



Pulmonary Diagnostics: Inhaled Pentamidine Treatment

Site Applicability

St. Paul's Hospital

Practice Level

Respiratory Therapist

Requirements

Pentamidine treatment may be ordered by a physician or pharmacist. Ordering providers must send all medication requests to the SPH pharmacy department where they will be reviewed and processed. The ordering provider must also coordinate pentamidine requests with the pulmonary diagnostics coordinator to schedule the appointment.

Pentamidine is not listed as a Hazardous Drug on the [Provincial Hazardous Drug List](#), however the following precautions should be adhered to:

- Administer pentamidine in a negative pressure room via Respigard II nebulizer.
- Assign medication to health care workers who are not pregnant or breastfeeding. Health care workers administering pentamidine complete a risk assessment and don appropriate Personal Protective Equipment (PPE), including fit tested N-95 respirator, chemo approved gown and gloves, and eye protection (as appropriate) prior to assessing patient and administering pentamidine.

Need to Know

Pneumocystis jirovecii pneumonia (formerly called *Pneumocystis carinii* pneumonia or PCP) is a potentially life-threatening infection that occurs in immunocompromised individuals. It is the most common opportunistic respiratory infection in patients with human immunodeficiency virus (HIV).

Trimethoprim-Sulfamethoxazole (TMP-SMX), a sulfa-containing regimen, is generally the preferred treatment for PJP. For patients with a sulfa allergy, a second-line regimen such as pentamidine, may be used. The recommended adult dosing regimen for inhaled pentamidine is 300 mg once every four weeks via Respigard II nebulizer.

Equipment and Supplies

- Air flow meter with nipple adapter
- Respigard II nebulizer
- Pentamidine



- Sterile water for injection
- 18 g blunt tip needle
- 10 mL syringe
- Salbutamol MDI + Aerochamber
- Nose clips
- Negative pressure room
- Personal Protective Equipment (PPE) (gown, gloves, fit tested N-95 mask, eye protection as per risk assessment)

Procedure

Steps

1. Verify provider order in Cerner PowerChart, perform hand hygiene, and don appropriate PPE.
2. Administer 200 mcg (2 puffs) of salbutamol via MDI + spacer to patient prior to pentamidine treatment.
3. Reconstitute pentamidine solution: affix 18 g blunt tip needle to 10 mL syringe and draw up 6 mL sterile water. Instill sterile water into pentamidine vial and agitate solution to ensure the pentamidine powder fully dissolves. Dispose of sharps into appropriate sharps container.
4. Assemble the Respirgard II nebulizer and place pentamidine solution into the nebulizer.
5. Connect the nebulizer to air outlet, have patient place mouth over mouthpiece and apply the nose clips.
6. Explain treatment procedure to patient. Instruct them to breathe normally and to inhale and exhale through their mouth via the nebulizer.
7. Turn on air outlet using airflow control valve (delivers approximately 7 to 8 L/min flow)
8. Patient may be left unattended in the room, with the door closed, for the duration of treatment (approximately 20 minutes). Monitor patient as needed to ensure patient is wearing mask, and respond to questions or concerns.
9. At the end of the treatment, discard nebulizer and other disposable items into appropriate receptacle. Keep the door closed for one hour post medication administration – see [Hazardous Drugs Respiratory Precautions sign](#)
10. Doff PPE and dispose of waste in appropriate bins.

Documentation

1. Under “Documentation” section within Cerner PowerChart, create a free text note labeled: Pentamidine Administration. Document procedure: *300 mg Pentamidine administered via Respirgard nebulizer. 200 mcg salbutamol administered via MDI + spacer prior to treatment.* Comment on any adverse events/complications and any corrective actions/strategies taken.
2. If pentamidine treatment is administered in the pulmonary function lab: sign off pentamidine task under “single patient task list” in CST PowerChart.



Related Documents

1. [B-00-06-10020](#) – Hazardous Drug Respiratory Precautions Door Sign
2. [B-00-14-10023](#) - Hazardous Drugs Control Matrix - Group 2
3. [B-00-14-10024](#) - Hazardous Drugs Control Matrix - Group 1

References

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3. Lexicomp Online. Pediatric & Neonatal Lexi-Drugs/ Pentamidine (Oral Inhalation) accessed January 18 2024 at <https://online.lexi.com/lco/action/home>
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6. South Eastern Sydney Local Health District. (2022). Pentamidine Aerosolized Therapy in Adults. Accessed January 18, 2024 at <https://www.seslhd.health.nsw.gov.au/sites/default/files/documents/SESLHDPR%20696%20-%20Pentamidine%20Aerosolised%20Therapy%20in%20Adults.pdf>
7. Thomas, C.F. Treatment and Prevention of Pneumocystis infection in patients without HIV. In: UpToDate, Baddley, J.W.. (Ed), UpToDate, Waltham, MA, 2024.
8. Tsai, R. J., Boiano, J. M., Steege, A. L., & Sweeney, M. H. (2015). Precautionary Practices of Respiratory Therapists and Other Health-Care Practitioners Who Administer Aerosolized Medications. *Respiratory care*, 60(10), 1409–1417. <https://doi.org/10.4187/respcare.03817>
9. University of Texas Medical Branch (2023) Respiratory Care Services Procedure Aerosolization of Pentamidine. Accessed January 18, 2024 at https://www.utmb.edu/policies_and_procedures/Non-IHOP/Respiratory/Respiratory_Care_Services/07.03.19%20Aerosolization%20of%20Pentamidine.pdf



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