Chemotherapy, Intraperitoneal: Administering

What Is Intraperitoneal Chemotherapy Administration?
› Intraperitoneal (IP) chemotherapy agents are administered to treat cancer within the peritoneal cavity
  • What: IP chemotherapy administration allows for delivery of antineoplastic medication directly at the disease site within the peritoneal cavity
  • How: IP chemotherapy administration is performed as a sterile procedure in which the peritoneal cavity is accessed typically via an implanted port and the IP medication is infused by gravity flow. Following IP chemotherapy infusion, the patient is assisted to change position by turning from side to side every 15 minutes, for a prescribed amount of time. The patient is monitored for abdominal pain, shortness of breath, nausea and vomiting, and diarrhea
  • Where: IP chemotherapy can be administered in hospital settings and in outpatient or ambulatory care settings
  • Who: IP chemotherapy is administered only by qualified physicians, nurses, advanced practice nurses, or physician assistants who are certified in chemotherapy administration through specialized training

What Is the Desired Outcome of Intraperitoneal Chemotherapy Administration?
› IP port will be accessed using a noncoring (Huber) needle and flushed without difficulty
› The correct dose of medication will be administered as prescribed
› Any adverse drug effects will be detected early and treated promptly and appropriately

Why Is Intraperitoneal Chemotherapy Administration Important?
› IP chemotherapy is important because it provides a high concentration of medication to be in direct contact with the cancer in the peritoneal cavity

Facts and Figures
› The median survival for advanced ovarian cancer patients receiving IP chemotherapy in one study was 61.8 months as compared to 51.4 months for those receiving IV therapy. Additionally, there was a 23% reduced risk of death associated with IP chemotherapy. Patients completing 6 cycles of IP chemotherapy had improved survival compared to those receiving 3 cycles of IP and 3 cycles of IV chemotherapy (Tewari et al., 2015)

What You Need to Know Before Intraperitoneal Chemotherapy Administration
› Typically, implanted subcutaneous ports with an attached catheter are used for administering IP chemotherapy. External tunneled catheters can also serve as IP catheters
› Maximum barrier precautions are used at all times when accessing an implanted port
› Indications for IP chemotherapy include the following:
  • Treatment of ovarian cancer
• Treatment of cancers that disseminate to the peritoneal surface including appendiceal cancer, peritoneal carcinomatosis from a primary colorectal cancer, and peritoneal mesothelioma

IP chemotherapy has the advantage of allowing for the delivery of a greater drug concentration directly at the site of the disease in the peritoneum. Other advantages include the following:

- IP chemotherapy is absorbed systemically resulting in extended exposure to the tumor through capillary circulation
- When used with systemic chemotherapy agents, smaller doses of the systemic agents can be used

IP chemotherapy is not appropriate for all intraperitoneal tumors, and it carries the potential for serious complications. Disadvantages of IP chemotherapy include the following:

- IP chemotherapy is available only to patients with minimum residual tumor (less than 1 cm) following surgery for debulking
- The need to rotate positions following infusion of IP chemotherapy may be difficult for patients who have physical limitations
- Catheter-related complications can occur, such as infection, abdominal pain, adhesion formation, bowel perforation, bowel obstruction, and leakage of fluid around the needle in the IP port
- Chemotherapy-related complications can occur, including nausea and vomiting, pressure or pain within the abdomen, fatigue, decreased appetite, and peritonitis

IP solutions can be administered at room temperature and warmed blankets can be provided to patients who are feeling cold. Some facility protocols indicate to warm IP fluids to body temperature to reduce cramping and prevent the patient from feeling chilled during IP infusion, but there is no evidence to support this practice

The use of standardized orders, electronic medication records, and computerized physician order entries promote patient safety when administering chemotherapy

When administering an IP chemotherapy agent or any other medication, the nurse should verify the six “rights” of safe medication administration

- Right medication
- Right dose
- Right patient
- Right route
- Right time
- Right documentation

Also consider:

- Right to refuse
- Right to be educated
- Right reason
- Right response

When putting on personal protective equipment (PPE) before administering IP chemotherapy, the nurse dons the first pair of gloves followed by the gown. The nurse dons the second pair of gloves and covers the ends of the gown sleeves with the glove cuffs

Guidelines for administering chemotherapy are as follows:

- The American Society of Clinical Oncology (ASCO) and the Oncology Nursing Society (ONS) provide safety standards on the administration of chemotherapy that include information on patient consent and education, as well as information on ordering, dispensing and administering chemotherapy
- The National Institute for Occupational Safety and Health (NIOSH) recommends that the clinician wear the following PPE for the administration of hyperthermic IP chemotherapy: double chemotherapy gloves, eye/face protection such as goggles and face shields, and respiratory protection such as a fit-test N-95 or N-100 particle mask
- NIOSH provides a list of hazardous drugs and guidance on the type of PPE to wear when administering these drugs in various dosage forms. The list comprises 3 medication groups including
  - antineoplastic drugs
  - non-antineoplastic drugs meeting NIOSH specifications for a hazardous drug
  - drugs that constitute a reproductive risk for both women and men aiming to conceive and breastfeeding or pregnant women
- The Occupational Safety and Health Administration (OSHA) provides guidance on the safe administration of hazardous drugs as defined by NIOSH. The information provided on safe administration of hazardous drugs includes use of
appropriate PPE, equipment for safe drug administration, safe work practices for handling hazardous drugs, and how to prevent exposure from body waste when caring for patients who have received hazardous drugs.

