific patient both for the health of the patient, to make sure it is a medication the patient will be willing to adhere to and make sure they are able to afford the medication. Patients see many new advertisements for the newer novel anticoagulation therapies without fully understanding the difference between the different types of drugs. It is the job of the provider to explain the differences between the anticoagulants, so they can come up with a regimen that works best for the patient regarding their age, renal function, bleeding and stroke history, and the amount of medications they are on. With this communication between provider and patient, hopefully there will be an increase in compliance of anticoagulant use as well as a decrease in the amount of ischemic strokes in patients with atrial fibrillation.

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