

Anticoagulant-related Bleeding Management Order Set

ACTION

TC This icon represents guidance recommended by Thrombosis Canada

Triage

Priority: Determine Bleeding Acuity: Minor, Moderate or Severe Bleeding

Check one of the Following Levels of Bleeding Acuity (check the box) **TC**

Severe/ Life-threatening Bleeding

- Intracranial hemorrhage
- Critical site bleed e.g. retroperitoneal, intra-spinal, intra-ocular, intra-articular
- Actual or impending hemodynamic compromise e.g. massive gastrointestinal bleed
- Clinically overt bleeding and either a Hgb decrease of more than 20 g/L or administration of 2 or more units RBCs

Moderate Bleeding

- Hemodynamically stable e.g. gastrointestinal bleeding, epistaxis

Minor Bleeding

- Minor bleeding e.g. subconjunctival hemorrhage, dental bleeding, epistaxis, hemorrhoidal bleeding

Initial Management

Priority: Stabilize Patient

Resuscitation

- Initiate resuscitation measures, as clinically appropriate, e.g. isotonic fluids intravenously **TC**
- Local hemostatic measures, as dictated by site of bleeding, e.g. compression to bleeding site

Patient Management

- Insert IV
- Evaluate for transfusion therapy. For transfusion parameters refer to [Transfusion Therapy Recommendations](#) **TC**
- Administer _____ unit(s) _____ (type of blood product)
- NPO
- Provide O₂ and titrate according to policies/procedures/medical directives
- Consult/refer for: Procedural/Surgical intervention: _____

Anticoagulant Screen (indicate which agent patient is currently taking; check the box) **TC**

- Apixaban Rivaroxaban Unknown anticoagulant
- Dabigatran Warfarin _____

Labs (baseline labs, required for all patients)

- CBC, STAT **TC** APTT, STAT **TC** INR, STAT **TC** Group+Screen
- Creatinine _____

Drug Specific Levels (where available) **TC**

- Patient on Apixaban:** Apixaban-calibrated anti-Xa activity assay (anti-Xa levels)
- Patient on Dabigatran:** Dilute thrombin time (Hemoclott®, Hemoclot Thrombin Inhibitor assay)
- Other Dabigatran level: _____ (e.g. ecarin clotting time)
- Patient on Rivaroxaban:** Rivaroxaban-calibrated anti-Xa activity assay (anti-Xa levels)

For information on test Interpretation for Novel Anticoagulants (NOACs) [Novel Anticoagulant Test Interpretation Tables](#) **TC**

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Priority: Stabilize Patient Continued...

Monitoring TC

- Baseline vital signs; repeat as clinically indicated
- Continuous Cardiac and SpO₂ monitoring

Patient Information TC

- Age: _____ years
- Sex: Male Female
- Weight: _____ kg
- Serum Creatinine: _____

Severe/Life-threatening Bleeding

Priority: Interrupt Anticoagulant Therapy

Priority: Supportive Management

Transfusion therapy TC

For transfusion parameters refer to [Transfusion Therapy Recommendations](#)

Target Hemoglobin in active bleeding greater than or equal to 70 g/L

- Group+Screen + Crossmatch for _____ unit(s) red blood cells

Target Platelet Count in active bleeding greater than or equal to 50 x 10⁹/L

OR greater than or equal to 100 x 10⁹/L for Intracranial Hemorrhage

- Group+Screen + Crossmatch for _____ unit(s) platelets

Labs

Refer to Initial Management Section, Page 1 of Anticoagulant-related Bleeding Management Order Set

- Ensure baseline labs drawn TC
- Other labs: _____

Warfarin Reversal for Severe/Life-threatening Bleeding

1. INR and Weight Known TC

Vitamin K

- Vitamin K 5 mg in 50 mL NS IV STAT if INR 1.6 – 5.0
- Vitamin K 10 mg in 50 mL NS IV STAT if INR > 5.0 or on-going major bleeding

Prothrombin Complex Concentrate (PCC) TC

Prothrombin Complex Concentrate (PCC) not to be administered if patient known HIT positive

For dosing considerations, refer to [Prothrombin Complex Concentrate \(PCC\) Dosing Table TC](#)

- PCC _____ units IV **STAT** (PCC Product as supplied by Blood Bank)
 - Administer PCC as per facility policies/procedures
 - Repeat INR 15 minutes after PCC infusion completed TC

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Prothrombin Complex Concentrate (PCC) Dosing Table

