Antithrombin III

TRANSFUSION MEDICINE SERVICES

OTHER NAMES	CLASSIFICATION	ALERTS
None.	Anticoagulant	Contains human plasma

PREPARATION and ADMINISTRATION

Reconstitution

Diluent: sterile water for injection in 10 mL and 20 mL volumes

See pages 3-4 for reconstitution steps

Prior to administration, inspect visually. Do not use solutions that are cloudy or have deposits.

Reconstituted solution may be administered IV Direct.

Otherwise administer with a syringe pump (less than 60 mL) or inject solution into an emptied IV bag and infuse via volume pump.

IV Direct	Intermittent Infusion	Continuous Infusion
Professionals performing these restricted activities must have received authorization from their regulatory College and have the knowledge and skill to perform the skill competently. Administer IV Direct at 2-3 mL/min, increasing to **5 ml per minute (max)**, as tolerated.	**IV Bag (large volume pump)**	**IV Bag (large volume pump)**
	Administer intravenously by a separate infusion line at 2-3 mL/min (120-180 mL/h), increasing to **5 mL/min (300 mL/h) maximum**, as tolerated.	Not applicable
	Syringe (syringe pump)	**Syringe (syringe pump)**
	Administer intravenously by a separate infusion line at 2-3 mL/min (120-180 mL/h), increasing to **5 mL/min (300 mL/h) maximum**, as tolerated.	Not applicable

Requirements and Monitoring

Antithrombin replacement during administration of heparin in therapeutic dosage increases risk of bleeding.

If transfusion is less than 15 minutes: check vital signs before initiation (baseline), on completion, and with any development of signs/symptoms of an adverse event. Inpatients should be observed for bleeding for 24 hours post infusion. **Document all vitals taken**.

Blood pressure via cuff or arterial line
Temperature
Heart Rate
Respirations
Lung sounds in non-verbal, non-oriented or pediatric patients and patients with CHF or pulmonary dysfunction

Keep unopened back up bag of NS and standard IV tubing nearby for prompt response if an adverse event (AE) occurs.

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INDICATIONS

Prophylaxis and treatment of thrombotic and thromboembolic disorders in patients with hereditary antithrombin III deficiency (antithrombin III activity below 70% of normal).

Infusions of antithrombin III may be particularly valuable in surgical procedures or pregnancy and delivery in patients with congenital antithrombin III deficiency.

Pediatrics -Safety and effectiveness in children have not yet been established in clinical trials.

Contraindicated in patients with known history of heparin-induced thrombocytopenia.

ADVERSE EFFECTS

Adverse reactions may include: Allergic-type hypersensitivity reactions including anaphylaxis have been reported and have manifested as pruritus, rash, urticaria, local site reactions, hives, facial swelling, dizziness, hypotension, nausea, chest discomfort, cough, dyspnea, wheezing, flushing, discomfort (generalized) and fatigue.

If an AE is suspected: stop the transfusion, disconnect and cap the blood tubing, initiate the backup line of NS and consult the authorized prescriber (AP) for medical management. Notify the TM lab of a suspected reaction.

- Review the product lot number, TM tag and patient ID to rule out a verification (clerical) error and confirm that the expiry date and time has not passed.
- Resume transfusion cautiously as directed by AP. Directly observe patient x5min then closely observe x10min.
- Ensure TM tag, along with a copy of the documented clinical data and interventions are sent to TM lab once transfusion is discontinued or completed.
- If the transfusion must be discontinued and a transfusion reaction workup is ordered, additional steps may be required based on clinical presentation.

DOSAGE

Note: the anticoagulant effect of heparin is accelerated by antithrombin III when used in combination.

Coagulation Monitoring

If antithrombin is 0.5 units/mL or less, administer 25 units/kg antithrombin concentrate IV and measure antithrombin daily until antithrombin level remains above 0.5 units/mL for 2 consecutive days independent of transfusion.

For Disseminated Intravascular Coagulation

Dosage should be based on a determination of the patient's antithrombin III activity prior to therapy and thereafter at intervals of approximately 4-6 hours. The initial dose should be large enough to raise the plasma level to normal (80-120%). Additional doses are required whenever the antithrombin III activity has dropped to less than 70%.

