

**LAC+USC Medical Center**

**Chemotherapy Extravasation Management Plan**

Approved 5/22/2020

## Extravasation Plan

## Extravasation Management

1. Stop the injection or the IV infusion immediately but do not remove the needle.
2. Apply tourniquet above site and attach new 5 mL syringe to tubing.
3. Aspirate 3 – 5 mL of blood from intravenous line to maintain patency of line.
4. Obtain extravasation kit and prepare equipment.
5. Notify the Oncology/Hematology physician
6. Blood return versus no blood return.
  - a. Blood return
    - i. Remove the syringe containing blood and attach antidote syringe.
    - ii. Give one-half total volume down the needle and the remaining half at the extravasation site (See Step 6).
    - iii. Apply ice or hot packs (See Step 7).
  - b. No blood return
    - i. Remove intravenous line (except for Nitrogen Mustard and Large Volume Cisplatin)
    - ii. Administer antidote subcutaneously around intravenous site and in the center.

Vesicant	Local Antidote	Antidote Preparation <sup>3</sup>	Administration Method
Cisplatin (Platinol) (greater than 20mL of 0.5mg/mL concentration)	Sodium Thiosulfate 12.5 gm/50 ml	Concentration 250 mg/ml	<ol style="list-style-type: none"> <li>1. Inject 0.16 ml to 0.64 ml (40 mg to 160 mg) through existing IV line</li> <li>2. Inject subcutaneously into the extravasation site in a clockwise manner to include entire erythematous area</li> <li>3. Elevate and rest extremity for 48 hours</li> </ol>
Dactinomycin Mitoxantrone	None	N/A	<ol style="list-style-type: none"> <li>1. Apply cold compresses intermittently (for 15 min 4 times per day and PRN) for 24 hours</li> </ol>
Docetaxel (Taxotere)	Hyaluronidase 150Units/mL <sup>4</sup> (Vitrase <sup>®</sup> ) (Keep Refrigerated)	Draw up full strength	<ol style="list-style-type: none"> <li>2. Inject a total of 1 mL (200 units) divided into 5 to 10 subcutaneous injections of 0.1 to 0.2 mL in a clockwise manner into the affected area using 25-gauge needles, and change needles in between each injection</li> <li>3. Apply cold compresses to the affected area 15 to 20 minutes each hour for 4 hours</li> <li>4. Elevate and rest extremity for 48 hours</li> </ol>
Doxorubicin Daunorubicin Epirubicin Idarubicin	Hydrocortisone 100 mg/2 mL (For pediatric patients only)	Reconstitute Hydrocortisone vial. Then further dilute with 3 mL Normal Saline for a final concentration of 20 mg/mL.	<ol style="list-style-type: none"> <li>1. Inject 50 – 100 mg intravenously and subcutaneously once</li> <li>2. Total dose NOT to exceed 100 mg</li> <li>3. Apply cold compresses intermittently (for 15 min 4 times per day and PRN) for 24 hours</li> <li>4. Elevate and rest extremity for 48 hours</li> </ol>
	Alternative: Dexrazoxane	Reconstitute with 0.167 Molar (M/6) Sodium Lactate Injection, to give a concentration of 10 mg/mL of sodium lactate.	<ol style="list-style-type: none"> <li>1. With 6 hours of extravasation, inject 1000 mg/m<sup>2</sup> on day 1 and 2 (maximum 2000 mg), then 500 mg/m<sup>2</sup> on day 3 (maximum dose 1000 mg) IV push or infusion over 1 to 2 hours</li> <li>2. Apply cold compresses intermittently (for 15 min 4 times per day and PRN) for 24 hours</li> <li>3. Elevate and rest extremity for 48 hours</li> </ol>
Mitomycin Mechlorethamine (Nitrogen Mustard)	Sodium Thiosulfate 12.5 gm/50 ml	Concentration 250 mg/ml	<ol style="list-style-type: none"> <li>1. Inject 1 ml (250 mg) intravenously and subcutaneously</li> <li>2. Apply cold compresses</li> <li>3. Elevate and rest extremity for 48 hours</li> </ol>
Paclitaxel (Taxol)	Hyaluronidase 150Units/mL <sup>4</sup> (Vitrase <sup>®</sup> ) (Keep Refrigerated)	Dilute with Normal Saline to make 100 units/mL solution	<ol style="list-style-type: none"> <li>1. Inject into existing IV line – 1 mL for each mL infiltrated. If IV line is removed, inject subcutaneously</li> <li>2. Apply cold compresses intermittently (15 min 4 times a day) for 24 hours</li> <li>3. Elevate and rest extremity for 48 hours</li> </ol>
Vinblastine Vincristine Vinorelbine	Hyaluronidase 150Units/mL <sup>4</sup> (Vitrase <sup>®</sup> ) (Keep Refrigerated)	Draw up full strength	<ol style="list-style-type: none"> <li>5. Inject 1 to 6 mL (200 to 1200 Units) subcutaneously to extravasation site in a clockwise manner to include entire erythematous area</li> <li>6. Apply warm compresses continuously for 24 hours</li> <li>7. Elevate and rest extremity for 48 hours</li> </ol>