	INR 1.6-1.9	INR 2.0-2.9	INR 3.0-5.0	INR > 5.0
Weight Less than 100 kg	500 units	1,000 units	2,000 units	3,000 units (maximum)
Weight More than 100 kg	1,000 units	1,500 units	2,500 units	3,000 units (maximum)

2. INR Pending, or Weight Unknown, and Cannot Delay Reversal **T C**

Vitamin K

Vitamin K 10 mg in 50 mL of normal saline IV **STAT**

Prothrombin Complex Concentrate (PCC) **T C**

Prothrombin Complex Concentrate (PCC) not to be administered if patient known HIT positive

For dosing considerations, refer to [Prothrombin Complex Concentrate \(PCC\) Dosing Table](#) **T C**

PCC 2,000 units IV **STAT** (PCC Product as supplied by Blood Bank)

Administer PCC as per facility policies/procedures

Repeat INR 15 minutes after PCC infusion completed **T C**

Alternate to PCC, if PCC not available or contraindicated **T C**

Transfuse plasma (FP) 10-15 mL/ kg _____ [number of units of FP (3 - 4 units for adults)]

INR results from post PCC infusion testing:

INR < 1.5 Indicates warfarin reversed, monitor as clinically indicated

INR > or = 1.5 Consider additional dose of PCC, consider alternative causes of coagulopathy

Practice Considerations

Assess co-medications which may contribute to bleeding e.g. antiplatelet therapies, selective serotonin reuptake inhibitors, non-steroidal anti-inflammatory drugs, fish oil

Reassess anticoagulant dose and restart therapy when bleeding resolved. Prolonged anticoagulant interruption exposes patients to an increased risk of thrombosis, even in low risk patients, [Thromboembolic Risk Considerations Table](#) **T C**

Apixaban or Rivaroxaban Reversal

Calibrated anti-Xa Level \geq 30ng/ mL or Test Unavailable and Suspected High Levels **T C**

[Novel Anticoagulant Test Interpretation Tables](#) **T C**

[Calculated Creatinine Clearance and Half-life of Rivaroxaban](#) **T C**

[Calculated Creatinine Clearance and Half-life of Apixaban](#) **T C**

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Apixaban or Rivaroxaban Reversal Continued...

Prothrombin Complex Concentrate (PCC) **T C**

Prothrombin Complex Concentrate (PCC) not to be administered if patient known HIT positive

For dosing considerations, refer to [Prothrombin Complex Concentrate \(PCC\) Dosing Table](#) **T C**

- PCC 2,000 units IV **STAT** (PCC Product as supplied by Blood Bank)
 - Administer PCC as per facility policies/procedures
 - Repeat INR 15 minutes after PCC infusion completed **T C**

OR

- FEIBA _____ units (50 units/ kg, max 2,000 units) IV **STAT**

Adjunctive Therapy **T C**

Avoid tranexamic acid if bleeding source is genitourinary

- Tranexamic Acid 1 gram IV bolus, then 1 gram over 8 hours. Administer as per policy/procedure

Practice Considerations

- Assess co-medications which may contribute to bleeding e.g. antiplatelet therapies, selective serotonin reuptake inhibitors, non-steroidal anti-inflammatory drugs, fish oil
- Reassess anticoagulant dose and restart therapy when bleeding resolved. Prolonged anticoagulant interruption exposes patients to an increased risk of thrombosis, even in low risk patients, [Thromboembolic Risk Considerations Table](#) **T C**

Dabigatran Reversal

Dilute thrombin time (Hemoclot®) Level ≥ 30 ng/ ml or Test Unavailable and Suspected High Levels

[Calculated Creatinine Clearance and Half-life of Dabigatran](#) **T C**

[Novel Anticoagulant Test Interpretation Tables](#) **T C**

Idarucizumab

- Administer 5 grams of Idarucizumab in 2 doses, as ordered below:
 - Idarucizumab 2.5 grams as a 50 mL bolus (1st dose)
 - Idarucizumab 2.5 grams as a 50 mL bolus (2nd dose).
 - Administer second dose not more than 15 minutes after 1st dose

Alternative Therapy if Idarucizumab Not Available **T C**

For dosing considerations refer to [Prothrombin Complex Concentrate \(PCC\) Dosing Table](#) **T C**

Prothrombin Complex Concentrate (PCC) not to be administered if known HIT positive

- PCC 2,000 units IV **STAT** (PCC Product as supplied by Blood Bank)
 - Administer PCC as per facility policy/procedure
 - Repeat INR 15 minutes after PCC infusion completed **T C**

