Warfarin (Coumadin®)

Information about the drug and genetic variation

What is warfarin?

- Warfarin is a medication used to prevent blood clots that can lead to conditions such as stroke or pulmonary embolism.
- Warfarin works by inhibiting the action of Vitamin K in your body. Vitamin K is an important compound that helps blood clots form. By inhibiting Vitamin K, the ability to form blood clots is diminished.

Genetic Variation

- There are two genes heavily involved with the action of warfarin, known as CYP2C9 and VKORC1.
- CYP2C9 breaks down warfarin to an inactive form in the body. VKORC1 is involved with the activation of Vitamin K.
- Depending on individual variation in these genes, your response to warfarin might be affected.

Drug-Gene Interaction

- Decreased function of the CYP2C9 gene causes warfarin to be broken down more slowly and accumulate, leading to greater anticoagulation at a given dose.
- VKORC1, involved in the activation of Vitamin K, essentially opposes the action of warfarin. Decreased function of VKORC1 leads to decreased activation of Vitamin K and a greater effect of warfarin at a given dose.
- Healthcare professionals conduct blood tests on patients taking warfarin to make sure anticoagulation is properly managed. These two gene markers can help guide more efficient initial dosing and remove some guesswork out of the equation. It is important to note that warfarin can also be affected by diet, other medications, and health conditions.

If you have any other questions please visit the websites listed below or consult a healthcare professional.

- www.drugsandgenes.com
- www.pharmgkb.org