Cancer Symptom Management

Emma L. Dann, DNP, RN, OCN, NEA-BC
emma_dann@dfci.harvard.edu
Objectives

• Review symptoms of cancer and common side effects of cancer treatments

• Review nursing management of cancer symptoms

• Review content for the Symptom Management section of the Core Curriculum for Oncology Nursing
KEEP CALM AND DO THE TEST
Content in this presentation is from the ONS Core Curriculum for Oncology Nursing, unless otherwise indicated.
OCN Test Blueprint
Symptom Management and Palliative Care (23%)

• Etiology and patterns of symptoms (Acute, Chronic, Late)
• Toxicity and grading scales
• Anatomical and surgical alterations (e.g. lymphedema, ostomy, site-specific radiation)
• Pharmacologic interventions
• Complimentary and integrative modalities (e.g. Massage, Acupuncture, Herbal Therapies)
• Palliative Care Considerations

• Alterations in:
  o Hematologic function
  o Immune function
  o GI function
  o GU function
  o Integumentary function
  o Respiratory function
  o Cardiovascular function
  o Neurological function
  o Musculoskeletal function
  o Nutritional status
  o Comfort (e.g. pain)
  o Cognition
  o Energy Level (ie. Fatigue)
Toxicity and grading scales

- Common Terminology for Cancer Adverse Events
  - CTCAE: standard classification and severity grading scale - used in clinical trials and other oncology treatment settings
- National Comprehensive Cancer Network
  - NCCN Guidelines: supportive care
Let’s Practice!

The Functional Assessment of Cancer Therapy (FACT/FACIT) instrument is used to measure all except which of the following dimensions of quality of life?

A. Sexual well-being
B. Physical well-being
C. Emotional well-being
D. Social/family well-being
Symptom Management

• Pharmacologic Interventions
• Complementary and Integrative Modalities
• Alterations in Hematologic and Immune Function
• Alterations in Gastrointestinal Function
• Alterations in Genitourinary Function
• Alterations in Musculoskeletal, Integumentary, and Neurologic Functions
• Alterations in Respiratory Function
• Alterations in Cardiovascular Function
• Alterations in Nutritional Status
• Comfort
Pharmacologic Interventions
Pharmacologic Interventions

- Antimicrobials
- Anti-Inflammatory Agents
- Antiemetic Therapy
- Analgesics
- Psychotropic Drugs: Anxiolytics and Sedative-Hypnotics
- Antidepressants
- Anticonvulsants
- Hematopoietic Growth Factors
Antimicrobials

• For use in the treatment of infections
  • Infections are a major complication of cancer and cancer therapy.
  • Individuals with cancer have suppressed immune function and increased risk of infection because of their disease, its treatment, or both.
  • Infections are the most common cause of death in persons with cancer.
  • As a result of changes in immune functions, many of the usual signs and symptoms of infection are absent in the patient diagnosed with cancer or receiving cancer treatment.
Antimicrobials

• Principles of Medical Management
  Fever workup indicated if temp >101 or >100.4 for 1 hour
  • Temperature (not axilla or rectal)
  • History and Physical Examination
  • Blood Cultures x2
  • Urine Culture if suspect UTI
  • Sputum Culture if symptoms or high risk
  • Chest radiography if symptoms or high risk (anticipated neutropenia >7 days, multiple comorbidities, Progenitor cell transplantation pts, pts with hematologic malignancy)
  • Other cultures from wounds and drainage, if applicable
Antimicrobials

Initiation of empiric antimicrobial therapy

1) Selection of antibiotics is based on: Broad-spectrum coverage, coverage for common infectious organisms, institutional data.

2) IV doses and schedules are designed to provide bactericidal serum levels for as long as possible between each dose interval.

3) Duration of treatment is sufficient for the resolution of the fever without exposure to unnecessary antimicrobial side effects.

4) If fever is unresponsive to initial antibiotic therapy, the risk of a nonbacterial cause, infectious organisms resistant to antimicrobial therapy, inadequate serum and tissue levels of antimicrobials, or drug fevers should be considered.

5) Antiviral therapy should be considered if past history of positive titres or positive history of outbreak during chemotherapy.

