

Nutrition Recommendations While Taking Warfarin

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ABSTRACT

Warfarin is a highly effective oral anticoagulant, which is used in the primary and secondary prevention of venous thromboembolism and for the prevention of systemic embolism in patients with prosthetic heart valves and atrial fibrillation. The anticoagulant effect is shown by decreasing the amount of vitamin K required for the activation of clotting factors II, VII, IX and X. Anticoagulant response is highly variable and is influenced by numerous factors, including genetic polymorphisms in the enzymes that metabolize the drug, dietary intake of vitamin K and a wide variety of drug-drug, drug-herbal and drug-food interaction

Keywords: Warfarin, nutrition, vitamin K

INTRODUCTION

Warfarin is an oral coumarin anticoagulant. In 1939, it was discovered that spoiled sweet clover possessed anticoagulant properties due to the presence of a compound identified as bishydroxycoumarin. For the first time in the wild, decapitated bleeds attributed to the consumption of sweet clover have been described in Wisconsin in 1920. As a result, dicoumarol was isolated in 1940. The most popular in this group of compounds has been proven to be warfarin (1). Coumarins act as competitive inhibitors of vitamin K epoxide reductase. Vitamin K acts as a common factor in the synthesis of coagulation factors II, VII, IX and X. The coumarins are responsible for regenerating reduced K vitamins. The main use of coumarins is the treatment and prevention of thromboembolic disease. Warfarin, one of the oral anticoagulants, is a vitamin K antagonist, and treatment and prophylaxis is indicated for thromboembolic events and is a widely used treatment. The international normalization rate (INR) is used to ensure the safe and effective use of warfarin (2,3,4). Hemorrhage and, exceptionally, hemorrhagic skin necrosis are the major adverse reactions to the coumarins. Administration during pregnancy can cause an embryopathy. Allergic reactions are extremely rare. Bleeding is the major complication of coumarin anticoagulants. The annual incidence of major bleeding among 4060 patients in the

AFFIRM trial, who were followed for an average of 3.5 years, was about 2% per year. The intensity and stability of treatment, in addition to the beneficial effect of the coumarins, determine the rate and severity of bleeding complications [5]. The intensity and stability of the treatment determines the proportion and severity of bleeding complications, in addition to the beneficial effects of the coumarins.

DISCUSSION

Clinical use is so important that it is very important to know how to interact with medicines and foods to prevent the unwanted side effects such as the effective use of warfarin and bleeding. As you know, there are many food interactions with the food. Some increase the impact of warfarin, leading to complications such as major and minor hemorrhage while reducing the efficacy of some food products causing unwanted thromboembolic complications. Dietary vitamin K is important in patients receiving chronic oral anticoagulants because of warfarin metabolism and mechanism of action (Table 1). Depending on the vitamin K ratio in the vitamins, fluctuations may occur in INR levels. More importantly, life threatening bleeding or thrombosis can be seen in these patients. [6,7,8] The use of 1-10 mg / day of phylloquinone (vitamin K1), known as vitamin K1, blocks the effect of warfarin. Although there

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is insufficient information on the amount of vitamin K to be taken with dieting, it is recommended that patients taking warfarin

treatment receive a dose of 65-80 µg / day of filacinone.[6]

Table1. vitamin K content of some foods

	High amounts of K vitamins (>100 mcg)	Includes medium K vitamins (25–100 mcg)	Contains low amounts of K vitamins (5-25 mcg)	Those without K vitamins (< 5 mcg)
NUTRIENTS	Beets (cooked)-350 mcg. Broccoli (cooked) - 110 mcg. Cabbage (cooked)418 mcg. turnip (cooked)- 265 mcg. Scallion 105 mcg. Parsley (raw)- 10 branch 164 mcg.	Asparagus (cooked)- 5 spear 38 mcg Cabbage (cooked)37 mcg. Kiwi fruit - 1 piece,31 mcg Okra (frozen)44 mcg. Watercress (raw) 85 mcg. Prunes - 5 pieces 25 mcg.	Artichoke - 1 medium 18 mcg. Carrot (cooked)11 mcg. Mango - 1 pcs 9 mcg. Grape -12 mcg. Pear -1 adet 8 mcg. Cucumber with shell 9 mcg. Cauliflower (raw)11 mcg. Cabbage (raw)- 21 mcg. Pumpkin seeds -13 mcg var. Tomato (raw) - 1 piece 10 mcg.	Bread and cereal products. Cheese, milk and dairy products Eggs Meat and poultry. Fish and shellfish.

Dark green leafy plants are the main sources of vitamin K taken on the diet. The chlorophyll content and freshness of these plants are directly proportional to their vitamin K concentration.. Interestingly, freezing, boiling or microwaving these natural sources of vitamin K does not change the rates of filakinone. [6] Vitamin K in vegetable oils is degraded by 50-95% in 48 hours in sunlight or fluorescent light.Milk and dairy products and animal foods contain less filakinone. but meat and eggs treated with vitamin K-rich oils (meat decay, fry, etc.) can increase the proportion of K vitamins taken on the diet.The warfarin-food interaction can be confronted in different forms. These are the patients using warfarin:

- Warfarin resistance due to high vitamin K rich diet,
- Low anticoagulant effect due to high vitamin K vitamin
- Low-grade vitamin K can be listed as a high anticoagulant effect due to the diet.

