



March's Topic: Anticoagulation

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Anticoagulants

("Anti"-against, "Coagulation"-clotting)

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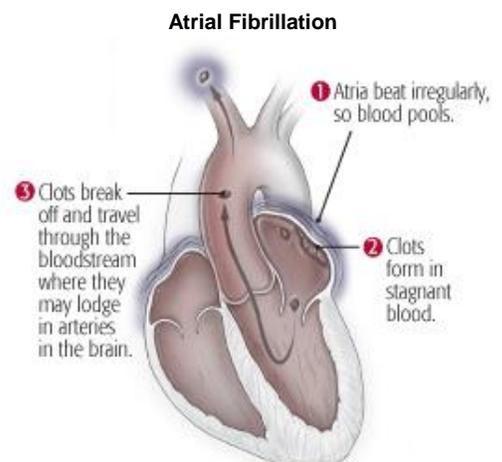
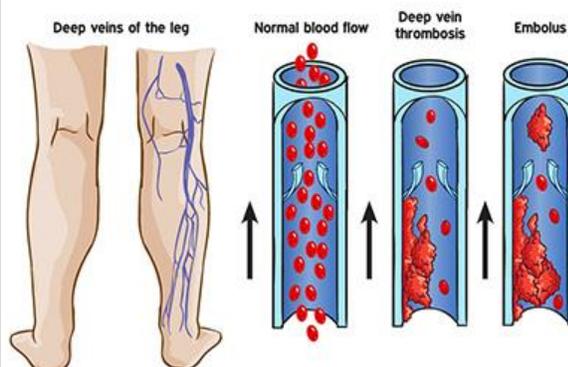
Normally when an injury occurs in our body that results in bleeding, one of the ways our body responds is by forming blood clots in order to stop the bleeding. Once the bleeding stops, the body then begins to break down the clot. Certain medical conditions and medications can cause an imbalance between clot formation and clot breakdown. When this imbalance occurs, people become more vulnerable to clot formation in the body.

Deep vein thrombosis (DVT) is a condition that occurs when a blood clot forms in one or more of the deep veins in your body. Most DVTs occur in the lower leg or thigh causing pain/tenderness, swelling, skin redness, and warmth in the area over the vein. Some medical conditions and medications, as well as staying still for a long time can increase your risk for a DVT. A DVT can break loose and cause a serious problem in the lungs, called a pulmonary embolism.

Pulmonary embolism (PE) occurs when a blood clot has traveled to your lungs from another part of your body and blocks one of your lungs' blood vessels. A PE can be fatal, so it's important to know the signs and symptoms. Symptoms include sudden unexplained onset of shortness of breath, chest pain or discomfort that worsen when you cough or take a deep breath, dizziness, rapid heartbeat, and coughing up blood.

Atrial Fibrillation (AFib) is a condition that often requires anticoagulation. AFib is a quivering or irregular heartbeat that can lead to blood clots, strokes, and other heart complications. AFib causes the blood to pool in the chambers of the heart due to the heart not pumping all of the blood normally, which increases your risk of your blood to clot. If the clot breaks off, enters the bloodstream, and lodges in an artery leading to the brain, a stroke results. This clot risk is the reason patients are placed on anticoagulants.

Once a person is diagnosed with either of these conditions, they are treated with medications that can breakdown the clot and prevent the formation of another clot. These medications are called anticoagulants, or more commonly known as blood thinners. These include warfarin (Coumadin[®]), rivaroxaban (Xarelto[®]), apixaban (Eliquis[®]), and dabigatran (Pradaxa[®]). Other types of blood thinners include aspirin, clopidogrel (Plavix[®]), ticagrelor (Brilenta[®]), and prasugrel (Effient[®]) are often used after a cardiovascular event, such as heart attack and stroke, to prevent another event from occurring.



Warfarin (Coumadin®)

What is warfarin?

Warfarin is an anticoagulant that slows down the clotting process. As previously mentioned, harmful blood clots can cause heart attack, stroke, deep vein thrombosis, or pulmonary embolism. Warfarin is used to prevent these harmful blood clots from forming or growing larger. Many people refer to warfarin as a “blood thinner,” but it does not thin the blood. Instead it causes the blood to take longer to form a clot.

