

CYTOTOXIC THERAPY ADMINISTRATION

This document This document covers the following topics relating to Cytotoxic Therapy Administration

Topic	Page
Patient / Family Education	2
IV Administration of Cytotoxic Therapy	3-6
Vesicant & Irritant Cytotoxic Medication	7
Prevention of Extravasation/Infiltration of Cytotoxic Medications	8
Assessment of Extravasation and other Skin Reactions	9
Management of Extravasation of Vesicant Cytotoxic Agent	10
Management of Infiltration of Irritant Cytotoxic Agent	11
Handling & Administration of Oral Cytotoxic Therapy	12-13
Cytotoxic Waste Management	14
Spillage of Cytotoxic Substance	15-17

Terms :

Other commonly used terms that refer to **cytotoxic** therapy

- **Antineoplastic therapy**
- **Chemotherapy**

Patient / Family Education

Objective To ensure that patient/caregiver/family

- receives adequate information prior to consenting to commence cytotoxic therapy.
- has an opportunity to discuss concerns prior to commencement of treatment with someone knowledgeable about the process.

Responsibility Medical Staff/Registered Nurses competent in the care of patients receiving cytotoxic therapy.

Frequency Each time a patient is to commence new cytotoxic therapy and ongoing education throughout the course of treatment.

Recommended best practice Follow the steps below to **provide information to patients and their family**. The physician is responsible for obtaining informed consent for the treatment. The nurse provides supplemental information

Step	Action
1	Prior to administration of chemotherapy, the nurse ensures that the patient/family have received information about their proposed course of treatment. Information includes but is not limited to: <ul style="list-style-type: none">• nature of illness and goal of chemotherapy• proposed treatment plan• review of significant risks, associated side effects and toxicity• self care measures necessary for patient to take, especially in relation to fever and infection Patient is given information regarding how to contact hospital should he/she become unwell following treatment.
2	The nurse ascertains whether patient has: <ul style="list-style-type: none">• adequate support at home• requirement for community health professional follow up or input• anxieties and questions

IV Administration of Cytotoxic Chemotherapy

Objective Cytotoxic therapy will be administered in a safe and competent manner.

Responsibility Medical staff assisted by Paediatric Oncology trained nurses

Overview

Step	Action
1	Those giving chemotherapy must know: <ul style="list-style-type: none">• The rationale for using the prescribed drugs, the safe doses, potential side effects and any particular requirement for, or hazards of, administration.• Action to be taken in event of an adverse reaction during the administration of the cytotoxic drug.• The management of a cytotoxic spill and the location of the cytotoxic spill kit.• The means of disposal of the various cytotoxic drugs and contaminated equipment.• Where to obtain further information if unsure of a cytotoxic related issue.

Preparation

of **patient and family** for the administration of chemotherapy

Step	Action
1	Orientate the patient/caregiver to chemotherapy prior to initial commencement of therapy, taking into consideration patient's previous knowledge, capacity for new information and likely effects of patient's particular chemotherapy regime.
2	Check that the patient/caregiver is aware of the potential complications associated with cytotoxic drugs and knows what action is to be taken if problems are encountered.
3	Ensure the patient has follow-up appointments and blood test forms and stress the importance of this aspect of their treatment.

Prior to the administration

of cytotoxic therapy check the patient for the following.

Step	Action
1	The patient and/or parent has given informed consent prior to the administration of cytotoxic therapy as per local policy.
2	<ul style="list-style-type: none"> • The drug and dose are correct for the patient as per protocol • Documentation by medical staff is complete and correct. All drug orders are signed and dated. Doses must be within safe limits and ceiling doses must not be exceeded (except when specifically requested by consultant medical staff). Pre-therapy assessments are complete and are within acceptable limits. For each new chemotherapy protocol that a patient receives, the nurse checking the chemotherapy on the first day of the first cycle should check: <ul style="list-style-type: none"> • Body surface area (BSA) • Drug calculation (m^2) • Patient's name and hospital number on the chart corresponds to those on the label of the dispensed drug, provided by the Pharmacy and the patient's wrist identification label. . • Drug dose / volume in syringe / IV bag corresponds to the information on the medication label. <p>Drug has been stored correctly prior to use (at room temperature or refrigerated)</p>

Administration of

cytotoxic therapy.

Ensure standard precautions are used: i.e.