Preliminary steps that should be performed before IP chemotherapy administration include the following:

- Review the facility/unit-specific protocol for administering IP chemotherapy agents.
- Review the treating clinician’s orders for the prescribed IP chemotherapy agent. Verify that the order includes the following:
  - Patient’s name and second patient identifier, such as a medical record number
  - Date
  - Regimen name and number
  - Cycle number and day, if appropriate
  - Generic drug name
  - Dose and dose calculation
  - Frequency
  - Date and route of administration
  - Allergies
  - Rate of administration
  - Any pre-medications or pre-treatment to be administered
  - Any indications for holding or changing the dose
- Verify completion of facility informed consent documents.
- Review the patient’s medical history/medical record for the following:
  - Cancer diagnosis and treatment history
  - Blood test results including absolute neutrophil count and platelet count
  - Cancer-related symptoms
  - Cancer-related pain
  - Use of alternative or complementary therapies
  - History of chronic illnesses, mental illnesses, or substance abuse
  - Current height and weight and any recent weight loss
  - Body surface area, if medication dosing is based on this
  - All prescription and over-the-counter medications
  - Allergies to prescribed chemotherapy agent
  - Any other allergies. Use alternatives, as appropriate
- Gather the supplies necessary for IP chemotherapy administration including the following:
  - Prescribed IP chemotherapy attached to pre-primed tubing which is typically mixed in 2-liter normal saline (0.9% sodium chloride) bag
  - Appropriately sized noncoring (Huber) needle (19 gauge, 1–1.5 inches/2.5–3.8 cm in length) with attached extension set for accessing implanted IP port
  - Sterile needleless connector
  - Sterile gloves, mask, and sterile towel to create a sterile field for accessing IP port
  - Transparent dressing for securing Huber needle
  - Facility-approved antiseptic swabs for cleaning IP port site
  - Sterile 10-mL syringes filled with sterile preservative-free normal saline for flushing IP port
  - 2 pairs of chemotherapy, powder-free gloves
  - Nonsterile gloves
  - Chemotherapy-tested gown
  - Eye/face protection, such as goggles and face shield
  - NIOSH-approved respirator
  - Medication administration record (MAR)
  - Material safety data sheet (MSDS)
  - Chemotherapy spill kit
  - Chemotherapy waste receptacles
  - Plastic-backed absorbent pads
  - Blood pressure monitoring equipment
  - Puncture-resistant chemotherapy sharps container
How to Perform Intraperitoneal Chemotherapy Administration

› Perform hand hygiene
› Confirm that the IP chemotherapy is labeled with the patient’s name and a second identifier, date, generic drug name, route, total dose and volume, preparation date and time, and expiration date. Check the label against the order in the patient’s medical record
› Identify the patient using two unique patient identifiers
› Introduce yourself to the patient and family members, if present. Explain your clinical role. Assess the coping ability of the patient and family and for knowledge deficits and anxiety regarding the administration of IP chemotherapy
› Determine if the patient/family require special considerations regarding communication (e.g., due to illiteracy, language barriers, or deafness). Make arrangements to meet these needs if they are present
› Use professional certified medical interpreters, either in person or via phone, when language barriers exist
› Review the treatment plan for administering the IP chemotherapy agent with the patient
› Ask family members or other visitors to leave the patient’s room to promote privacy, if appropriate
› Assess the patient’s general health status and for cancer-related pain or pain due to other causes, and provide prescribed analgesic, as needed
› With a second practitioner approved for administering chemotherapy, identify the patient using two unique identifiers, and confirm the generic drug name, dose, route, volume, rate, date of preparation, date to be administered, expiration date, cycle number, and time of administration
› Obtain two signatures to confirm that these checks have been completed
› Don gloves
› Measure the patient’s vital signs and weight to obtain a baseline
› Administer any prescribed premedications, such as antiemetics, to allow enough time for the drug’s onset of action before IP chemotherapy administration
› Administer prescribed IV hydration
› Ask the patient to empty bladder
› Locate IP port by palpating the skin overlying the port and identifying its raised circular edge
› Assess for erythema, edema, and pain/tenderness at the site
› Clean IP port site with a facility-approved antiseptic using back-and-forth motion for 30 seconds
› Allow to air dry for 30 seconds
› Don mask
› Using sterile technique, prepare sterile field with supplies for accessing port
› Place noncoring needle with attached extension tubing, sterile syringe filled with preservative-free saline, and needleless connector on sterile field
› Remove gloves, perform hand hygiene, and don sterile gloves
› Using sterile technique, attach a needleless connector to the extension tubing
› Attach the sterile syringe of preservative-free saline to the needleless connector and prime noncoring needle and extension tubing
› Clamp extension tubing, keep syringe attached, and return it to sterile field
› Stabilize IP port between thumb and fingers of nondominant hand
› Using sterile technique and dominant hand, grasp hub of noncoring needle and insert needle into the port septum at a 90° angle to the skin
› Press on the right angle of the needle with the gloved index finger to advance the needle until it reaches the bottom of the port
› Unclamp extension tubing and flush the port with the preservative-free saline in the attached syringe to determine if the port/catheter is patent
› Observe for any leakage or swelling around the site
› Delay IP chemotherapy and contact the treating clinician if unable to flush the port or leakage and swelling are observed
› Secure the noncoring needle by applying a transparent dressing if port flushes without difficulty and leakage/swelling is not present
› Remove gloves and perform hand hygiene
Don 2 pairs of chemotherapy gloves and a chemotherapy-tested gown. Don appropriate eye/face protection and NIOSH-approved respirator.

