



REGIONAL ADULT PARENTERAL DRUG MONOGRAPH

GENERIC NAME

protamine sulfate

Effective Date: Mar 2013

CLASSIFICATION
heparin antagonist

OTHER NAMES

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Revised Date: January 2025

ADMINISTRATION POLICY:

- IV Intermittent – May be administered by a nurse
- IV Bolus – May be administered by a nurse
- IM Injection – *Not recommended*

RECONSTITUTION/DILUTION/ADMINISTRATION:

Available as: 10 mg/mL, 5 mL vial

IV Bolus: Undiluted over 10 minutes

IV Intermittent: Administer over 10 to 30 minutes

Dose	Dose Preferred Diluent Volumes Bag size
ordered	NaCl 0.9% or D5W 50 mL

DOSAGE: *dosing is highly dependent on the clinical scenario. The following generalized dosing may not apply in all situations. Consult prescriber of pharmacy for more information.*

Heparin reversal:

- 1 mg protamine for every 100 units of heparin administered in the preceding two to three hours up to a maximum of 50 mg protamine per dose.
- Need for additional doses of protamine should be based on re-assessment of patient. If patient is bleeding and aPTT remains elevated, may repeat 0.5 mg protamine for every 100 units of heparin.

Low molecular weight heparin reversal:

- If LMWH administered in preceding 8 hours: 1 mg protamine for every 100 anti-Xa units of LMWH (dalteparin or tinzaparin) or 1 mg enoxaparin up to a maximum of 50 mg protamine per dose
- If greater than 8 hours since LMWH administered, or if still bleeding 2 hours post protamine: 0.5 mg protamine for every 100 anti-Xa units of LMWH (dalteparin or tinzaparin) or 1 mg of enoxaparin
- Need for additional doses of protamine should be based on re-assessment of patient
- A second infusion of 0.5 mg protamine per 1 mg enoxaparin may be administered if the aPTT measured 2 to 4 hours after the first infusion remains prolonged

Maximum rate: 5 mg/minute

Maximum concentration: 10 mg/mL

STABILITY/COMPATIBILITY:

Stability of Final Admixture: Stable 24 hours at room temperature

Compatibility: Compatible in normal saline, D5W, combination dextrose/saline solutions

PRECAUTIONS, POTENTIAL ADVERSE REACTIONS:

- Hypotension, bradycardia, dyspnea, flushing, sensation of warmth and transient flushing (especially if administered too rapidly). Excessive dosing of protamine may itself cause an anticoagulant effect.
- Hypersensitivity reactions have occurred in patients with fish allergies or in patients previously exposed to protamine.

ADDITIONAL NOTES AND NURSING CONSIDERATIONS:

- Coagulation testing should be performed within 5 to 15 minutes of protamine administration for heparin reversal.