- Handwashing before and after administration.
- Point of use disposal of needles and syringes. Recapping is not advisable.

Step	Action
1	Backflow of blood at the cannula site is checked prior to infusion of cytotoxic therapy.
2	For all cytotoxic drug administration wear splash resistant apron and latex gloves and have eye protection available..

3	Cytotoxic therapy is administered according to specific guidelines for each medication. If several direct infusion (bolus) medications are to be given, vesicants are administered first.
4	Gentle, slow pressure is applied to the plunger of the syringe with fast flowing IV fluid in order to dilute the chemotherapy and minimise the risk of extravasation
5	In the event of an adverse reaction, or patient discomfort during drug administration, the injection/infusion is stopped immediately. The appropriate medical staff are advised and appropriate corrective action is taken. (See protocols for management of extravasation).
6	Following completion of cytotoxic drug administration, the intravenous line is flushed.

Documentation

required following administration of cytotoxic medication.

Step	Action
1	Complete documentation noting the patient's tolerance of the previous chemotherapy cycle, the condition of the site of the current intravenous access if appropriate, and any difficulties encountered while administering chemotherapy.
2	Complete the cytotoxic drug chart.
3	Complete the IV fluid balance chart if required.

Disposal

of equipment used for administration of cytotoxic therapy.

Step	Action
1	Place all cytotoxic contaminated sharps, syringes and access devices into a designated sharps container, labelled as cytotoxic waste. Sharps must be disposed of at "point of use".
2	Place all cytotoxic contaminated non-sharps (giving sets, swabs, IV bags etc) into designated plastic bag, labelled as cytotoxic waste.
3	Once the designated cytotoxic waste bag is full, it is the nurses responsibility to seal the bag prior to its removal from the clinical area.

Vesicant & Irritant Cytotoxic Medications

Introduction

Cytotoxic agents may be defined as

- vesicant and may extravasate
 - or irritant which may infiltrate. .
-

Definitions

Extravasation is the inadvertent administration of a vesicant into the tissue surrounding a blood vessel, causing blistering, severe tissue damage and necrosis.

Infiltration is the inadvertent administration of non-vesicant medication into the tissue surrounding a blood vessel. Infiltration's may cause pain and phlebitis.

Vesicant Cytotoxic Medication

This includes but is not limited to the following drugs:

- Dactinomycin - Actinomycin D
 - Doxorubin - Adriamycin
 - Daunorubicin - Cerubidine/Daunomycin
 - Vinblastine - Velban
 - Vincristine - Oncovin
-

Irritant Cytotoxic Medication

These include but are not limited to:

Common

Dacarbazine	DTIC
Cisplatin	Platinol
Etoposide	VP16/VePesid

Less Common

Bleomycin	Blenoxane
-----------	-----------

Objective

To prevent where possible and minimise harm to patient during infusion of vesicant cytotoxic therapy.

Procedure

Follow the steps below to **administer vesicant/irritant medication** and **prevent extravasation / infiltration** of cytotoxic therapy.

Step	Action
1	Prior to administration of vesicant/irritant medication assess for, and resolve as much as possible, risk factors which may cause extravasation/infiltration <ul style="list-style-type: none">• condition of patient’s arm and blood vessels• alteration in patient’s mental status• potential for sudden movements by patient (age, vomiting, urinary urgency, anxiety.)
2	Prior to administration: <ul style="list-style-type: none">• check vesicant potential of medication• be aware of action to be taken if extravasation occurs
3	<ul style="list-style-type: none">• Select optimal site for venipuncture and avoid sites distal to pre-existing cutaneous, vascular or lymphatic pathophysiology. Do not position over a joint.• Use needle insertion techniques which minimise trauma.• Minimise potential for needle dislodgement by securing intravenous device• Check regularly for presence of blood return prior to and during infusion.• Infuse agent slowly and without excessive force• Ensure appropriate fast flowing IV infusion is in progress• Observe site frequently for swelling and check regularly for blood backflow.
4	Ensure patient is aware of signs and symptoms of extravasation and is able to inform staff when appropriate.

Assessment of Extravasation & other Skin Reactions

Nursing Assessment The table below provides details of **nursing assessment** of extravasation, irritation and flare reaction.

