Extravasation of Chemotherapy: Nursing Recognition and Management

Introduction

Extravasation is a serious complication of chemotherapy administration. It occurs when chemotherapy drugs leak from the vein into surrounding tissues, which can cause tissue damage, necrosis, and long-term functional or cosmetic problems, especially when vesicant drugs are involved.

Early recognition and prompt nursing intervention are essential to prevent severe tissue injury and complications.

Learning Objectives

After completing this session, nurses should be able to:

1. Define chemotherapy extravasation
2. Identify types of chemotherapy agents associated with extravasation
3. Recognize risk factors and early signs
4. Apply the STOP protocol for immediate management
5. Implement prevention strategies during chemotherapy administration

What is Chemotherapy Extravasation?

Extravasation refers to the accidental leakage of chemotherapy drugs from a vein into surrounding tissues during intravenous administration.

It is considered an oncological emergency, especially when vesicant drugs are involved.

Types of Chemotherapy Agents

1. Vesicants

   - Cause severe tissue damage and necrosis
   - Examples:
     - Anthracyclines (doxorubicin, daunorubicin)
     - Vinca alkaloids (vincristine, vinblastine)
     - Mitomycin C

2. Irritants

   - Cause pain and inflammation but usually no tissue necrosis
   - Examples:
     - Carboplatin
     - Etoposide

3. Non-Vesicants

- Rarely cause tissue damage
- Example:
  - Fluorouracil

Risk Factors for Extravasation

Common causes include:

- Fragile or small veins
- Poor cannula fixation
- High-pressure or rapid infusion
- Inexperienced staff
- Lack of patient education
- Poor vein selection

Signs and Symptoms

Early Signs

- Pain, burning, or stinging at injection site
- Swelling or puffiness
- Redness or blanching
- Slowed infusion rate

Late Signs

- Blistering
- Skin ulceration
- Tissue necrosis
- Infection or scar formation

Immediate Nursing Actions – STOP Protocol

S – Stop the infusion

- Stop chemotherapy immediately
- Do not remove the cannula

T – Try to aspirate

- Aspirate any remaining drug from the catheter using a syringe
- Do not flush the line

O – Observe and mark the area

- Mark the affected area
- Document the size of swelling or redness

P – Prepare and apply treatment

- Apply appropriate compress
- Administer antidote if available

Drug-Specific Management

Drug	Treatment
Anthracyclines (Doxorubicin)	Cold compress + Dexrazoxane
Vinca Alkaloids	Warm compress + Hyaluronidase
Mechlorethamine	Cold compress + Sodium thiosulfate
Etoposide	Cold compress + supportive care

Nursing Documentation

Accurate documentation should include:

- Date and time of extravasation
- Drug name and dose
- Signs and symptoms
- Nursing interventions
- Physician notification
- Treatment given
- Patient education and follow-up plan

Patient Education

Nurses should educate patients to:

- Report pain or burning immediately during infusion
- Follow post-event care instructions
- Watch for delayed symptoms such as swelling or skin changes
- Seek medical attention if symptoms worsen

Emotional support is also important because patients may fear scarring or long-term complications.

Prevention Strategies

To reduce extravasation risk:

- Use central venous access for vesicant drugs
- Select appropriate veins
- Check blood return before infusion
- Monitor IV site frequently
- Ensure chemotherapy is administered by trained staff

Nursing Monitoring During Chemotherapy

Nurses should:

- Check IV site every 5–10 minutes during vesicant infusion
- Observe for pain, swelling, or redness
- Monitor patients for delayed tissue damage
- Report any abnormalities immediately

Key Message for Nurses

Early detection and rapid intervention are essential to prevent severe complications of chemotherapy extravasation. Nurses must remain vigilant during chemotherapy administration and follow established protocols to ensure patient safety.

Conclusion

Chemotherapy extravasation is a preventable and manageable complication when recognized early. Proper nursing assessment, adherence to infusion protocols, and prompt intervention are essential to reduce tissue injury and improve patient outcomes.