What medical conditions is warfarin used for?

Warfarin is used to prevent the formation of harmful blood clots. Certain medical conditions predispose individuals to developing blood clots such as:

- Atrial Fibrillation (AFib)
- Genetic blood disorders
- Knee or back surgery
- Cancer

Or, a history of blood clots, such as:

- Stroke (CVA)
- Deep vein thrombosis (DVT)
- Pulmonary embolism (PE)
- Heart attack (MI)



How does warfarin work?

Warfarin decreases the body's ability to form blood clots by blocking the formation of vitamin K-dependent clotting factors. Vitamin K is needed to make clotting factors and prevent bleeding. These clotting factors help contribute to the overall process of clot formation. Therefore, by giving a medication that blocks the formation of these clotting factors, the body can stop harmful clots from forming and prevent clots from getting larger.

How is warfarin dosed and monitored?

The goal of warfarin therapy is to decrease the tendency of the blood to clot, not prevent clotting completely. Therefore, the effects of warfarin need to be monitored carefully with blood testing. This blood test measures the time it takes for the blood to clot and is reported as the **International Normalized Ratio (INR)**. Based on the results of this test, the warfarin dose will be adjusted accordingly; therefore, the dose usually changes over time. It is important to monitor the INR regularly (at least once a month and sometimes as often as twice weekly) to make sure that the level of warfarin remains in the effective range. If the INR is too low, blood clots will not be prevented, but if the INR is too high, there is increased risk of bleeding.

In the near future, the State Wellness Center will be providing anticoagulation monitoring services. Please contact the State Wellness Center for more information.



Warfarin (Coumadin[®]) cont.

What are the side effects to look out for on warfarin therapy?

The major complications associated with warfarin therapy are clotting due to underdosing or bleeding due to excessive anticoagulation. During the INR monitoring visits with a healthcare professional, questions regarding signs and symptoms of bleeding are often asked to ensure that these side effects are not occurring.

Minor bleeding can occur even if the INR is within target range. Some examples of minor bleeding that are not considered dangerous include: gums bleeding during teeth brushing and/or flossing, occasional minor nosebleeds, easy bruising, menstrual bleeding that is heavier than usual, and bleeding after a minor cut that takes longer to stop than usual. Some simple changes can decrease the risk of bleeding including using a soft toothbrush, flossing with waxed dental floss, shaving with an electric razor, taking care while handling sharp objects, and avoiding activities that increase risk of falling or injury.

Major bleeding, although uncommon, is a serious complication of being on warfarin therapy. If any the following occurs, go to the **emergency room or call 9-1-1**:

Blood or change in color of urine or stool, vomit that is red or looks like coffee grounds, coughing up blood, severe headache or stomachache, extensive bruising or uncontrolled bleeding, or sudden dizziness or changes in vision.

Also seek **immediate medical attention** if there could potentially be signs and symptoms of a blood clot or stroke as mentioned in the previous section above.

What effects does food have on warfarin?

Since warfarin interferes with the normal action of Vitamin K, certain foods that are rich in Vitamin K can interfere with warfarin, making it less effective and potentially increase the risk of blood clots. Vitamin K rich foods include green, leafy vegetables (eg. kale, spinach, broccoli, certain lettuces, cabbage, Brussel sprouts, greens), mayonnaise, canola oil, and liver. Avoidance of these foods is not necessary since they contain other essential nutrients. **Consistency is key!** Aim to eat a relatively similar amount of vitamin K each week.



As for other foods, it is important to remember to not make any major dietary changes without checking with your healthcare professional first.

What about beverages?

Alcohol is the major concern as it can affect how the body breaks down warfarin. Alcohol can increase the risk of major bleeding even if the INR is within target range. People on warfarin should avoid drinking alcohol on a daily basis, and should be limited to no more than 1 to 2 servings of alcohol occasionally.



How does warfarin interact with other medications?

Certain medications, including common pain relievers, antibiotics, antidepressants, anti-seizure medications, and heart medications can either increase or diminish warfarin's effects on clotting. Examples include ibuprofen, naproxen, trimethoprim/sulfamethoxazole, fluoxetine, carbamazepine, among others. It is very important to tell the healthcare professional monitoring your warfarin therapy on any changes to your medication regimen as it can affect your INR and potentially result in complications. This also includes any dietary or herbal supplements.