6) Consider consultation with infectious disease specialist.
Antimicrobials Used for Neutropenic Fever

• Antibacterials
  • Penicillins, Carbapenems

• Cephasporins
  • Ceftazidime, Cefepime, Ceftaroline, Fluoroquinolines (Ciprofloxacin, Levofloxacin, Moxifloxacin), Aminoglycosides (Tobramycin, Gentamicin), Misc Abx (Vancomycin, Linezolid, Daptomycin, Bactrim)

• Antifungals
  • Azoles (Fluconazole, Voriconazole, Posaconazole), Amphotericin B Formulations, Echinocandins (Caspofungin, Micofungin)

• Antivirals
  • Acyclovir, Valacyclovir, Ganciclovir, Valganciclovir, Cidofovir
Potential Adverse Effects of Antimicrobial Therapy

- Suprainfection
- Renal Toxicity
- Hematologic
- Hepatotoxicity
- Cardiovascular
- Gastrointestinal
- Neurotoxicity
- Dermatologic
- Fluid and Electrolyte Imbalances
- Hypersensitivity Reactions
Assessment

• Assessment for the presence of risk factors: Disruption of primary barriers to organisms, Alteration in Immune function, Concurrent disease states, Tumor Necrosis and invasion, Previous cancer treatment that causes significant alteration in B- and T-cell function

• History of drug allergies or drug reaction or intolerance

• Physical Examination

• Current Medications

• Evaluation of diagnostic and laboratory data

• Assessment of patient’s and family’s cultural and ethnic background, particularly health care practices and values and beliefs related to pharmacotherapy
Let’s Practice!

Risk factors for the development of sepsis in patients with cancer include all except which of the following?

A. Skin breakdown
B. Hematologic Malignancy
C. Granulocytopenia lasting less than 7 days
D. Low albumin at the onset of symptoms of sepsis
Let’s Practice!

The primary cause of infection in cancer patients continues to be:

A. Fungal infections
B. Gram-positive organisms
C. Gram-negative organisms
D. Mycobacterial infections
Antiemetic Therapy

• Rationale and indications
  • For prevention and treatment of nausea and vomiting
  • Causes of N/V: Chemotherapy, Radiation Therapy, Surgery, Direct effect of tumor, concomitant pharmacologic therapy, concomitant medical complications
  • Complications of TINC: Malnutrition, Mallory-Weiss tear, decreased compliance, decreased QOL, fatigue
  • Classification: Acute, late or delayed, anticipatory, breakthrough, refractory
  • Risk Factors: Treatment-specific, Patient-specific

• Types of antiemetic drugs: mechanism of most antiemetics-interference of neurotransmission of nausea to the vomiting center via trough disruption of signaling pathways
  • Major targets: Serotonin, Neurokinin, Dopamine, Histamine, Acetylcholine, Cannabinoid
Analgesics

• Pain is defined as an unpleasant, multidimensional sensory and emotional experience associated with actual or potential tissue damage.

• Estimated that 90% of cancer pain can be controlled with currently available medications.

• Pain is caused by the tumor itself 70% of the time; diagnostic or therapeutic 20%; paraneoplastic syndrome <10%; unrelated <10%.

• Types: Opioids, nonopioid analgesics, co-analgesics.
Psychotropic Drugs: Anxiolytics and Sedative-Hypnotics

• Anxiety: An unpleasant, multifactorial experience of a psychosocial, emotional, or spiritual nature that interferes with the ability to cope with cancer, its physical symptoms, or its treatments. Commonly referred to as ‘distress’

• Insomnia

• Types: Benzodiazepines, Nonbenzodiazepines, Barbituates, SSRIls, Serotonin norepinephrine reuptake inhibitors, other medications
Other Pharmacologic Interventions

• Anti-inflammatory agents
  • To reduce inflammation and pain
  • Used for pain management and symptom management
  • Adverse effects: Bleeding (GI), renal toxicity, cardiac toxicity, confusion

• Antidepressants
  • To treat clinical unipolar or bipolar depression or anxiety, to treat depression associated with chronic pain, as adjuvant pharmacologic pain management, to treat insomnia
  • Adverse effects: Drug-drug interactions, dietary restrictions
Other Pharmacologic Interventions

• Anticonvulsants
  • For prophylaxis and treatment of seizure activity
  • As adjuvant pharmacologic therapy for pain with neurologic cause
  • Understanding the cause of the seizure is important.

• Hematopoietic Growth Factors
  • Glycoprotiens that stimulate the proliferation of bone marrow progenitor cells and their maturation into fully differentiated circulating blood cells.
  • Types: G-CSF, Erythropoietin, Oprelvekin, GM-CSF
Corticosteroids and NSAIDs are commonly used in the treatment of patients with brain tumors. Which of the following are considered anticipated side effects of this therapy?

