A Patient's Guide to Taking Coumadin/Warfarin

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Warfarin (brand names Coumadin and Jantoven) is a prescription medication used to prevent harmful blood clots from forming or growing larger. Beneficial blood clots prevent or stop bleeding, but harmful blood clots can cause a stroke, heart attack, deep vein thrombosis, or pulmonary embolism. Because warfarin interferes with the formation of blood clots, it is called an anticoagulant. Many people refer to anticoagulants as "blood thinners"; however, warfarin does not thin the blood but instead causes the blood to take longer to form a clot.

How Does Warfarin Work?

The formation of a clot in the body is a complex process that involves multiple substances called clotting factors. 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. Therefore, by giving a medication that blocks the clotting factors, your body can stop harmful clots from forming and prevent clots from getting larger.

Monitoring and Dosing Tips

The goal of warfarin therapy is to decrease the clotting tendency of blood, not to prevent clotting completely. Therefore, the effect of warfarin must be monitored carefully with blood testing. On the basis of the results of the blood test, your daily dose of warfarin will be adjusted to keep your clotting time within a target range.

The blood test used to measure the time it takes for blood to clot is referred to as a prothrombin time test, or protime (PT). The PT is reported as the International Normalized Ratio (INR). The INR is a standardized way of expressing the PT value. The INR ensures that PT results obtained by different laboratories can be compared. It is important to monitor the INR (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 an increased risk of bleeding. This is why those who take warfarin must have their blood tested so frequently.

Unlike most medications that are administered as a fixed dose, warfarin dosing is adjusted according to the INR blood test results; therefore, the dose usually changes over time. Coumadin/warfarin pills come in different colors, and each color corresponds to a different dose (Figure).

Difference Between Brand-Name and Generic Medications

Generic drugs are supposed to have the same dosage, therapeutic effects, route of administration, side effects, and strength as the original drug. The US Food and Drug Administration requires that all generic drugs be as safe and effective as brand-name drugs. Generic drugs are often less expensive than their brand-name counterparts, because the generic manufacturers have not incurred the expenses of developing and marketing a new drug. In the United States, trademark laws do not allow generic drugs to look exactly like the brand-name drug; however, the generic drug must have the same active ingredients. In the case of Coumadin (a brand-name product) and warfarin (a generic product), the manufacturers attempted to keep the colors consistent with the strength of the pills. The goal is to allow the patient to identify the color-coded dose and prevent mix-ups or errors. Therefore, if the color or dose of the dispensed tablet appears different from the pill taken previously, the patient should immediately notify the dispensing pharmacist or healthcare provider.

In January 2006, the Food and Drug Administration issued a public health

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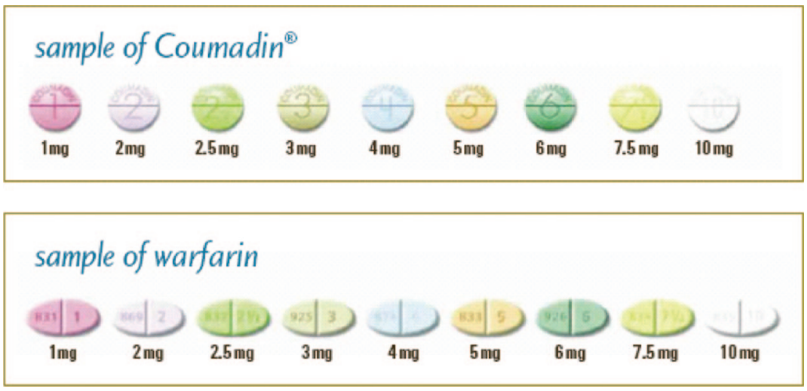

Figure. Appearance of brand-name Coumadin vs generic warfarin pills.

advisory to healthcare professionals and consumers that US prescriptions filled abroad may give patients the wrong active ingredient for treating their health condition. Some Food and Drug Administration–approved products have the same brand names as drug products that are marketed outside the United States but contain completely different active ingredients. Therefore, patients who fill US prescriptions abroad, either when traveling or when shopping at foreign Internet pharmacies, need to maintain caution and vigilance. We advise US residents against purchasing drugs at foreign Internet pharmacies. Foreign drugs may use identical or potentially confusing brand names for products with active ingredients that differ from US drugs. Warfarin has many foreign brand names (Table 1). Patients who do fill prescriptions abroad should ensure the accuracy and quality of the medication dispensed.

Warfarin must be taken exactly as prescribed. Never increase or decrease your dose unless instructed to do so by your healthcare provider. If a dose is missed or forgotten, call your healthcare provider for advice.

