Zn-DTPA

Pentetic acid trisodium injection (Zn-DTPA)

Pentetic acid trisodium injection (Zn-DTPA) is a trivalent metal chelating agent. It is indicated for the administration of internal contamination with plutonium, americium, curium, and other radiocontaminants.

**INDICATIONS AND USAGE**

Zn-DTPA is indicated for the chelation therapy of individuals exposed to internal contamination with radiocontaminants.

- **For plutonium, americium, and curium**, administration of Zn-DTPA should be initiated as soon as possible after the incident.
- **For other radiocontaminants**, treatment may be initiated at any time following internal contamination.

**DOSAGE AND ADMINISTRATION**

- **Dose Calculation**: The initial dose is calculated using the following formula:
  
  \[ \text{Dose (mg/kg)} = \frac{\text{Initial radioactivity (Bq/kg)}}{1200} \]
  
  The initial dose is then divided into four daily doses, with the first dose administered within the first 24 hours after internal contamination.

- **Concomitant Mineral Supplement**: Ca-DTPA and concomitant mineral supplements containing zinc should be given with Zn-DTPA. If Zn-DTPA is not available, chelation therapy may continue with Ca-DTPA and concomitant mineral supplements.

**CONTRAINdications**

- **Zn-DTPA is contraindicated in individuals with known or suspected internal contamination with americium, curium, or other radiocontaminants**.

**WARNINGS AND PRECAUTIONS**

- **Monitoring**: Measure the radioactivity in blood, urine, and fecal samples weekly to monitor the effectiveness of chelation therapy.
- **Depletion of Body Trace Mineral Stores**: Zn-DTPA is associated with depletion of endogenous trace metals (e.g., zinc, copper, magnesium, manganese). The risk for depletion increases when Zn-DTPA is administered with concomitant mineral supplements.
- **Respiratory Adverse Events**: After inhalation therapy, respiratory adverse events may occur. Patients should be monitored for signs of such events.
- **Dehydration**: Oral or intravenous hydration may be necessary to maintain hydration levels.
- **Decontamination of Caregivers**: Caregivers may experience radiation exposure from radioactive deposits. Teaching strategies to minimize such exposure should be implemented.

**ADVERSE REACTIONS**

- **Respiratory**: The most common adverse reactions include respiratory tract symptoms.
- **Skin**: Minor skin irritation at the injection site is possible.
- **Gastrointestinal**: Mild nausea, vomiting, and diarrhea may occur.

**Dilution and Administration**

- **For nebulization**, Zn-DTPA is diluted with sterile water or normal saline at a 1:1 ratio. After dilution, the solution is administered at a rate of 0.5 mL/kg per minute.

**Stability**

- **Expiration**: The expiration date for Zn-DTPA is 12 months from the date of manufacture.

**Storage**

- **Storage**: Zn-DTPA is stored in single-use ampoules at 2°C to 8°C. It must be protected from light.

**COLLECTION OF PATIENT TREATMENT DATA**

- **Informed Consent**: Informed consent should be obtained from all patients undergoing Zn-DTPA therapy.

- **Patient Monitoring**: Monitoring should include regular assessments of respiratory status, hematology, and serum chemistry.

- **Radiological Monitoring**: Radiological monitoring should include whole-body imaging and biodosimetry.

**DISPOSITION**

- **To report SUSPECTED ADVERSE REACTIONS, contact the manufacturer**.

**INFORMATION FOR PATIENTS**

- **Inhalation Therapy**: Patients undergoing inhalation therapy should be instructed on the importance of strict respiratory protection measures.

**PRECAUTIONS**

- **Inhalation**: Inhalation therapy should only be performed in specialized facilities equipped with appropriate respiratory protection equipment.

**PREGNANCY AND NURSING MOTHERS**

- **Pregnancy**: There is limited experience with Zn-DTPA. Use during pregnancy should be restricted to those instances where the therapeutic benefit justifies the potential risk to the fetus.
- **Nursing Mothers**: Zn-DTPA is excreted in breast milk. Women should not nurse while undergoing treatment.

**ADDITIONAL INFORMATION**

- **Zn-DTPA is a trivalent metal chelating agent. It is indicated for the administration of internal contamination with plutonium, americium, curium, and other radiocontaminants.**

**DOSAGE FORMS AND STRENGTHS**

- **Zn-DTPA**: 500 mg / 5 mL single-use ampoules.