A. Hypotension and psychiatric reactions
B. Hypotension and hypoglycemia
C. Hypertension and hypoglycemia
D. Hypertension and gastric ulceration
Let’s Practice!

Ms. Jones returns for her 3rd round of high-dose chemotherapy and states that she continues to have unrelenting nausea for a week. Which of the following factor(s) will most influence your approach to managing this problem?

A. Ondansetron before chemotherapy will help manage delayed nausea.
B. Neurokinin-1 receptor antagonist on days 1, 2, & 3 will help to manage delayed nausea.
C. Lorazepam is useful on days 1-4 to increase the effectiveness of other agents, and the sedation helps to decrease nausea.
D. Neurokinin-1 receptor antagonist, plus a 5-HT3 receptor antagonist and dexamethasone, will help manage delayed nausea.
Let’s Practice!

Which of the following opioids is not recommended for cancer pain?

A. Demerol  
B. Methadone  
C. Tramadol  
D. Oxycodone
Complementary and Integrative Modalities
Complementary and Integrative Modalities

• Definition: Therapies that may be used to enhance the efficacy of conventional medicine therapy, alleviate side effects of conventional treatment, and improve the patient’s sense of well-being and quality of life, or both.

• Complementary therapies are often used in conjunction with conventional medicine.

• Alternative therapies are used in place of conventional treatments.

• Other terms: CAM, Integrative Medicine/Health Care/Oncology, Holism or Holistic Health Care.
Complementary and Integrative Modalities

• Growing trend: Nearly 40% of Americans report using CAM therapies outside of conventional medicine.

• NCI Office of Cancer Complementary and Alternative Medicine recognizes eight major categories:
  • Alternative medical systems, Energy therapies, Exercise therapies, Manipulative and body-based methods, Mind-body interventions, Nutritional therapeutics, Pharmacologic and biologic treatments, Spiritual therapies

• Most commonly used CAM therapies include a range of products (nutritional supplements); whole-medicine systems (chiropractic and osteopathic); and mind-body approaches (meditation and yoga).
Let’s Practice!

All of the following nonpharmacological interventions have been identified through research to provide benefit for cancer-related fatigue except

A. Exercise
B. Music Therapy
C. Energy conservation and activity management (ECAM)
D. Cognitive-behavioral treatment for distressing symptoms
Alterations in Hematologic and Immune Function
Alterations in Hematologic and Immune Function

- Myelosuppression - a reduction in bone marrow function that results in a reduced production of red blood cells, white blood cells, and platelets into the peripheral circulation.

- The bone marrow is the primary source for development of blood (hematopoiesis), including myeloid and lymphoid progenitor cells
  - Myeloid cells include granulocytes (neutrophils, eosinophils, basophils, monocytes), RBC, and platelets.
  - Lymphoid cells include B and T lymphocytes
Alterations in Hematologic and Immune Function

- Risk factors for myelotoxicity are broadly categorized into 3 types: disease-related; patient-related; and treatment-related.
- Chemotherapy-induced myelosuppression is the most common dose-limiting adverse event in cancer treatment.
- Most common treatment-related myeloid cytopenias:
  - Neutropenia: ANC <1500/mm³ - increased risk of infection & sepsis
  - Thrombocytopenia: Low platelets – increased risk of bleeding
  - Anemia: Hgb <10g/dL – increased risk of fatigue and tissue hypoxia
Neutropenia

• A decrease in number of circulating neutrophils in the blood evidenced by ANC less than normal
  • Normal WBC: 4.5-13.0
  • Neutrophils comprise 44%-76% of total WBC
    • 1st line of defense against infection
    • Life Span: 1-3 days (as little as 6hrs in stress situations)
  • ANC= % neutrophils (segs + bands) x WBC
  • Neutropenia grading:
    • Grade 1: ANC < LLN-1500
    • Grade 2: ANC <1500-1000
    • Grade 3: ANC <1000-500
    • Grade 4: ANC <500
    • Febrile Neutropenia: ANC <1000 and fever >38.3 (or >38 for 1hr)
Neutropenia

• Risk Factors:
  • Host-related
  • Treatment-related
  • Biotherapy and steroids

• Principles of medical management
  • Prevention
    • Identification of patients at high risk
    • Patient and caregiver education
    • Prophylactic use of CSFs
    • Prophylactic use of antibiotics (only for hematologic malignancies at very high risk of FN)
Febrile Neutropenia

