Policy 100.087 Anticoagulation Management

# Attachment A: Warfarin Protocol

*This protocol reflects current evidence based clinical practice. It is not a substitution for appropriate clinical evaluation and does not supersede clinical judgment.*

Initiating Warfarin therapy:

→**Extreme Caution:** ***Consider effects of aspirin, corticosteroids, nonsteroidal anti-inflammatory drugs (NSAIDs) and clopidogrel when initiating therapy.***

1. Obtain baseline prothrombin time (PT)/international normalized ratio (INR) and complete blood count (CBC) within 48 hours prior to initiation of therapy.
2. Discontinue (DC) all Intramuscular injections.
3. Order Dietary Consult to assess patient's vitamin K intake.
4. Do not hold enteral nutrition at time of administration.
5. Use approved order set in electronic health record (EHR) or Warfarin Form in case of EHR downtime for all warfarin orders.

Exclusion Criteria:

1. Do not initiate on patient with epidural analgesia.
2. Do not initiate on patient with platelets < 30,000
3. Do not initiate on pregnant patients.

Dosing:

Dose will not be dispensed by pharmacy until a baseline INR is made available. If no such order has been placed, pharmacist shall write order to gain baseline INR. Once baseline INR is received, pharmacist will either process order as written or conduct appropriate clinical intervention by contacting prescriber for changes.

1. Patients admitted with a therapeutic INR who are already on warfarin therapy shall continue with the same dose.
2. All patients who begin warfarin therapy should be started with 5 mg orally daily at 1400.
   - Patients who have significant liver disease, recent major surgeries, weigh less than 45 kg or are older than 70 years of age should consider starting at lower doses such as 2.5 mg orally daily.
3. Doses will be held by nurse for INR ≥ 4 (Laboratory Critical Value will be reported to nurse) unless patient is concurrently receiving argatroban infusion. When the dose is held, RN must notify physician.
4. Drug-drug interactions with certain classes of medications impact the effects of warfarin and should be considered upon initiation of therapy.

**Drug-Drug / Drug-Food / Drug-Dietary Supplement Interactions**

| Items that **Increase** the Effects of Warfarin | | | Items that **Decrease** the Effects of Warfarin | |
|---|---|---|---|---|
| Acetaminophen | Danshen | Mango | Avocado | Kale |
| Alcohol | Diltiazem | Metronidazole | Azathioprine | Mercaptopurine |
| Amiodarone | Dong Quai | Miconazole | Barbiturates | Mesalamine |
| Amoxicillin/Clavulanate | Entacapone | Omeprazole | Brussels sprouts | Mustand greens |
| Aspirin | Erythromycin | Phenytoin | Carbamazepine | Nafcillin |
| Azithromycin | Fenugreek | Propranolol | Chard | Olestra |
| Celecoxib | Fibrates | Reishi | Chlordiazepoxide | Parsley |
| (NSAIDs) | Fish Oil | Ritonavir | Cholestyramine | Raloxifene |
| Cimetidine | Fluconazole | Sertraline | Coenzyme Q10 | Ribavirin |
| Ciprofloxacin | Fluvoxamine | Statins | Collard Greens | Rifampin |
| Citalopram | Goji Berries | Tetracycline | Dicloxacillin | Ritonavir |
| Clarithromycin | Grapefruit | Tolterodine | Ginseng | Spinach |
| Cotrimoxazole | Isoniazide | Tramadol | Green tea | Sucralfate |
| Cranberry | Levofloxacin | Vitamin E | | Terbinafine |
| | | Voriconazole | | Vitamin C |

Warfarin Package Insert. Accessed October 24, 2019. American Heart Association myAFib experience.org 2015

Adjusting Initial Warfarin Dose: The following table may be used as a guideline in changing warfarin doses after initiation of warfarin therapy. Expect slower increase in INR in those who have recently received high doses of vitamin K (dose > 10 mg either given orally or intravenously).

| Day | INR | Warfarin Dose (mg) |
|---|---|---|
| 2 | < 1.5 | 5 |
| | 1.5-1.9 | 2.5 |
| | 2-2.5 | 1 |
| | >2.5 | HOLD |
| 3 | < 1.5 | 5-10 |
| | 1.5-1.9 | 2.5-5 |
| | 2-3 | 0-2.5 |
| | >3 | HOLD |
| 4 | < 1.5 | 10 |
| | 1.5-1.9 | 5-7.5 |
| | 2-3 | 0-5 |
| | >3 | HOLD |

Adjusting Existing Warfarin Regimen: The following table may be used as a guideline in changing warfarin doses on a patient who has been on a therapeutic regimen.

| INR | ACTION: Total weekly dose (TWD) |
|---|---|
| 1-1.4 | Increase TWD by 15-25%; Give extra dose for 2 days. |
| 1.5-1.9 | Increase TWD by 10-15%; Give extra dose for 1 day. |
| 2-3 | Maintain TWD |
| 3.1-4 | Decrease TWD by 10-15%; Hold dose for 1 day. |
| 4.1-5 | Decrease TWD by 15-25%; Hold dose for 2 days. |
| >5 | Decrease TWD by 25-30%; Hold until INR < 3 |

Monitoring:

1. Obtain daily PT/INR with AM Labs until INR goal is therapeutic and stable ≥ 2 days; thereafter, less frequently as clinically indicated.
2. Obtain CBC daily with AM Labs.

Goal INRs per Indication:

| Indication | INR Target |
|---|---|
| 1. Antiphospholipid Antibody Syndrome<br>2. Atrial Fibrillation<br>3. Deep vein thrombosis (DVT)/pulmonary embolism (PE) Treatment and Prophylaxis<br>4. Mechanical valves in aortic position | 2-3 |
| 1. Mechanical valves in mitral positions<br>2. "High Risk" patients with mechanical valves in the aortic position<br>3. "High Risk" patients with bioprosthetic valves in the mitral position | 2.5-3.5 |

**High Risk***: Patients with atrial fibrillation, prior embolus, left atrial (LA) or left ventricular (LV) clot, severe LV dysfunction (EF<30%), hypercoagulable state and coronary artery disease*

Bridge Therapy:

1. For those with active clot or high risk for clotting, there must be a five-day overlap of warfarin and enoxaparin or warfarin and heparin or warfarin and fondaparinux.
2. Achieve therapeutic INR ≥ 2 days prior to stopping the heparin, enoxaparin, or fondaparinux.
   NOTE: If INR is therapeutic or supratherapeutic and there have been less than 5 days of overlap, heparin, enoxaparin, or fondaparinux should still be continued for 5 days and the dose of warfarin should be adjusted.
3. For information regarding transitioning from argatroban to warfarin, see VCMC Argatroban Protocol.
4. For information regarding transitioning from or to direct oral anticoagulants (dabigatran, apixaban, rivaroxaban, edoxaban) and warfarin, see Clinical Practice Guideline for Prescribing Direct Oral Anticoagulants.

Reversal Agents:

For reversal of elevated INR due to warfarin use see CPG.56 for the Management of Bleeding Associated with Anticoagulants and Antiplatelet Therapies. This document contains information for management of elevated INR with and without major/non-major bleed as well as reversal of INR for procedure.

References:
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