warfarin (war fa-rin)

Contraindications/Precautions

Contraindicated in: Uncontrolled bleeding, Open wounds, Active liver disease, Recent brain, eye, or spinal cord injury or surgery; Severe liver or kidney disease; Uncontrolled hypertension.

Pregnancy Category X

Precautions

Patients with history of stroke or liver disease; History of poor compliance; Women with childbearing potential; Those who carry the CYP2C9*2 allele and/or the CYP2C9*3 allele, or with the VKORC1 AA genotype; with warfarin. AD: Due to greater than expected anticoagulant response, initiate and maintain at lower doses.

Adverse Reactions/Side Effects


Interactions

Drug-Drug: Oxicamim analogues, caprotiline, cilostazol, clopidogrel, dalteparin, fenprocoumon, fentanyl, fluconazole, ginkgo, ibuprofen, indomethacin, ticlopidine, ticlopidine, valproates, warfarin.

Drug-Food: Foods high in vitamin K content may antagonize the anticoagulant effect of warfarin.

Drug-Natural Products: Many other drugs may affect the activity of warfarin.

Route/Dosage

PO, IV (Adults): 2–5 mg/day for 2–4 days; then adjust daily dose by results of INR. Initiate therapy with lower doses in geriatric or debilitated patients or in Asian patients or those who carry the CYP2C9*2 allele and/or the CYP2C9*3 allele, or with the VKORC1 AA genotype.‡ After discontinuation

PO, IV (Children ≥1 mo): Initial loading dose—0.2 mg/kg (maximum dose: 10 mg/kg); then adjust daily dose by results of INR, use 0.1 mg/kg if liver dysfunction is present. Adjust dosage based on age: 0–15 years—0.5–0.3 mg/kg/day.
NURSING IMPLICATIONS

Assessment
- Assess for signs of bleeding and hemorhage (bleeding gums; nosebleed; unusual bruising; tarry, black stool; hematuria; fall in hematocrit or BP; pain; positive stool, urine, or emesis tests).
- Assess for evidence of additional or increased thrombosis. Symptoms depend on area of involvement.
- Geri: Patients over 60 yr exhibit greater than expected PT/INR response. Monitor for side effects at lower therapeutic ranges.
- Pedi: Achieving and maintaining therapeutic PT/INR ranges may be more difficult in pediatric patients. Assess PT/INR levels more frequently.

Lab Test Considerations:
- Monitor PT, INR and other clotting factors frequently during therapy. Therapeutic PT ranges 1.3–1.5 times greater than control; however, the INR, a standardized system that provides a common basis for communicating and interpreting PT results, is usually referenced. Normal INR (not on anticoagulants) is 0.8–1.2. In DOACs 2.5–3.5 is recommended for patients at very high risk of embolization. Lower levels are acceptable when risk is lower.
- Drugs that may affect the INR include aspirin, NSAIDs, and many herbal products.

Potential Nursing Diagnoses
- Ineffective tissue perfusion (Indications)
- Risk for injury (Side Effects)

Implementation
- High alert: Medication errors involving anticoagulants have resulted in serious harm or death from internal or intracranial bleeding. Before administering, evaluate recent INR or PT results and have second practitioner independently check original order.
- Do not confuse Coumadin (warfarin) with Avandia (rosiglitazone) or Cardura (doxazosin). Do not confuse Jantoven (warfarin) with Janumet (sitagliptin/metformin) or Januvia (sitagliptin).
- Because of the large number of medications capable of significantly altering warfarin’s effects, careful monitoring is recommended when new agents are started or other agents are discontinued. Interactive potential should be evaluated for all new medications (Rx, OTC, and natural products).
- PO: Administer medication at same time each day. Medication requires 3–5 days to reach effective levels; usually begun while patient is still on heparin.
- Do not interchange brands; potencies may not be equivalent.

IV Administration
- Direct IV: Reconstitute each 5-mg vial with 2.7 mL of sterile water for injection. Reconstituted solution is stable for 4 hr at room temperature. Concentration: 2 mg/mL. Rate: Administer over 1–2 min.

Patient/Family Teaching
- Instruct patient to take medication as directed. Take missed doses as soon as remembered that day; do not double doses. Inform health care professional of missed doses at time of checkup or lab tests. Inform patients that anticoagulant effect may persist for 2–5 days following discontinuation. Advise patient to read Medication Guide before starting therapy and with each Rx refill.
- Review foods high in vitamin K. Patient should have consistent limited intake of these foods, as vitamin K is the antidote for warfarin, and alternating intake of these foods will cause PT levels to fluctuate. Advise patients to avoid cranberry juice or products during therapy.
warfarin

- Caution patient to avoid IM injections and activities leading to injury. Instruct patient to use a soft toothbrush, not to floss, and to shave with an electric razor during warfarin therapy. Advise patient that venipunctures and injection sites require application of pressure to prevent bleeding or hematoma formation.

- Advise patient to report any symptoms of unusual bleeding or bruising (bleeding gums; nosebleed; black, tarry stools; hematuria; excessive menstrual flow) and pain, color, or temperature change to any area of your body to health care professional immediately. Patients with a deficiency in protein C and/or S mediated anticoagulant response may be at greater risk for tissue necrosis.

- Instruct patient not to drink alcohol or take other Rx, OTC, or herbal products, especially those containing aspirin or NSAIDs, or to start or stop any new medications during warfarin therapy without advice of health care professional.

- Advise patient to notify health care professional if pregnancy is planned or suspected or if breast feeding.

- Instruct patient to carry identification describing medication regimen at all times and to inform all health care personnel caring for patient on anticoagulant therapy before lab tests, treatment, or surgery.

- Emphasize the importance of frequent lab tests to monitor coagulation factors.

**Evaluation/Desired Outcomes**

- Prolonged PT (1.5–2 times the control; may vary with indication) or INR of 2–4.5 without signs of hemorrhage.

**Why was this drug prescribed for your patient?**