A study by Franco et al. [9] showed that changes in the ratio of vitamin K taken in the diet to patients using oral anticoagulants were the primary cause of fluctuation in INR value. Pederson et al. [10] and Ovesen et al. [11] reported that the Brussels cabbage, which had a high rate of filakinone, had a negative effect on anticoagulant therapy.Healthy nutrition and long life expectancy, the herbal treatment direction is increasing day by day. Thus unwanted conditions can occur in patients using warfarin..Chinese wolfberry tea has been shown to potentiate the effect of warfarinin, especially

in the increasing use of CYP2C9 isoenzymes in the liver.(7). Narringin, found in grapefruit juice, has been shown to potentiate the effect of warfarin by affecting the CYP3A4 isoenzyme of the P450 enzyme responsible for drug metabolism.(12,13)) In one study, Quilinggao((A product in the form of jelly used in traditional Chinese medicine for herbal treatment), a herbal product widely used in China, reported that it potentiates the effect of warfarin due to antithrombotic and antiplatelet effects(14).There is great responsibility for healthcare professionals who are responsible for the treatment and follow-up of patients receiving oral anticoagulants in such a sensitive mannerThese patients should be sufficiently informed about drug-food interactions.In a study of 160 health workers, it has been shown that health workers are not fully and sufficiently informed in this regard.(15).

CONCLUSION

As a result, patients' nutritional regimens should be considered during warfarin therapy. The education of these patients must be ensured and knowledge of possible drug-food interactions should be provided..We think that it will be beneficial for dietitians to prepare sample food tables and health workers to give more importance to this issue.

REFERENCES

- [1] Duxbury B.M., and Poller L.: The oral anticoagulant saga: past, present, and future. Clin Appl Thromb Hemost 2001; 7: pp. 269-275
- [2] Keeling, David, et al. "Guidelines on oral anticoagulation with warfarin—fourth edition."

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- British journal of haematology 154.3 (2011): 311-324.
- [3] Keeling D, Baglin T, Tait C, et al. British Committee for Standards in Haematology. Guidelines on oral anticoagulation with warfarin - fourth edition. Br J Haematol 2011 ;154:311-24
- [4] Altunbas, Gökhan, et al. "Overview of Warfarin Treatment and Answers to Questions/Varfarin Tedavisine Genel Bakis ve Sorulara Cevaplar." Journal of Academic Emergency Medicine 12.1 (2013): 38.
- [5] DiMarco J.P., Flaker G., Waldo A.L., Corley S.D., Greene H.L., Safford R.E., Rosenfeld L.E., Mitrani G., and Nemeth M.: AFFIRM Investigators. Factors affecting bleeding risk during anticoagulant therapy in patients with atrial fibrillation: observations from the Atrial Fibrillation Follow-up Investigation of Rhythm Management (AFFIRM) study. Am Heart J 2005; 149: pp. 650-656.
- [6] Booth SL, Centurelli MA. Vitamin K: a practical guide to the dietary management of patients on warfarin. Nutr Rev 1999; 57(9 Pt 1):288-96.
- [7] Lam AY, Elmer GW, Mohutsky MA. Possible interaction between warfarin and Lycium barbarum L. Ann Pharmacother 2001;35:1199-201.
- [8] Bartle WR. Grapefruit juice might still be factor in warfarin response. Am J Health Syst Pharm 1999;56:676.
- [9] Franco V, Polanczyk CA, Clausell N, Rohde LE. Role of dietary vitamin K intake in chronic oral anticoagulation: prospective evidence from observational and randomized protocols. Am J Med 2004;116:651-6.
- [10] Pedersen FM, Hamberg O, Hess K, Ovesen L. The effect of dietary vitamin K on warfarin-induced anticoagulation. J Intern Med 1991;229:517-20.
- [11] Ovesen L, Lydych S, Idorn ML. The effect of a diet rich in brussels sprouts on warfarin pharmacokinetics. Eur J Clin Pharmacol 1988;34:521-3.
- [12] Bailey DG, Malcolm J, Arnold O, Spence JD. Grapefruit juice-drug interactions. 1998. Br J Clin Pharmacol 2004; 58:S831-40.
- [13] Lilja JJ, Kivisto KT, Backman JT, Neuvonen PJ. Effect of grapefruit juice dose on grapefruit juice-triazolam interaction: repeated consumption prolongs triazolam half-life. Eur J Clin Pharmacol 2000;56:411-5.
- [14] Wong AL, Chan TY. Interaction between warfarin and the herbal product quilinggao. Ann Pharmacother 2003;37:836-8
- [15] Couris RR, Tataronis GR, Dallal GE, Blumberg JB, Dwyer JT. Assessment of healthcare professionals' knowledge about warfarin-vitamin K drug-nutrient interactions. J Am Coll Nutr 2000;19:439-45.

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