P450 2C9 AND VKORC1 WARAFIN GENOTYPING

CLINICAL RELEVANCE

- **Warfarin** is the most commonly prescribed anticoagulant for the treatment and prevention of thromboembolic events. The anticoagulant effect of warfarin is due to the inhibition of the vitamin K epoxide reductase enzyme, leading to a reduction of the vitamin K pool and an inability to activate the vitamin K-dependent clotting factors. The active component of warfarin is metabolized by cytochrome P450 2C9 (CYP2C9). Polymorphisms in the CYP2C9 gene are associated with decreased warfarin clearance and an increased risk of bleeding. An additional polymorphism in the vitamin K epoxide reductase complex subunit 1 (VKORC1) gene is also associated with warfarin sensitivity and decreased maintenance dose requirements of the medication.

CLINICAL UTILITY

- By testing for the inherited differences in CYP2C9 and VKORC1 and taking into consideration patient physical characteristics, PGXL can estimate individual warfarin daily maintenance dosages, and subsequently identify those patients who will require low dose.

  Thus, the potential for bleeding events and other adverse drug reactions can be reduced.