

National Patient Safety Goal (NPSG): Anticoagulation Therapy


14604

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Course Description

Anticoagulant therapy and/or long-term anticoagulation prophylaxis have the potential to cause harm due to complex dosing, poor monitoring and poor patient compliance. This course is required for all RNs at PAMC to reinforce the performance elements in this NPSG which will result in better outcomes and safety for patients receiving anticoagulation medications.

Course Outcomes

Upon completion of this course, the participant will be able to:

- Discuss approved protocols for initiation and maintenance of anticoagulation therapy using heparin, enoxaparin, and warfarin.
- Explain education components for patient/family.
- Discuss serious complications associated with anticoagulant medications.

Anticoagulation Therapy

- Conditions requiring anticoagulation therapy include atrial fibrillation, deep venous thrombosis, pulmonary embolism, & mechanical heart valve implant.
- There is a high potential for patient harm when:
 - Medication not taken as prescribed or are complex dosing requirements
 - Coagulation monitoring is inconsistent
 - Poor patient compliance with diet/taking medication
- Patient/family education is an important part of an anticoagulation program. They must understand risks & benefits of therapy, ways to prevent bleeding, & need for International Normalized Ratio (INR) monitoring to ensure therapeutic drug levels & proper dosing.
- Anticoagulation therapy is not short term prophylaxis—it provides anticoagulation over a long period of time, months to years.

Performance Element 1: Anticoagulant Products

- To decrease administration errors
 - Use only unit dose products for oral medications to prevent giving more doses than prescribed
 - Always scan medication and verify dose before administering
 - Use prefilled syringes for injections
 - For pediatric patients, prefilled syringe products should only be used if specifically designed for pediatric patients
 - Premixed infusion bags are preferred when available
 - Premixed medications reduce dosing errors

Performance Element 2:

Approved Protocols

- Use approved, evidence based protocols or order sets for initiating & maintaining anticoagulation for safe, and effective medication treatment
 - Bridge therapy
 - Medications covered in the NPSG
 - Warfarin (Coumadin)
 - Unfractionated heparin (UFH)
 - Continuous infusion IV heparin
 - NOT included: SQ heparin for DVT prophylaxis or IV heparin for line patency
 - Low molecular weight heparin (LMWH)
 - Treatment or weight based (1 or 1.5 mg/kg) regimens
 - NOT included: 30mg or 40 mg doses for DVT prophylaxis

Bridge Therapy

- Bridge heparin or enoxaparin to warfarin
 - Current evidence suggests bridging should be limited to those at high risk of venous thromboembolism (Bridge Trial) due to high bleeding risk during bridging process
 - Evidence supports low dose heparin/enoxaparin until INR approaches 2.0; then heparin is discontinued and warfarin continued. Warfarin dose is adjusted to prescribed INR range
 - Monitor PTT/PT/INR & signs of bleeding during bridge therapy
 - Continue heparin/enoxaparin until INR approaches 2.0 for warfarin therapy

Performance Element 3

Assess Coagulation Status

- Before starting patient on warfarin, a baseline coagulation status is assessed.
 - The International Normalized Ratio (INR) is used to evaluate baseline coagulation status and ongoing monitoring of INR.
 - Warfarin dose is adjusted to maintain warfarin therapeutic range using INR value.
 - Baseline and ongoing INR measurements are documented in the medical record.
- Patient risk for thromboembolism is assessed prior to starting anticoagulation therapy.
 - Age, weight, tendency for bleeding, and genetic factors are considered prior to starting warfarin.

Performance Element 4

Manage Food/Drug Interactions

- Educational resources for managing potential food & drug interactions are used for patients receiving therapy.
 - Pharmacists and Dieticians have resources to assess potential food/drug interactions
 - Nurses have EPIC resources to assist with identifying potential food/drug interactions and educating patients/family
 - Lexicomp
 - Krames patient education handouts
 - Additional resources are found in The Clinical Toolbox under pharmacy tab for Lovenox administration.