**FULL PRESCRIBING INFORMATION**

- **INDICATIONS AND USAGE**
  - **For plutonium, americium, and curium**, administration of Zn-DTPA should be initiated as soon as possible after the incident.
  - **For other radiocontaminants**, treatment may be initiated at any time following internal contamination.

- **DOSAGE AND ADMINISTRATION**
  - **Dose Calculation**: The initial dose is calculated using the following formula:
    
    \[ \text{Dose (mg/kg)} = \frac{\text{Initial radioactivity (Bq/kg)}}{1200} \]
    
    The initial dose is then divided into four daily doses, with the first dose administered within the first 24 hours after internal contamination.

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- **CONTRAINdications**
  - **Zn-DTPA is contraindicated in individuals with known or suspected internal contamination with americium, curium, or other radiocontaminants**.

- **WARNINGS AND PRECAUTIONS**
  - **Monitoring**: Measure the radioactivity in blood, urine, and fecal samples weekly to monitor the effectiveness of chelation therapy.
  - **Depletion of Body Trace Mineral Stores**: Zn-DTPA is associated with depletion of endogenous trace metals (e.g., zinc, copper, magnesium, manganese). The risk for depletion increases when Zn-DTPA is administered with concomitant mineral supplements.
  - **Respiratory Adverse Events**: After inhalation therapy, respiratory adverse events may occur. Patients should be monitored for signs of such events.
  - **Dehydration**: Oral or intravenous hydration may be necessary to maintain hydration levels.
  - **Decontamination of Caregivers**: Caregivers may experience radiation exposure from radioactive deposits. Teaching strategies to minimize such exposure should be implemented.

- **ADVERSE REACTIONS**
  - **Respiratory**: The most common adverse reactions include respiratory tract symptoms.
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- **Dilution and Administration**
  - **For nebulization**, Zn-DTPA is diluted with sterile water or normal saline at a 1:1 ratio. After dilution, the solution is administered at a rate of 0.5 mL/kg per minute.

- **Stability**
  - **Expiration**: The expiration date for Zn-DTPA is 12 months from the date of manufacture.

- **Storage**
  - **Storage**: Zn-DTPA is stored in single-use ampoules at 2°C to 8°C. It must be protected from light.

- **COLLECTION OF PATIENT TREATMENT DATA**
  - **Informed Consent**: Informed consent should be obtained from all patients undergoing Zn-DTPA therapy.
  - **Patient Monitoring**: Monitoring should include regular assessments of respiratory status, hematology, and serum chemistry.
  - **Radiological Monitoring**: Radiological monitoring should include whole-body imaging and biodosimetry.

- **DISPOSITION**
  - **To report SUSPECTED ADVERSE REACTIONS, contact the manufacturer**.

- **INFORMATION FOR PATIENTS**
  - **Inhalation Therapy**: Patients undergoing inhalation therapy should be instructed on the importance of strict respiratory protection measures.

- **PREGNANCY AND NURSING MOTHERS**
  - **Pregnancy**: There is limited experience with Zn-DTPA. Use during pregnancy should be restricted to those instances where the therapeutic benefit justifies the potential risk to the fetus.
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  - **Zn-DTPA is a trivalent metal chelating agent. It is indicated for the administration of internal contamination with plutonium, americium, curium, and other radiocontaminants.**

**DOSAGE FORMS AND STRENGTHS**

- **Zn-DTPA**: 500 mg / 5 mL single-use ampoules.
2-DETA is to prepare a solution, at a concentration of 12.0 mg/mL in sterile saline, stored under refrigeration at 2 to 8°C. The solution contains no antibiotic. Each mL of solution contains 120 mg of ethylenediaminetetraacetic acid (EDTA), 2.5 mg of sodium acetate, 0.5 mg of sodium citrate, 2 mg of sodium bicarbonate, 4 mg of sodium chloride, 0.5 mg of potassium chloride, and 0.5 mg of calcium chloride. The pH of the solution is adjusted with NaOH and is between 6.5-7.5.

Zn-DTPA contains the sodium salt of zinc diethylenetriaminepentaacetate. Pentetate zinc trisodium is also known as trisodium zinc diethylenetriaminepentaacetate and is commonly referred to as Zn-DTPA. It has a molecular weight of 645.9. Zn-DTPA undergoes a minimal amount of metabolic change in the body. The major elimination pathway for Zn-DTPA is the urinary route, where it is filtered into the urine and excreted. The safety and effectiveness of Zn-DTPA were established in the adult population. The safety and effectiveness of Zn-DTPA were established in the adult population.

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