MEDICATION ADMINISTRATION:
CYTOTOXIC CHEMOTHERAPY AND BIOThERAPY

PRACTICE LEVEL/COMPETENCIES

To administer chemotherapy, cytotoxic and biotherapy agents to non-oncology patients, the nurse must:

- Ensure that a Non-Oncology – All Routes chemotherapy checklist has been completed by two RNs (see Policy: CM.05.01 – Completing the Chemotherapy Checklist)
- Possess knowledge of safe handling guidelines for cytotoxic agents and waste products
- Familiarize self with actions, administration guidelines, and side effects of cytotoxic medications and biotherapy agents as outlined in pharmacy manual and other resources
- Be able to provide patient/family teaching in relation to side effects and management of side effects

To administer chemotherapy, cytotoxic and biotherapy agents to oncology patients, the nurse must:

- Ensure that a chemotherapy checklist has been completed by two competent chemotherapy certified RNs (see Policy: CM.05.01 – Completing the Chemotherapy Checklist).
- Be knowledgeable about pediatric cancer diagnosis and treatment, hematopoiesis and immune response, treatment modalities, and psychosocial issues in pediatric oncology as attained through education and experience.
- Be able to teach patients/families about their diagnosis, treatment, including side effects of chemotherapy/biotherapy being provided and the overall cancer experience.
- List and describe chemotherapy and biotherapy agents and classifications and their mode of action, administration considerations, toxicity and symptom management, and late effects
- Describe clinical trials and the role of the Children’s Oncology Group

These competencies to be achieved through:

- Attending the APHON Chemotherapy and Biotherapy Course
- Completed and signed off the Chemotherapy Validation Tool with the Oncology CRN or CNE

NOTE: Oral chemotherapy may be administered by a Registered Nurse to an oncology patient if the nurse has attained the competencies as outlined above for administration of cytotoxic drugs to non-oncology patients, provided a chemotherapy checklist has been completed and verified by 2 chemotherapy competent nurses. Oral chemotherapy must be double checked by 2 RNs prior to administration.

Peripheral Chemotherapy Competencies:

- Non-vesicant: same as above
- Vesicant:
  - Certified to obtain peripheral IV access.
  - Able to identify vesicant agents and describe actions for prevention and management of extravasation as attained through:
    - Completing the Level II Self Learning Guide and Practicum Requirements

DEFINITIONS

Extravasation: The unintentional leakage of vesicant intravenous fluids or medication into the perivascular, subcutaneous tissue or interstitial space which is capable of causing pain, necrosis and/or sloughing of tissue. Immediate emergency management of suspected vesicant extravasation must be performed to minimize tissue damage.

Personal protective equipment
  - Gloves: Nitrile or Latex gloves with long cuffs that can extend over cuff of gown sleeves
  - Gown: Disposable low-permeable gown with solid front and long sleeves with cuffs
  - Eye and face protection: Fluid resistant mask with eye shield or goggles

Vesicant: An agent that can cause redness, pain, blistering and serious progressive tissue damage if it leaks into tissue outside the vein (extravasates). Can cause blistering and local or extensive tissue necrosis with or without ulceration and may become evident only days or weeks after exposure.
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PROCEDURE

1. **DETERMINE** if you have the *competencies* to administer cytotoxic chemotherapy or biotherapy agents.
2. **ENSURE** a chemotherapy checklist has been completed and verified by two RN's.
3. **REVIEW** checklist for any special instructions for patient care needs and monitoring requirements.
4. **DETERMINE** appropriate method of administration and prepare appropriate equipment.
5. **GATHER** equipment:
   - Personal protective equipment
   - Cytotoxic label to attach to infusion tubing as needed
   - Chemotherapy in sealed Ziploc bag
   - Patient’s chart with physician’s order for chemotherapy
6. **CHECK** chemotherapy dispensed with physician’s written order and **VERIFY** with second RN:
   - Patient name and unit number
   - Drug name
   - Dose
   - Route
   - Timing
   - Rate and method of administration
7. **REVIEW** side effects and management strategies with patient/family as required.
8. **ENSURE** emergency equipment is functioning and emergency drugs are readily available.
9. **PERFORM** hand hygiene.
10. **DON** personal protective equipment (PPE).
11. **READ ALOUD** information on chemotherapy label to second RN or parent/guardian (if present) and check against patient identification band:
   - Patient name and unit number or birth date
   - Drug name, dose, route, timing and expiry
12. **ADMINISTER** chemotherapy agent as appropriate using safe handling precautions:

    **NOTE:** a 2nd RN is required to do an independent double check of pump programming when administering chemotherapy via infusion pump. *The 2nd RN must independently calculate infusion rate and verify pump programming is correct.*

    - For continuous infusion or for infusions 6 hours or longer or in volumes of 500 mL or greater, administer as primary infusion.

    **NOTE:** When administering vinca alkaloids via peripheral infusion, great care must be taken to ensure that these agents are given into an intact vein with a good free flow of blood in order to avoid potential extravasation. Drug may leak from sites of recent punctures or from veins which are occluded from any cause, (tight clothing, obstructing masses, clots). Therefore, the injection site should not be distal to a recent venipuncture or in a limb with compromised circulation. It is preferable to select, if possible, a large vein which is not adjacent to a joint or tendon. The antecubital fossa and other joints are to be avoided because of the risk of undetected extravasation and permanent damage.

    **Sites of choice in children include, in order of preference:** dorsal hand, forearm, dorsal foot

    During the infusion **MONITOR** venipuncture site and needle tip continuously and assess for signs and symptoms of infiltration (pain, swelling, redness, occlusion alarms or change in quality of infusion).
13. To flush chemotherapy given via the intermittent piggyback method, **DON** PPE, remove chemotherapy bag and dispose in chem-o-gator, replace with 50ml NS or D5W minibag and **PROGRAM** pump to deliver 25 mL flush.

14. To flush chemotherapy given via the continuous method, **DON** PPE, remove chemotherapy bag and dispose in chem-o-gator, replace with 50ml NS or D5W minibag and **PROGRAM** pump to deliver 25 mL flush.

15. **PROGRAM** pump to deliver flush at same rate as chemotherapy.

16. **DISPOSE** of tubing in appropriate cytotoxic waste container. **PERFORM** hand hygiene.

17. **DOCUMENT** on appropriate record(s):
   - Date, time
   - Drug, dose, route, infusion duration
   - Pre-, concurrent, and/or post-hydration intravenous fluids
   - Pre-medications
   - Patient’s tolerance to treatment (side effects, interventions to minimize or alleviate side effects)
   - Patient/family education

18. **COMPLETE** the Potential Cytotoxic Agent Exposure Screening Record.

**REFERENCES**


BC Cancer Report to Provincial Systemic Therapy Program Committee – September 26, 2007


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Secola, Rita et al. (2005). Nursing Guidelines for the Administration of Monoclonal Antibody Therapy. COG Nursing Discipline, COG Nursing Clinical Practice Committee, Pharmacology Section


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