Table 1. Foreign Brand Names for Warfarin

Country	Foreign Brand Name for Warfarin
Australia	Warfarin, Marevan
Canada	Apo-Warfarin
Indonesia	Simarc-2
Portugal	Varfine
Spain	Aldocumar
Thailand	Befarin, Maforan, Fargem
Turkey	Orfarin
Venezuela	Anasmol, Cumar

Side Effects

The major complications associated with warfarin are clotting due to underdosing or bleeding due to excessive anticoagulation. The most serious bleeding is gastrointestinal or intracerebral. Excessive bleeding can occur in any area of the body, and patients taking warfarin should report any falls or accidents, as well as signs or symptoms of bleeding or unusual bruising, to their healthcare provider. Signs of unusual bleeding include bleeding from the gums, blood in the urine, bloody or dark stool, a nosebleed, or vomiting blood. An unusual headache or a headache that is more severe than usual may signal intracerebral bleeding.

When to Call Your Healthcare Provider

If you experience the following signs of bleeding, you should call 911 or your healthcare provider immediately:

- Severe headache, confusion, weakness, or numbness
- Coughing up large amounts of bright red blood
- Vomiting blood
- Bleeding that will not stop
- Bright red blood in stool
- Fall or injury to the head
- Headache that is severe or unusual

Some simple changes to decrease the risk of bleeding while taking warfarin include the following:

- Use a soft-bristle toothbrush
- Floss with waxed floss rather than unwaxed floss
- Shave with an electric razor rather than a blade
- Take care when using sharp objects, such as knives and scissors
- Avoid activities that have a risk of falling or injury (eg, contact sports)

Warfarin and Lifestyle

Changes in daily living can affect the INR. It is important to know common do's and don'ts for warfarin therapy (Table 2).

Pregnancy

Warfarin is not recommended during pregnancy. A woman who becomes pregnant or plans to become pregnant while undergoing warfarin therapy should notify her healthcare provider immediately.

Surgery/Dental and Other Medical Procedures

It is important to tell all your healthcare providers that you are taking warfarin. If you are having surgery, dental work, or other medical procedures, you may need to stop taking warfarin.

Travel

Check with your healthcare provider if you expect to travel. While traveling, it is important to carry your medication with you at all times. Do not put medication into checked baggage.

Warfarin Interacts With Other Medications

Patients who take warfarin should consult with their healthcare provider before taking any new medication, including over-the-counter (nonprescription) drugs, herbal medicines, vitamins, or any other products. Many medications can alter the effectiveness of warfarin, resulting in an INR that is either too high or too low. Some of the most common over-the-counter pain relievers, such as ibuprofen (brand name

Table 2. Common Do's and Don'ts

What to Do	What Not to Do
Do watch for signs and symptoms of bleeding.	Never double a dose because you missed a dose.
Do tell your healthcare provider when you get sick or hurt.	Don't start new medications, herbals, or supplements without talking to your healthcare provider.
Do take warfarin exactly as prescribed.	Don't make changes to your warfarin dose without talking to your healthcare provider.
Do tell anyone giving you medical or dental care that you are taking warfarin.	
Do keep appointments for blood tests.	

Advil) and naproxen (brand name Aleve), enhance the anticoagulant effects of warfarin and increase the likelihood of harmful bleeding.

Warfarin Interacts With Alcohol and With Certain Foods

Alcohol

Alcohol intake can affect how the body metabolizes warfarin. Patients undergoing warfarin therapy should avoid drinking alcohol on a daily basis. Alcohol should be limited to no more than 1 to 2 servings of alcohol occasionally. The antiplatelet effect of alcohol increases the risk of major bleeding, even if the INR remains within the target range.

Foods

Some foods can interfere with the effectiveness of warfarin. The most important point to remember is to eat what you normally eat and not to make any major changes in your diet without contacting your healthcare provider.

Vitamin K

Eating an increased amount of foods rich in vitamin K can lower the PT and INR, making warfarin less effective and potentially increasing the risk of blood clots. Patients who take warfarin should aim to eat a relatively similar amount of vitamin K each week. The highest amount of vitamin K is found in green and leafy vegetables such as broccoli, lettuce, and spinach. It is not necessary to avoid these foods; however, it is important to try to keep the amount of vitamin K you eat consistent.

Wear Medical Identification

Those who require long-term warfarin should wear a medical alert bracelet, necklace, or similar alert tag at all times. If an accident occurs and the person is too ill to communicate, a medical alert tag will help responders provide appropriate care. The alert should include a list of major medical conditions and the reason warfarin is needed, as well as the name and phone number of an emergency contact.

Where to Get More Information

Your healthcare provider is the best source of information for questions and concerns related to your medical problem. Because no 2 patients are exactly alike, and recommendations can vary from 1 person to another, it is important to seek guidance from a provider who is familiar with your individual condition.

A number of World Wide Web sites have information about medical problems and treatments, although it can be difficult to know which sites are reputable. The National Institutes of Health and the North American Thrombosis Forum Information provide reliable information.

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Additional Resources

US National Library of Medicine. Medline Plus: health topics. Available at: http://www.nlm.nih.gov/medlineplus/healthtopics.html.

North American Thrombosis Forum. Available at: http://www.natfonline.org.

Venous Disease Coalition. Available at: http://venousdiseasecoalition.org.

ClotCare. ClotCare online resource. Avaiable at: http://www.clotcare.com.