

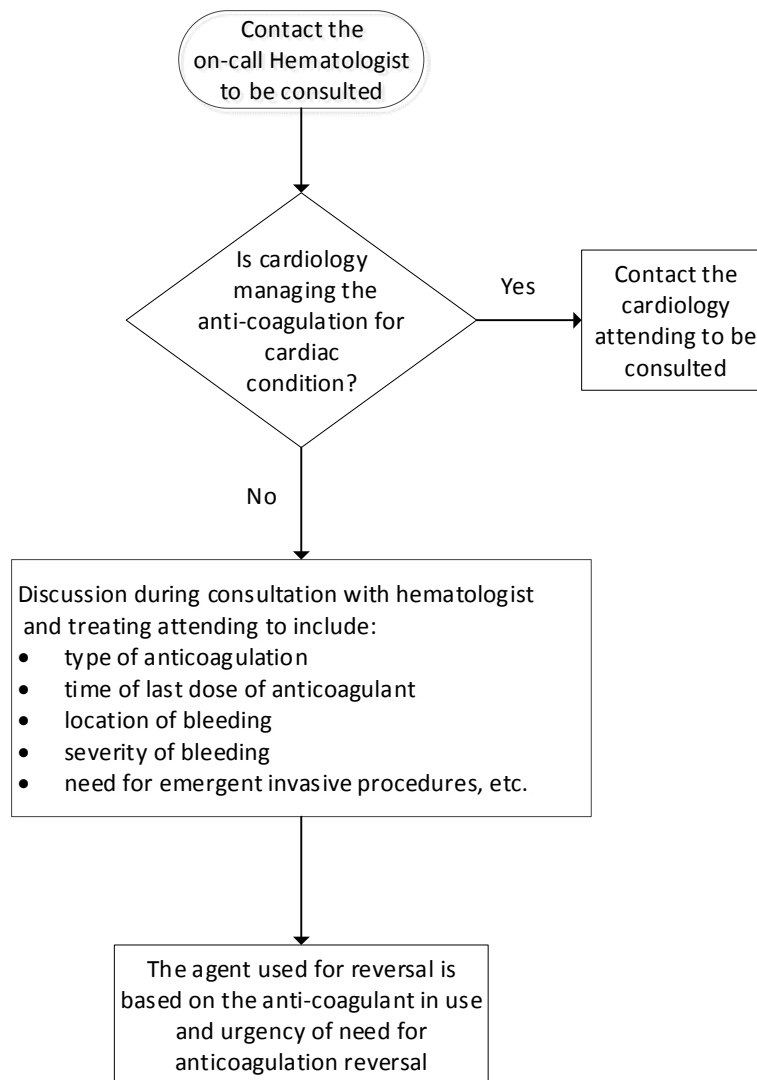


DAYTON CHILDREN'S HOSPITAL
CLINICAL PRACTICE GUIDELINES

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Anti-Coagulation Reversal Guidelines



Unfractionated Heparin Infusions

- In most instances stopping the heparin infusion is sufficient for reversal as the half-life of IV heparin is 1.5 hours
- If rapid reversal of heparin is needed, then protamine sulfate can be used

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- Protamine Sulfate can be administered at a concentration of 10mg/mL at a rate of no more than 5 mg/min
- Patients with known allergies to fish, previous exposure to protamine sulfate, and previous exposure to protamine containing insulins are at an increased risk of hypersensitivity reactions
- PT/PTT should be obtained 15 minutes after infusion to ensure that reversal is complete
- If complete reversal is not obtained after 15 minutes, then repeat dosing may be required and should be discussed with the on call hematology attending
- If subcutaneous dosing of heparin has been used, then discussion with hematologist should occur as to how to administer protamine sulfate
- Dosing as below for IV heparin reversal:

Time since last heparin dose	Dose of protamine to neutralize 100 units of heparin (amount given in last 2 hours)
< 30 min	1 mg per 100 units of heparin
30-60 min	0.5-0.75 mg per 100 units of heparin
60-120 min	0.375-0.5 mg per 100 units of heparin
>120 min	0.25-0.375 mg per 100 units of heparin

Low Molecular Weight Heparins (LMWH)

- If immediate reversal is required, then protamine sulfate can partially reverse LMWH
- If LMWH was given in the past 4 hours, then use 1 mg protamine per 1 mg of LMWH
- Recheck PT/PTT in 2-4 hours and if prolonged a second dose of protamine sulfate at 0.5 mg per 1 mg of LMWH can be given

Warfarin and other vitamin K antagonists

- If no bleeding is present, then stopping warfarin is often sufficient to reverse warfarin effects but can take several days.
- INR should be followed daily to determine level of anticoagulation and response to reversal
- Level of reversal needed is determined based on need for continued anti-coagulation and if bleeding is present.
- Vitamin K Dosing:
 - No bleeding, reversal needed, and the patient will remain on warfarin, then give oral/subQ/IV dose of 0.5-2.0 mg
 - No bleeding, reversal needed, and the patient will not remain on warfarin, then give oral/subQ/IV dose of 2-5 mg
 - Bleeding that is not life threatening, then give subQ/IV dose of 2 mg
 - Bleeding that is life threatening, then give dose of 5 mg IV. Also consider giving FFP.
- FFP and prothrombin complex concentrates (PCC) can also be given for rapid reversal of VKAs. PCCs are not often available at the hospital but can be obtained from the blood bank.

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- Recombinant Factor VII can be used for life-threatening bleeding (see Fact VII section below for dosing)

Direct Thrombin Inhibitors

- Dabigatran can be reversed with idarucizumab but has only been approved for adults. Adult dose is 5 mg IV once for life threatening bleeding.
- No other reversal agents available although recombinant Factor VII and PCCs have been used in life threatening bleeding in some cases
- FFP does not reverse effects

Direct Xa Inhibitors

- There are no current reversal agents available.
- Recombinant Factor VII and PCCs have been used in life threatening bleeding in some cases
- FFP does not reverse effects

Anti-platelet agents

- Anti-platelet drug effects can be present for several days to a week following cessation of the drug
- Platelet transfusion after stopping medication can reverse effects immediately
- Some evidence that DDAVP can be used to improve platelet function
 - Dosage is 0.3 mcg/kg IV once

Use of Recombinant Factor VII

- Only use for life threatening situations as there is significant risk of thrombosis with recombinant factor VII
- Discussion with hematology attending should occur prior to use of recombinant factor VII
- Dose is 90 mcg/kg IV (dose for non-life threatening bleeding is 45 mcg/kg in most cases)

Drug Dosing Sources

<http://www.micromedexsolutions.com> accessed 09/2016

Dayton Children's Hospital Medication Resource Center

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