REGIONAL PEDIATRIC PARENTERAL DRUG MONOGRAPH

GENERIC NAME
phenytoin

Effective Date: Nov 2012 **Revised Date:** Mar9-2016	CLASSIFICATION **Anticonvulsant**	OTHER NAMES **Dilantin**	PAGE 1 of 2

ADMINISTRATION POLICY:

IV intermittent	– May be administered by a nurse
IV bolus	– Not recommended
Intraosseous (IO)	– May be administered by a nurse
IM injection	*– Not to be administered*
Subcutaneous	*– Not to be administered*

RECONSTITUTION/DILUTION/ADMINISTRATION:

Available as: 50 mg/mL – 2 mL and 5 mL vials (Slight yellowish discoloration of the injection will not affect potency or efficacy)

NOTE: *Do NOT infuse or mix with solutions containing dextrose*

Flush IV tubing with normal saline before and after administration of phenytoin to prevent precipitation

IV bolus: **ROUTE NOT PREFERED, should be avoided.** But if required Do NOT dilute; inject **slowly** over 3 to 5 minutes into an infusing IV solution of normal saline into a LARGE vein at a maximum rate of 50 mg/minute **using an in-line 0.22 micron filter**

IV intermittent: Add to normal saline, to a concentration of 5 – 10 mg/mL **using an in-line 0.22 micron filter**, Infuse immediately.

DOSAGE:

IV, IO Load:

Neonate, Child: 10-20 mg/kg/dose
May divide into 2 doses every 30 minutes for patients with hemodynamic instability

IV, IO maintenance:

Neonate, Child: 5 – 10 mg/kg/24 hours divided every 8 – 24 hours

Maximum rate: 1.5 mg/kg/minute to maximum 50 mg/minute
Neonate: 0.5-1 mg/kg/minute

Maximum concentration: 50 mg/mL

STABILITY/COMPATIBILITY:

Stability of multidose vial: N/A
Stability of Final Admixture: 1 hour at room temperature

Compatibility: Compatible with normal saline, 0.45% sodium chloride (1/2 normal saline)
Incompatible with D5W
Do not mix with other medications

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HIGH ALERT DOUBLE CHECK

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PRECAUTIONS, POTENTIAL ADVERSE REACTIONS:

- CNS: Nystagmus, ataxia, seizures and coma may occur at serum concentrations greater than 20 mg/mL
- Local: Pain, thrombophlebitis and necrosis at the injection site, even in the absence of infiltration rash (uncommon)

"Purple Glove Syndrome": Development of progressive distal limb edema, discoloration, and pain after administration of phenytoin through a peripheral IV site; may occur in the absence of infiltration; may progress to limb ischemia, skin necrosis and compartment syndrome

CAUTION

- Extravasation risk - vesicant
- Rapid injection at rates exceeding 50 mg/minute/1.73 m^2 may cause CNS and cardiovascular depression with hypotension, shock, respiratory depression, bradycardia, or heart block
- Decrease infusion rate by 50% if heart rate decreases to lower than 10 beats/minute from baseline
- The IV route of administration is preferred to attain rapid therapeutic serum levels
- The IV bolus route is restricted to patient care areas where close supervision and continuous cardiac monitoring are available.
- Dosage may required adjustment in patients with renal or hepatic impairment, or patients with low serum albumin
- Although the manufacturer suggests that phenytoin may be administered by the IM route, this is discouraged due to erratic absorption, severe pain at the injection site, and possible precipitation of drug in tissue
- Preterm neonates and patients with significant renal impairment: Propylene glycol may accumulate and produce hyperosmolality, chest pain, and refractory seizures

CONTRAINDICATION

- Hypersensitivity; discontinue if rash occurs
- Patients with sinus bradycardia, S-A node block, second or third degree A-V block, or Adams-Stokes syndrome

ADDITIONAL NOTES:

- Therapeutic serum concentration: Children: 10 – 20 mg/L (with normal serum albumin)
  Neonate : 8 –15 mg/L
- Inspect line for patency before the administration. Monitor IV site for signs of extravasation (burining pain, irritation, erythema, edema)
- Loading Doses: Monitor blood pressure and heart rate pre-dose and every 15 minutes x 3
- Higher doses may be required when administered concurrently with steroids (up to 15 mg/kg/24 hours). Dosage adjustment may be required in patients with renal or hepatic dysfunction or obese patients.
- IM absorption is erratic and not recommended
- Trough serum concentrations are generally recommended for routine monitoring; To ensure therapeutic concentration is attained, peak serum concentrations may be measured one hour after the end of an IV infusion (ie, one hour post-loading dose)
- Patients with hypoalbuminemia, hyperbilirubinemia, renal dysfunction or uremia require serum level monitoring and dose adjustment.