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Foot note: <sup>3</sup> Currently, there are no accepted antidotes for actinomycin and mithramycin.

<sup>4</sup> Extra supply of Hyaluronidase stored in refrigerator at D&T Main Pharmacy (Ext. 97641).

7. Administer multiple subcutaneous injections (pin-cushion style) of antidote approximately half inch apart to include entire suspected extravasation site. Total dose of antidote will depend on size of extravasation site.
8. Apply ice or hot pack.
  - a. Apply ice pack for extravasations related to all vesicants EXCEPT Vincristine, Vinblastine, and Vinorelbine (Navelbine®).
  - b. Apply hot pack to extravasations related to Vincristine, Vinblastine, and Vinorelbine (Navelbine®).
9. Cover lightly with occlusive sterile dressing
10. Keep extremity elevated for 24 to 48 hours.
11. Observe the site regularly for pain, erythema, induration, ulceration, or necrosis.
12. Documentation – document occurrence in the progress notes/clinic sheet. Include the following:
 

<ol style="list-style-type: none"> <li>a. Date of occurrence</li> <li>b. Time of occurrence</li> <li>c. Site of extravasation</li> <li>d. Treatment administered</li> <li>e. Physician notified of occurrence</li> <li>f. Name and amount of drugs administered at time of extravasation</li> </ol>	<ol style="list-style-type: none"> <li>g. Drug being administered at time of extravasation</li> <li>h. Total amount of vesicant administered at extravasation site</li> <li>i. Patient education</li> <li>j. Follow-up instructions</li> </ol>
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13. Complete Safety Intelligence (SI) report.

### Extravasation Kit\* Contains:

Hydrocortisone 100 mg/2 mL (1)	Normal Saline for Injection 50 mL (1)	25-Gauge Needles (6)
Sodium Thiosulfate 10% 10 mL (2)	10 mL Syringes (2)	Alcohol Swabs (6)
Sterile Water for Injection 50 mL (1)	3 mL Syringes (2)	2" x 2" Gauze Pads (2)

\* Hyaluronidase 150 Units/mL (Vitrase®) is kept refrigerated in patient care areas.

### Antidote – Proposed Mechanism of Action(s):

#### **Adriamycin/Daunorubicin**

- Corticosteroids (Hydrocortisone, Dexamethasone) decrease inflammation and provide membrane-stabilizing effects. The protective effect of local cooling has been demonstrated in controlled mouse studies and it is believed that hypothermia decreases the cellular influx of anthracyclines.

- Dexrazoxane (Zinecard®): inhibits topoisomerase II reversibly, thereby diminishing tissue damage from extravasation of anthracycline. Injection site extravasation: initial dose: 1000 mg/m<sup>2</sup> body surface area over 1 to 2 hours on day 1, MAX 2000 mg; within 6 hours of extravasation; repeat the same dose 24 +/- 3 hours on day 2, MAX 2000 mg; followed by a 500-mg/m<sup>2</sup> dose after 48 +/- 3 hours on day 3, MAX 1000 mg.<sup>39</sup>

**Mitomycin C** – in vitro, Sodium Thiosulfate is found to inactivate Mitomycin by direct contact with the drug.

**Nitrogen Mustard** – the drug rapidly fixes to all tissues by alkylating protein and DNA. Sodium Thiosulfate provides an alternative substrate to tissue alkylation.

**Vinblastine/Vincristine/Vinorelbine** – Hyaluronidase and local mild heating both increase drug dispersing.

**Extravasation Plan****References:**

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