Assist the patient to a semi-Fowler’s position with head of bed no higher than 30°.

Vigorously scrub the port connector with an antiseptic swab per facility protocol and allow to air dry.

Using sterile technique, connect the IP chemotherapy tubing to the port connector. Trace the tubing from the patient connection site to its point of origin to confirm correct connection.

Label tubing at both distal and proximal connection sites.

Release clamp on IP tubing and on needle extension tubing and infuse by gravity, as prescribed. Do not use an IV pump to infuse IP chemotherapy.

Observe for any swelling or leakage around the needle.

If leakage occurs, stop infusion, check placement of needle, and contact the treating clinician.

Immediately discontinue infusion if patient experiences severe pain.

Observe patient for shortness of breath or cramping and lower the infusion rate if these symptoms occur.

When IP chemotherapy has infused, clamp the tubing above the side port.

Vigorously scrub the side port with an antiseptic swab per facility protocol and allow to air dry.

Using sterile technique, attach a syringe of facility-approved flushing solution (typically 10–20 mL of preservative-free normal saline) to side port and flush.

Clamp needle extension tubing.

Disconnect IP tubing.

Remove noncoring (Huber) needle from IP port, engage needle safety shield, and dispose of needle in puncture-resistant chemotherapy sharps container.

Apply pressure to site and cover with sterile gauze dressing.

Assist patient to change position by turning from side to side every 15 minutes, for the duration of time prescribed by treating clinician.

Remove gloves and other PPE.

Dispose of used procedure materials and PPE in appropriate chemotherapy waste receptacles.

Perform hand hygiene.

Update the patient's plan of care, as appropriate, and document the following in the patient's medical record:

- Date and time of administration of IP chemotherapy.
- Appearance of IP port site before and following administration of the intraperitoneal chemotherapy.
- Name and dose of IP chemotherapy.
- Current patient measurements used to calculate dose, such as height, weight, and body surface area.
- Patient’s response to the IP chemotherapy agent and if patient experienced any adverse effects or hypersensitivity to the medication.
- Patient assessment performed, including vital signs.
- Cancer-related pain.
- Any complications that occurred during administration of IP chemotherapy and if treating clinician was notified.
- Patient/family education provided including name, dose, and adverse effects of the medication, as well as how adverse effects will be treated.

Other Tests, Treatments, or Procedures That May Be Necessary Before or After Intraperitoneal Chemotherapy Administration:

- Monitor patient for abdominal pain, shortness of breath, nausea and vomiting, and diarrhea.
- Monitor for signs of infection due to bone marrow suppression.

What to Expect After Intraperitoneal Chemotherapy Administration:

- The patient will understand the overall purpose of IP chemotherapy administration.
- The patient will tolerate the administration of IP chemotherapy without adverse effects.

Red Flags:

- Do not use an intravenous (IV) pump with IP chemotherapy. Infuse IP chemotherapy by gravity.
- Prevent tubing connection errors by tracing all tubing or catheters from the patient to the source solution before connecting, at transitions to a new setting, and during hand-off procedures. Label tubing to identify all solutions/lines.

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What Do I Need to Tell the Patient/Patient’s Family?

- Provide information on scheduled follow-up appointments and laboratory tests
- Educate about prescribed medications for relief of adverse effects
- Educate the patient to wear loose-fitting clothes on the day of IP chemotherapy and to have a light meal about 2 hours before IP chemotherapy
- Educate patient about the IP port and how to care for it at home
- Educate about when and how to contact the treating clinician and other members of the patient care team
- Immediately discontinue IP chemotherapy infusion if patient experiences severe pain

References