

4.2.2 Intravenous Pentamidine

Purpose

The Registered Nurse administers intravenous (IV) pentamidine to the patient for the prevention or treatment of pneumocystis jiroveci (formerly carinii) pneumonia (PJP or PCP). PJP can be severe or fatal if not promptly treated. It can affect the lungs as well as other parts of the body, including the skin and internal organs.

Overview

Pentamidine is an antiprotozoal agent used to help prevent the growth of PJP, a microorganism often found in the lungs of patients who are immunosuppressed. When deemed necessary, pentamidine may be given via the IV route to patients intolerant of the inhaled route.

Contraindications

Hypersensitivity to pentamidine isethionate or any component of the formulation.

Precautions

Concerns related to adverse effects

- Hypotension: Severe hypotension (some fatalities) has been observed, even after a single dose. More common with rapid IV administration. Monitor blood pressure during (and after) infusion.
- QT prolongation: May cause QT prolongation and subsequent torsade de pointes; avoid use in patients with diagnosed or suspected congenital long QT syndrome.

Disease-related concerns

- Haematologic disorders: Anemia, leukopenia and/or thrombocytopenia have been reported.
- Cardiovascular disorder: Use with caution in patients with preexisting cardiovascular disease; hyper-/hypotension and arrhythmia, including ventricular tachycardia (e.g., torsade de pointes) have been reported.
- Pancreatitis: Use with caution in patients with a history of pancreatic disease or elevated amylase/lipase levels.
- Hypocalcemia: Use with caution.
- Hepatic or renal impairment: Use with caution.
- Diabetes mellitus: Monitor blood glucose daily on therapy and periodically thereafter.

Extravasation

IV pentamidine is an irritant with vesicant-like properties. Ensure proper needle or catheter placement prior to and during infusion; avoid extravasation. If extravasation occurs:

1. Stop infusion immediately and disconnect (leave cannula in place)
2. Gently aspirate extravasated solution (DO NOT flush the line)
3. Remove cannula



4. Elevate extremity
5. Apply dry warm compresses

Refer to extravasation guidance for management of irritant extravasation.

Dosage and Administration

Children and Adolescents: IV – 4 mg/kg/dose every two to four weeks.

Please refer to local hospital policy on dilution and administration rate. Administer by slow IV infusion over a period of at least 60–120 minutes at a final concentration of administration not to exceed 2 mg/ml. Maintain patient lying down during infusion. Rapid infusion causes hypotension. If hypotension occurs, increase infusion time to 2–3 hours.

Monitoring

- Determine baseline blood pressure (BP) and heart rate. Monitor BP and heart rate during infusion until the end of infusion. Check BP and heart rate at end of infusion and prior to ambulation.
- Emergency equipment for resuscitation must be immediately available.
- Monitor IV site closely for redness, pain, swelling. (Extravasation can cause tissue necrosis and sloughing at site).
- Ensure adequate hydration.
- Side effects include (but not limited to): Hypoglycemia (initially), hyperglycemia, hyperkalemia, hypocalcemia, renal/hepatic toxicity, rapid or irregular pulse, skin rash (Steven Johnson syndrome), fever, pancreatitis, nausea, vomiting, diarrhea.

Documentation

Document all exposures as per hospital policy.

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References

1. De NC, Alam AS, Kapoor JN. Stability of pentamidine isethionate in 5% dextrose and 0.9% sodium chloride injections. *Am J Hosp Pharm* 1986; 43:1486-8.
2. Kim SY, Dabb AA, Glenn DJ, et al. “Intravenous Pentamidine is Effective as a Second Line Pneumocystis Pneumonia Prophylaxis in Pediatric Oncology Patients,” *Pediatric Blood Cancer*, 2008, 50(4): 779-83.
3. Lexi-Comp Select Drug Information from Lexi-Comp Online, Lexi-Comp Inc. Pentamidine: Drug Provided by UpToDate, Waltham, MA, 2005. Accessed June 18, 2015.



4. Pentamidine IV Fact Sheet. Rouge Valley Health System Paediatric IV Manual. Toronto, Rouge Valley Health Systems. Feb 2013. PDF.
5. Reynolds PM, MacLaren R, Mueller SW, et al. Management of extravasation injuries: a focused evaluation of noncytotoxic medications. *Pharmacotherapy* 2014; 34(6): 617-32.
6. The Hospital for Sick Children, Toronto. Electronic Formulary, IV Guidelines: Pentamidine.

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Record of Updates

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