Anticoagulation: Standard Heparin

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Inclusion criteria:
- See indications for managment

Exclusion criteria:
- Prophylactic indication for heparin management (i.e., maintaining patency of arterial or central venous catheters or hemodialysis / extracorporeal circuits)

Indications for management:
- Treatment of VTE
- Treatment of arterial thrombosis

Patient with indication for standard heparin management

Standard Heparin Considerations for use

Adverse effects:
- Most common event is bleeding; refer to heparin antidote for management
- Osteoporosis
  - Rare but may occur with prolonged use of heparin
  - Refer to monitoring section for additional recommendations
- Thrombocytopenia due to HIT
  - Risk in children is low but increases after 5 days of therapy
  - May be asymptomatic
  - May be associated with life threatening arterial or venous thrombosis
  - Refer to monitoring section for additional recommendations

Drug Interactions:
- Increased potential for hemorrhage:
  - Anticoagulants: Heparin, Vitamin K antagonists, direct thrombin inhibitors
  - Thrombolytic agents: alteplase, streptokinase, urokinase
- Drugs affecting platelet function: aspirin, NSAIDs, dipyridamole, clopidogrel, ticlodipine, cilostazol
- Complementary/alternative medications known to have the potential to increase bleeding risk: garlic, ginger, ginkgo biloba, fenugreek, St. John's Wort
- Decreased effect of heparin: digoxin, tetracycline, nicotine, antihistamines, IV nitroglycerin

Other considerations:
- Fast Facts
- For assistance transitioning between anticoagulants, contact Hematology
- For analgesia, consider alternative agents (e.g. acetaminophen), as clinically appropriate
- Avoid IM injections and arterial punctures
- Encourage mobilization as tolerated

Guidance for holding prior to procedures:
- Discontinue heparin 6 hours prior to **invasive procedures** (e.g. LP or surgery), unless clinical situation requires emergent intervention.
- For emergent reversal, utilize protamine as described in heparin antidote.
- Restart 12-24 hours after procedure if hemostasis achieved

Initiation and Maintenance

- Indications for Hematology Consult
- Obtain baseline CBC, PT, aPTT, SrCr
- Refer to Initiation and Maintenance for dosing and titration guidelines
- Patient Education will be initiated upon transitioning to warfarin or LMWH

Monitoring

- Monitor bone density if therapy exceeds 3 months; consider bone densiometry studies on day 1 and appoximately every 12 months to assess for osteoporosis
- Once a therapeutic standard heparin level is achieved, obtain CBC, PT, aPTT, and/or heparin level at least daily
- Monitor platelet counts daily while on heparin
  - If platelet count decreases below 150,000/μL or drops by ≥ 50%, determine if decrease in platelet count is related to underlying disorder or heparin therapy
  - If likely due to heparin, suspect HIT and discontinue use; initiate an alternative therapy and consult Hematology
- The **optimal sample** for aPTT and heparin levels is a fresh venipuncture site
  - Alternate sites may be considered but present limitations with interpretation of levels
  - Capillary samples are not appropriate
  - Ensure sample is not contaminated by heparin (e.g. from arterial line) by drawing adequate waste volume to clear line before obtaining sample
  - Samples should NEVER be drawn from an IV containing heparin intended for therapeutic anticoagulation
  - If aPTT is highly variable, a heparin level may provide a more reliable measure

Duration of Therapy

- Total duration of therapy depends on indication for use; general recommendations:
  - May start warfarin as early as day 1 if long-term anticoagulation is planned
  - UFH/enoxaparin should be discontinued no earlier than day 6 after INR has reached goal range for 2 consecutive days
  - May transition to warfarin or LMWH when clinical situation allows

Abbreviations:
VTE = venous thromboembolism
HIT = heparin induced thrombocytopenia
LMWH = low molecular weight heparin
UFH = unfractionated heparin

QR code for mobile view

Contact: EvidenceBasedPractice @cmh.edu

Link to Synopsis

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