Assessment Parameter	Extravasation		Irritation of the Vein	Flare Reaction
	Immediate Manifestations of Extravasation	Delayed Manifestations of Extravasation		
Pain	Severe pain or burning that lasts minutes or hours and eventually subsides; usually occurs while the drug is being given and around the needle site.	Few hrs - 48 hrs	Aching and tightness along the vein.	No pain.
Redness	Blotchy redness around the needle site; it is not always present at time of extravasation.	Later occurrence	The full length of the vein may be reddened or darkened.	Immediate blotches or streaks along the vein, which usually subside within 30 minutes with or without treatment.
Ulceration		Develops insidiously; usually occurs 48-96 hours later.	Not usually	Not usually
Swelling	Severe swelling; usually occurs immediately.	Hours-48	Not likely	Not likely; wheals may appear along vein line.
Blood Return	Inability to obtain blood return; presence-rate	Good blood return during drug administration	Usually	Usually
Other	Change in the quality of infusion	Local tingling and sensory deficits.	-	Urticaria

Management of Extravasation of Vesicant Cytotoxic Agent

Objective To minimise harm to patient after extravasation of a vesicant cytotoxic agent.

Recommended best practice Follow the steps below to **manage extravasation** of a vesicant cytotoxic agent.

Step	Action
1	Stop infusion or bolus and attempt to aspirate any residual vesicant and blood in intravenous tubing, needle and skin site.
2	Remove needle. Identify whether vesicant is non DNA binding or DNA binding.
3	a) <u>Non DNA binding vesicants</u> - e.g. Vinca Alkaloids Apply warm compress to area for 15 minutes q.i.d. for 24 hours avoiding any undue pressure. b) <u>DNA binding vesicants</u> – Anthracyclines (Daunorubicin, Doxorubicin), Actinomycin D. . Apply cold ice compress to area for 15 minutes q.i.d. for 48 hours avoiding any undue pressure.
4	Advise patient to elevate and rest limb for 48 hours. Ensure patient has appropriate pain relief prescribed.
5	Inform senior medical staff. The site of extravasation must be seen by the medical staff within 24 hours of the incident. Document event in patient's notes. Use indelible pen to outline area of extravasation if visible.
6	Formulate a plan for follow-up in conjunction with consultant/registrar, nursing staff and the patient. This may include phoning the patient at home over the next few days. Patient to be provided with follow-up action plan that includes: <ul style="list-style-type: none"> • ongoing assessment and management of site • contact phone number to ring if the site causes discomfort or deteriorates, particularly if extravasation is caused by DNA-binding agent.
7	Arrange for completion of cytotoxic therapy to occur via alternate access. It may be necessary to estimate the amount of medication lost to extravasation. Inform NZ centre (Starship or Christchurch) of event.

Management of Infiltration of Irritant Cytotoxic Agent

Objective To minimise harm to a patient after infiltration of an irritant cytotoxic agent.

Step	Action
1	Stop infusion or bolus.
2	Attempt to aspirate any residual amount of medication and blood in intravenous tubing, needle and skin site.
3	Remove needle.
4	Apply cold compress to area avoiding any undue pressure. Leave for 15 minutes.
5	Ensure appropriate pain relief prescribed if necessary.
6	Advise patient to elevate limb if pain or swelling occurs.
7	Inform and discuss with medical staff. Calculate amount of medication lost to infiltration.
8	Administer remaining cytotoxic medication (plus compensatory dose if prescribed) via an alternate venous access.
9	Advise patient to contact department if a deterioration in the site occurs.

In Hospital Handling & Administration of Oral Cytotoxic Therapy

Step	Action
1	Use gloves to dispense or administer oral cytotoxic therapy.
2	Remove any packing material from tablet bottles with caution in order to prevent distribution of cytotoxic dust.
3	If tablets are required to be halved, protective clothing should be worn.
4	Any non-disposable items used to administer oral cytotoxic medication should be washed thoroughly after use with hot water and detergent, then dried with disposable paper towels, which are discarded as cytotoxic waste.

In Hospital Handling & Administration of Oral Cytotoxic Therapy

Recommended best practice Follow the steps below for **storage** of oral cytotoxic medication

Step	Action
1	Keep well away from children. Advise patients to do the same.
2	Keep out of direct sunlight.
3	Do not re-use any tablet bottle which has contained cytotoxic medication.
4	Return any unused oral cytotoxic medication to pharmacy for disposal.
5	Handle tablets/capsules as little as possible. Wash hands thoroughly, immediately if tablets handled.