Direct Oral Anticoagulants (DOACs): Xarelto[®], Eliquis[®], Savaysa[®], Pradaxa[®]

What are Direct Oral Anticoagulants (DOACs)?

These are a group of medications that have been developed over the past six years as an alternative to warfarin for anticoagulation therapy. These medications work on different aspects of the blood clotting process to provide adequate anticoagulation. DOACs are prescribed for similar medical conditions that warfarin is used for, such as AFib stroke prevention, DVT and PE treatment and prevention, and post-surgery for clot prevention.

How do DOACs work?

DOACs work to reduce the formation of blood clots by interfering with certain clotting factors that contribute to the formation of a blood clot.

How do DOACs compare and contrast to warfarin?

Studies have shown that the DOACs work just as well as warfarin in regards to providing adequate anticoagulation and had a better safety profile in comparison to warfarin. These new agents offer additional advantages over warfarin, including fewer drug interactions and no need for dietary restrictions of Vitamin K foods. However, only one of the DOACs, Pradaxa[®] (dabigatran) has an antidote available in the event a major bleeding complication occurs, and the DOACs are more expensive compared to warfarin since no generics are available.

How are DOACs taken and is monitoring required?

Pradaxa[®] (dabigatran) and **Eliquis[®]** (apixaban) are taken **twice daily**, with 12 hours between doses.

Xarelto[®] (rivaroxaban) and **Savaysa[®]** (edoxaban) are taken **once daily**.

Although routine monitoring by a healthcare provider is not required, it is important to self-monitor for side effects and blood clots.



What are the DOACs side effects?

DOACs are usually well tolerated with few side effects. The main side effect to watch for is bleeding, which can range from minor to serious bleeding complications similar to those mentioned above with warfarin. If you experience any of the major bleeding complications mentioned above, go to the nearest **emergency room or call 9-1-1**. Also seek **immediate medical attention** if you suspect any signs or symptoms of a blood clot.

How do food and beverages affect DOACs?

Unlike warfarin, DOACs do not have any food restrictions. However, Xarelto[®] (rivaroxaban) is one that must be taken with food in order for it to work effectively.

As with warfarin, alcohol can increase the risk of a bleeding complication. Therefore, it is recommended to limit alcohol consumption to no more than 1 drink at a time.

What medications interact with DOACs?

Although there are much fewer medication interactions with DOACs in comparison to warfarin, there are still a few to be aware of, such as any other “blood thinning” medications (eg. warfarin, aspirin, Plavix[®]) and common pain relievers (eg. ibuprofen, naproxen). These medications can increase the likelihood of bleeding complications. It is very important to inform your healthcare provider on any medication changes.

Antiplatelet Medications: Aspirin, Plavix[®], Brilinta[®], Effient[®]

What are antiplatelet medications?

Aspirin, Plavix[®] (clopidogrel), Effient[®] (prasugrel), and Brilinta[®] (ticagrelor) comprise a group of medications that work against the action of platelets, which are tiny blood cells that help in the formation of blood clots. These medications are used to help prevent blood clots.

Why are antiplatelet medications prescribed?

Antiplatelet medications are often prescribed to reduce the risk of having a heart attack, stroke, and various other heart-related events that may occur as the result of formation of unwanted blood clots.

How do antiplatelet medications work?

Antiplatelet medications work to prevent the formation of clots by blocking the ability of platelets to stick together.

What are the side-effects associated with these medications?

Excess bleeding – It is important to self-monitor and report any signs of excess bleeding to your physician (eg. Bleeding from the gums, nose, stool, or urine in addition to bruising more easily than usual)

Stomach problems with aspirin – May be taken with food to reduce this effect.

Are there any medications that should not be taken with antiplatelet medications?

Since these medications can cause abnormal bleeding, it is important to inform your doctor and pharmacist of any other medications that you are taking that may increase this effect such as other antiplatelet medications, NSAID medications, or anticoagulants such as warfarin, Xarelto[®], Eliquis[®], and Pradaxa[®].



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