Patient Safety Issues: Safe Handling of Hazardous Drugs, Infection

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Objectives

- State two methods of improving patient safety in oncology nursing
- Discuss current recommendations for the safe handling of hazardous drugs
- Describe interventions that reduce the occurrence of infection in oncology patients

Introduction

- Patient safety defined:
  - “The prevention of healthcare errors and the elimination or mitigation of patient injury caused by healthcare errors” (NPSF, 2003).

Errors

- Influencing factors
  - Staffing
  - Personal / social
  - Work flow
  - Physical environment
  - Organizational factors

- Types
  - Diagnostic
  - Treatment
  - Preventive care
  - Failures

(AHRQ, 2003)

Types

-Diagnostic
-Treatment
-Preventive care
-Failures

(AHRQ, 2003)
**Nursing-Sensitive Outcomes:**
Outcomes that are attained through or are significantly impacted by nursing interventions (Given, et al., 2004)
- Safety (Preventable adverse events):
  - Patient falls
  - Pressure sores
  - Infections
  - Hazardous drug exposure

**Hazardous Drugs Defined**
- Carcinogenicity
- Teratogenicity / developmental toxicity
- Reproductive toxicity
- Organ toxicity at low doses
- Genotoxicity
- Structure and toxicity profiles of new drugs that mimic existing drugs determined hazardous by the above criteria (ASHP, 1990; NIOSH, 2004)

**Potential Routes of Exposure**
- Dermal absorption:
  - Direct drug contact
  - Contact with contaminated surfaces
- Injection:
  - Sharps
  - Breakage
- Ingestion via contaminated:
  - Food, gum
  - Hand-to-mouth transfer
- Inhalation:
  - Aerosols
  - Vapors

**Current Guidelines: U.S. Governmental Agencies**
- Occupational Safety and Health Administration (OSHA)
  - Controlling Occupational Exposure to Hazardous Drugs
- National Institute for Occupational Safety & Health (NIOSH)
  - Preventing Occupational Exposures to Antineoplastic & Other Hazardous Drugs in Healthcare Settings

Current Guidelines: U.S. Professional Societies

- American Society of Health-System Pharmacists (ASHP)
  - Technical Assistance Bulletin / Guidelines on Handling Hazardous Drugs
- Oncology Nursing Society (ONS)
  - Chemotherapy & Biotherapy Guidelines and Recommendations for Practice
- Association of Pediatric Hematology Oncology Nurses (APHON)
  - The Pediatric Chemotherapy and Biotherapy Curriculum


Patient and Family Exposure

- During hazardous drug administration
  - Healthcare setting
  - Home
- Handling contaminated excreta
  - Urine
  - Feces
  - Emesis

Safety: Treatment Setting

#1 Communication
- Minimize environmental contamination with hazardous drugs
- Protect family members from exposure
  - Limit visitors during treatment
  - Waste containment
- Prevent exposure of "non-chemo" patients
  - Separate rooms (when possible)
  - Separate toilets (when possible)
  - Cleaning

Safety at Home

#1 Patient education
- Home infusion
- Safe handling of oral agents
  - Storage
  - Administration
  - Disposal
- Excreta handling
- Linen handling
Infection Risk
- Increased risk in cancer patients
  - Myelosuppressive chemotherapy
  - Hematologic malignancies
  - Bone marrow disease
  - Implanted/Invasive devices

Safety: Treatment Setting
- Hand hygiene (caregivers AND patients)
- Meticulous care of invasive devices
- Minimize occurrence of neutropenia (growth factors)
- Monitor for neutropenia
  - Anticipate nadir following chemotherapy
  - Check complete blood count
  - Calculate ANC
- Institute neutropenic precautions
- Monitor for occurrence of infection
- Prompt initiation of therapy when indicated

Prevention of Infection
- Pneumonia vaccine
- Antibacterial/antifungal/antiviral prophylaxis in selected patients at high risk
- Limit visitors with symptoms of respiratory infection
- Environmental interventions
  - HEPA filters
  - Pre-construction planning
  - Ice handling

Incorporating into Practice
- Patient care
- Patient teaching
- Policies and procedures
- Quality/performance improvement activities
- Standards of care
- Order sets
- Orientation
- Educational programs
Problem: Chemotherapy in outpatient setting
   • No standard method of providing instructions for decreasing exposure

Analysis:
   • Review of ONS Guidelines

Solution:
   • Development of printed education materials
   • Incorporation into discharge instructions

Verbally AND in writing:
   “Many chemotherapy drugs are harmful. They are meant for YOU because of your illness and not for others.”

For someone helping with the medication:
   • Wear gloves when opening the bottle.
   • Carefully shake out the right number of pills into the cap of the bottle
   • Take off the gloves and throw them away. Do not use them for anything else.
   • Wash your hands.

Problem: Increase in patient admissions for febrile neutropenia

Analysis:
   • Patients did not receive myeloid growth factors
   • Patients not “typical” candidates based on regimen (> 30% risk)

Solution:
   • Develop assessment tool based on NCCN* Guidelines
   • Initiate risk assessment for all patients
   • Provided education/policy/process
   • Refer patients to physician for consideration of prophylaxis

Validation of outcomes of care
   • Effectiveness
   • Quality
   • Specific indicators

NSPOs: Effects of nursing interventions
   • Patient safety
   • Symptom experience
   • Functional status
   • Psychological distress
   • Cost of care

*National Comprehensive Cancer Network, 2010
Essence of Nursing Practice
- Assessment
  - Orderly
  - Systematic
  - Efficient
  - Focused
- Analysis & planning
  - Problem identification
  - Baseline & periodic measurement
  - Selection of intervention

Implementation
- Interventions
- Deliberate actions

Evaluation
- Assessment of outcomes
- Comparison to expected outcomes
- Documentation

Challenges in Oncology Nursing
- Time constraints
- Innovation
- Complexity
- Changing expectations
  - Providers
  - Patients
  - Public

Questions