Handling of excretion products from patients receiving cytotoxic agents.

Step	Action
1	Use standard precautions whenever handling patient excreta.
2	Patients receiving chemotherapy in hospital: <ul style="list-style-type: none"> • Label all urine jugs as cytotoxic contaminated • Dispose of excreta immediately • Clean urinals, urine jugs immediately • Soiled linen should be placed in designated bag labelled as "cytotoxic contaminated" prior to sending to laundry
3	Advise patients and caregivers in the home to: <ul style="list-style-type: none"> • take particular care with excreta • full flush toilet • wash hands thoroughly, immediately after handling any excretion products • washed separately, preferably in hot soapy water, any soiled linen and clothing

Cytotoxic Waste Management- each Unit to develop their own policy

Education for auxillary staff (cleaners, laundry, waste management staff)

- how they will dispose./manage cytotoxic waste once it leaves the ward

Spillage of Cytotoxic Substance

Objective To minimize risk to patient, staff and the public in the event of a cytotoxic medication spillage.

Responsibility Those health personnel involved in the event.

Procedure Follow the steps below for **immediate** action when a spill occurs.

Step	Action
1	Eyes. If the eyes are contaminated, immediately irrigate with water or saline eyewash for at least 15-20 minutes. Obtain medical attention immediately. N.B. If gloves are worn, these should be removed first as they may be contaminated.
2	Clothing. Remove contaminated clothing, and wash separately.
3	Skin. If the drug has come into contact with the skin, shower with copious amounts of water for 10-20 minutes, then with soap and rinse off with running water. Shower to be cleaned after use by designated person.

Spillage of Cytotoxic Substance

Procedure

Follow the steps below for large spills.

Step	Action
1	Close off area. If possible, close off the area by closing windows and doors. Turn off any fans that may spread the spill/aerosols. If a spill occurs near a patient, move patient if possible before starting clean up.
2	Identify Spill. Any spill should be identified with a warning sign so that other people in the area will not be contaminated.
3	Protective Clothing. Before cleaning up the spill personnel must make sure that they are wearing adequate protective clothing. Obtain and open the cytotoxic spill kit and put on. <ul style="list-style-type: none">• Plastic apron or disposable water-repellent long-sleeved gown (back opening).• Goggles• Gloves - two pairs of latex or a pair of heavy duty rubber gloves with latex on top.• Shoe covers (water-repellent).
4	Liquid Spills. Cover the area immediately with thick absorbent material
5	Powder Spills. Water-wet a wad of paper towels and gently cover area. Add more water through towels to facilitate clean up.

Spillage of Cytotoxic Substance

Step	Action
6	<p data-bbox="603 488 911 517">Cleaning and Disposal</p> <ul data-bbox="603 524 1390 1503" style="list-style-type: none"><li data-bbox="603 524 1390 667">• Bring plastic waste disposal bags in cytotoxic spill kit to area of spill. Gather up contaminated material enclosed in absorbent material and place in 1st bag, being careful not to contaminate the outside of the bag.<li data-bbox="603 674 1114 703">• Place first bag into second outer bag.<li data-bbox="603 710 1390 824">• Re-cover area of spill with more absorbent material and add water. Repeat until satisfied that contaminant has been cleaned up as much as possible.<li data-bbox="603 831 1390 898">• Broken glass should be wrapped in thick newspaper and put in the sharps bin for cytotoxic waste.<li data-bbox="603 904 1390 1048">• Wash contaminated area thoroughly with warm soapy water. Absorb with absorbent disposable towels, and then discard towels into plastic waste disposal bag. Repeat this process until all excess fluid has been removed.<li data-bbox="603 1055 1390 1198">• Rinse thoroughly with clean water and dry. Use paper towels to do this and discard in cytotoxic waste bag. If mop is used, discard mop head after completion of cleaning.<li data-bbox="603 1205 1390 1503">• On completion of clean-up, dispose of disposable protective items in disposal bag before removing inner gloves.<ul data-bbox="699 1323 1390 1503" style="list-style-type: none"><li data-bbox="699 1323 1390 1438">• Clean non-disposable items with hot soapy water. Rinse in clean water and dry with paper towels. Discard into cytotoxic waste disposal bag.<li data-bbox="699 1444 1390 1503">• Seal waste disposal bag securely and label as cytotoxic waste