Performance Element 5

IV Heparin Administration

- Programmable IV pumps used for continuous intravenous administration of heparin for consistent & accurate dosing.
- When available, premixed IV heparin bags are used.
- When multiple IV lines/pumps are used in addition to heparin:
 - Clearly label each pump with drug name
 - Clearly label each IV line with drug name just below drip chamber
 - Run the line to the pump when IV bag is changed to verify right drug-right line-right pump setting before resuming infusion.
- Use bar code scanning and independent double check prior to administering IV anticoagulant to verify right dose, right medication, right pump, right tubing

Performance Element 6

Anticoagulation Policy

- The hospital has a written policy to address baseline and ongoing laboratory tests required for monitoring anticoagulant therapy.
 - See “Inpatient Anticoagulation Therapy” policy. Policy Stat ID: 2558802

Performance Element 7

Patient/Family/Staff/Provider Education

- Education is provided to providers & staff
- Education is provided to patients and families & should include:
 - Purpose of anticoagulant therapy related to disease process—why is this important to patient's health?
 - Follow-up monitoring; Compliance
 - Food/Drug interactions
 - Potential adverse drug reactions / interactions with other drugs, over the counter medications, supplements, herbal preparations, & foods
 - How to administer injectable medications (heparin/enoxaparin)

Warfarin Patient Education



- To increase patient compliance with warfarin therapy after discharge, the patient/caregiver must understand and be able to teachback:
 - Purpose of therapy in relation to disease process, lifestyle, & importance for maintaining/optimizing health
 - Bleeding risks & how to minimize. Drug-Drug & Food-Drug interactions
 - Importance of eating same amount of Vitamin K containing foods each day to keep warfarin within therapeutic range
 - Need for routine INR monitoring
 - When to seek medical help or call 911
 - Consistently taking medication as prescribed
 - Keeping follow-up appointments with healthcare provider

Major Adverse Events

- Major bleeding events
 - Reversal agents are available for heparin & warfarin
 - Enoxaparin does not have agent that fully reverses anticoagulation
 - Major bleeding events include but are not limited to: intracranial bleeds, retroperitoneal bleeding, bleeding requiring ≥ 2 units blood or decrease in hemoglobin by ≥ 2 g/dL, death or permanent disability, bleeding into joint, spine, intraocular space, requiring surgical intervention, or need to stop therapy
- Major non-bleeding events:
 - Skin reactions and venous limb gangrene with warfarin
 - Heparin induced thrombocytopenia (HIT)

Risk Factors for Major Bleeding Events

- Elderly; Females; GI, urinary tract, or soft tissue bleeding
- Renal failure; chronic renal insufficiency
- Low body weight; bleeding tendencies (thrombocytopenia)
- Malignancy; trauma, surgery, invasive lines
- Ischemic stroke with heparin prophylaxis for VTE; uncontrolled hypertension
- Excessive alcohol use; liver disease
- Concurrent thrombolytic therapy (e.g., Bridge Therapy)
- Non-compliance with therapy, diet, and/or monitoring

Performance Element 8

Evaluate Safety Practices

- Anticoagulation safety practices are evaluated, actions to improve practices are taken, & effectiveness of actions taken are completed in a time frame determined by PAMC.
 - Chart reviews: medication dosing, patient education documentation, recognition of adverse drug reactions or food/drug, drug/drug interactions
 - Bar code scanning for anticoagulation medications
 - UOR; RCA (root cause analysis); Pharmacy QI

Course Summary

Patients needing prolonged anticoagulation therapy must be well educated & understand the importance of consistent drug dosing/lab monitoring & adhering to diet to prevent adverse events.

The nurse's role is to provide education to the patient/family and determine their ability to teach back information accurately. Education, lifestyle modification, compliance with diet, monitoring, follow-up care and consistent drug dosing are keys to optimal outcomes. Patients should know when to call their healthcare provider and when to call 911.

Adhering to the National Safety Goals for anticoagulation therapy helps us keep our patients safe while in our care and after they are discharged.

Information Contacts

- For additional questions or assistance, please contact your
 - Clinical Manager
 - Clinical Educator
 - Clinical Nurse Specialist
 - Unit Pharmacist
 - Dietician

References

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