For Other Antithrombin III Defects

As a guideline, an initial dose of 1500 IU and a maintenance dose of one half the initial dose given at 8 to 24 hour intervals is suggested for an average sized adult. However, the dosage should be adjusted to individual needs, which can only be estimated by determination of the patient's antithrombin III activity at regular intervals.

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COMPATIBILITY, STABILITY

- Compatible with NS
- Single use vials. Do not use past expire date
- Do not dilute in any IV solutions
- Protect vials from light
- Do not store unused vials in refrigerator. Administer at room temperature

DOSAGE FORMS

- Supplied by Transfusion Medicine

MISCELLANEOUS

- None

LIBRARIES

- Searchable Drug Library Document

RECONSTITUTION

ANTITHROMBIN III NF (IU/vial)	Sterile Water for Injection, E.P. (mL)
450 – 550 at release	10
900 – 1100 at release	20

The number of I.U. antithrombin III is stated on the label of each vial.

1. Allow the unopened bottle containing Sterile Water for Injection (diluent) to warm up to room temperature (fig. A).
2. Don clean gloves and remove caps from the concentrate and diluent bottles to expose the rubber stoppers.
3. Cleanse exposed surface of the rubber stopper with germicidal solution and allow to dry.
4. Using aseptic technique, remove protective covering from one end of the double-ended needle and insert the exposed end through the diluent bottle stopper (fig. B and C).
5. Remove protective covering from the other end of the double-ended needle, taking care not to touch the exposed end. Invert diluent bottle over the concentrate bottle, then rapidly insert free end of the needle through the concentrate bottle stopper (fig. D). Diluent will be drawn into the concentrate bottle by vacuum.

   Note: If the double ended needle is unavailable, a blunt needle and syringe may be used to transfer the diluent to the into the Antithrombin III vial. Avoid adding air to the vial to minimize bubble formation with reconstitution.
6. Disconnect the two bottles by removing the needle from the concentrate bottle stopper (fig. E). Gently agitate or rotate the concentrate bottle until all material is dissolved.

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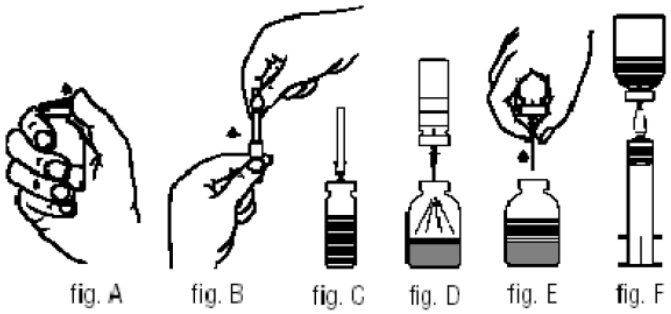
7. Visually inspect the reconstituted product. Do not use solutions that are cloudy or have deposits.



Administer ANTITHROMBIN III NF only by intravenous injection or infusion.
The reconstituted solution must be given by intravenous injection or infusion immediately after preparation.
The injection or infusion rate **must not exceed 5 mL/minute**. Vials with the same lot numbers may be pooled together.

For intravenous injection:

1. After reconstituting the concentrate as described above, attach the enclosed filter needle to a sterile disposable syringe and insert needle through the bottle stopper (fig. F). If the filtered needle is unavailable, a blunt, 5 micron filtered needle can be used to draw the solution into a syringe or emptied Normal Saline bag for administration.
2. Inject air and withdraw solution into syringe.
3. Remove and discard filter needle. Attach a suitable intravenous needle or infusion set with winged adapter to the syringe and inject solution intravenously.

For intravenous infusion:

Prepare a solution of ANTITHROMBIN III NF as described above. If the provided filter needle or a 5 micron filtered needle are not used, administer via regular IV pump tubing with a 1.2 micron filter.

REFERENCES

- CL-BP-030, IWK-625 Blood Component and Blood Product Administration – Policy and Procedure
- Antithrombin III NF product monograph. Found at https://www.takeda.com/en-ca/what-we-do/our-medicines/