OR

- FEIBA _____ units (50 units/ kg, max 2,000 units) IV **STAT**

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Adjunctive Therapy **TC**

- Hemodialysis, if available. Refer to specific dialysis orders
Avoid tranexamic acid if bleeding source is genitourinary
- Tranexamic Acid 1 gram IV bolus, then 1 gram IV over 8 hours. Administer as per policy/procedure

Practice Considerations

- Assess co-medications which may contribute to bleeding e.g. antiplatelet therapies, selective serotonin reuptake inhibitors, non-steroidal anti-inflammatory drugs, fish oil
- Reassess anticoagulant dose and restart therapy when bleeding resolved. (Link to TC Anticoagulant dosing tool) **TC**
Prolonged anticoagulant interruption exposes patients to an increased risk of thrombosis, even in low risk patients, For risk considerations refer to [Thromboembolic Risk Considerations Table](#) **TC**

Moderate Bleeding

Priority: Interrupt anticoagulant Therapy

Priority: Supportive Management

Transfusion therapy **TC**

For transfusion parameters refer to [Transfusion Therapy Recommendations](#)

Target Hemoglobin in active bleeding greater than or equal to 70 g/L

- Group+Screen + Crossmatch for _____ unit(s) red blood cells

Target Platelet Count in active bleeding greater than or equal to 50 x 10⁹/L

- Group+Screen + Crossmatch for _____ unit(s) platelets

Labs

Refer to Initial Management Section, Page 1 of Anticoagulant-related Bleeding Management Order Set

- Ensure baseline labs drawn **TC**

Warfarin Reversal for Moderate Bleeding

Evaluate INR Results to Determine Actions **TC**

- Vitamin K 5 mg in 50 mL NS IV STAT if INR 1.6 – 5.0
- Vitamin K 10 mg in 50 mL NS IV STAT if INR > 5.0 or on-going bleeding

Practice Considerations for Warfarin or NOAC Therapy

- Assess co-medications which may contribute to bleeding e.g. antiplatelet therapies, selective serotonin reuptake inhibitors, non-steroidal anti-inflammatory drugs, fish oil
- Reassess anticoagulant dose and restart therapy (if stopped) when bleeding resolved. (Link to TC Anticoagulant dosing tool) **TC** Prolonged anticoagulant interruption exposes patients to an increased risk of thrombosis, even in low risk patients, [Thromboembolic Risk Considerations Table](#) **TC**

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Minor Bleeding

Priority: Assess Anticoagulant Therapy

Link to TC Anticoagulant dosing tool) 

Reassess anticoagulant dosing as per policy/procedure

Thrombosis Canada Resource: See Anticoagulant Dosing at website: www.thrombosiscanada.ca

Refer to initial Management Section for: age, weight and serum creatinine

Labs

Refer to Initial Management Section, Page 1 of Anticoagulant-related Bleeding Management Order Set

Ensure baseline labs drawn

Other labs: _____

Management


Practice Considerations

Assess co-medications which may contribute to bleeding e.g. antiplatelet therapies, selective serotonin reuptake inhibitors, non-steroidal anti-inflammatory drugs, fish oil

Priority: Minimize Risk of Recurrent Bleeding, Avoid Thrombotic Complications

Implementation Considerations

Patient Care Considerations

- The recommendations in this document are intended as general guidance, and does not replace clinical judgement. Physicians must consider relative risks and benefits in each patient in applying these recommendations.
- Drug specific levels, as well as recommended assays and thresholds for clinically relevant plasma NOAC concentrations are estimates based on available evidence that require further study/validation. The threshold may be higher or lower depending on the assay.
- **Hematology/Specialist Consultation:** Consultation with a specialist, including Hematologist that can add to patient care planning in acute bleeding cases is recommended if patient has: refractory bleeding, fails to respond to therapy, or for exploration of other causes for coagulation abnormalities (DIC, liver failure).
- **Hyperlinks:** Links to associated clinical documents are indicated in the document with a hyperlink format that can be clicked on to access the document. Hyperlinks appear in the documents as follows: [hyperlink](#)
- **Patient and Family Education Re: Thrombotic Risk with PCC:** Inform patients/families regarding small (< 2%) thrombotic risk of PCC e.g. stroke MI, DVT, PE, but consequences of uncontrolled bleeding likely exceed this risk
- **Thrombosis Canada Icon Use in Document:**  These icons represent information that is recommended by Thrombosis Canada

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