• Considered a Medical Emergency
• Requires prompt intervention and rapid assessment for risk of clinical deterioration

• Implement institutional standard of care for FN
  • Obtain cultures (blood, urine); chest xray; viral and VRE culture swabs if indicated; prompt administration of IV antibiotics (ie cefepime)

• Potential sequelae of prolonged neutropenia
  • Delay in administering treatment on time or dose delays/dose reductions; circulatory collapse; acute respiratory failure; sepsis and septic shock; death
Neutropenia

• Nadir
  • Lowest point of the blood cell levels after cancer treatment
  • Usually 7-14 days after chemotherapy, with variability for combined modality treatments, nitrosourea agents, and radiation to the pelvis.
    • Usually after multimodality treatment; nadir occurring sooner and more severely than from single modality treatment
  • Occasional occurrence after biotherapy
• Cancer treatment is usually held for an ANC < 1000-1500
Interventions to minimize Infection

- Hand washing
- Encourage patient to bathe daily (inc. oral and perineal care)
- Restrict vases of flowers, stagnant water
- Limit visitors (none with communicable illness, esp children)
- Basic food practices
- Vaccinations (flu)
- Change water daily (pitchers, denture cups, nebulizers)
- Use aseptic technique for all nursing interventions
- Monitor blood counts
- Educate patient when and who to call for temp >100.5, productive cough, painful urination, sore throat
Anemia

- Definition: A disorder characterized by a reduction in the amount of hemoglobin in 100mL of blood
  - Normal values:
    - Female: Hgb= 11.5-15.5 g/dL; Hct= 35%-46%
    - Male: Hgb= 13.5-17.5 g/dL; Hct= 40%-51%
  - RBC life span = 120 days
  - Patients at increased risk of fatigue, tachycardia, tachypnea, chest pain, dyspnea, and syncope
- Risk Factors
  - Patient-related
  - Disease-related
  - Treatment-related
Anemia

• Medical Management
  • Prevention
    • Patient and family education for conservation of energy, planning of activities, and reportable signs and symptoms
  • Monitor blood counts
  • Packed RBC transfusions
    • Requires informed consent
    • Hgb levels for transfusion depends on symptoms and co-morbidities
    • Benefits – improved symptoms of anemia; improve fatigue
    • Risks – Viral transmission, TRALI, TACO, Fatal Hemolysis, febrile nonhemolytic reactions, exacerbation of cardiac disease, iron overload.
  • ESA Administration
Thrombocytopenia

• Definition: Decrease in the circulating platelets below the LLN
• Normal Count: 150,000 – 400,000/mm³
• Life Span: 10-12 days (as little as 24hrs in stressful situations)
• Patients with thrombocytopenia are at increased risk for bleeding
• Risk Factors
  • Patient-related
  • Disease-related
  • Treatment-related
• Symptoms
<table>
<thead>
<tr>
<th>Platelet</th>
<th>Risk of Bleeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>100,000</td>
<td>Chemotherapy reduced/held</td>
</tr>
<tr>
<td>&lt;50,000</td>
<td>increased risk of bleeding; initiate precautions</td>
</tr>
<tr>
<td>&lt;15,000</td>
<td>Severe risk for spontaneous hemorrhage, platelet transfusion, IL-11 (oprelvekin) growth factor</td>
</tr>
</tbody>
</table>
Thrombocytopenia

• Medical Management
  • Prevention
  • Patient and caregiver education
  • Monitor blood counts
  • Avoid anticoagulation therapy for platelet count <50,000
  • Progestational agents prescribed to decrease menopausal bleeding
  • Drug-induced or disease-related bleeding treated with steroids
  • Platelet transfusions
    • Platelet < 10,000 – threshold for therapeutic platelet transfusion
    • Patients with history of bleeding or an active infectious process may require higher threshold for transfusion
    • Surgical/invasive threshold = 50,000; Neurosurgical threshold = 100,000
Other Alterations in Hematologic and Immune Function

• Infection
  • Most important physical barrier = skin and mucosal barriers
  • WBCs (Neutrophils) – important defense against infection

• Hemorrhage

• Fever and Chills
  • Administer acetaminophen to reduce fever
  • Increase fluid intake to prevent dehydration
Kate is being treated with chemotherapy for Hodgkin’s disease and is monitored weekly for myelosuppression. Her WBC is 4000 cells/mm$^3$, with 34% segmented neutrophils and 3% bands. What is her absolute neutrophil count (ANC)?

A. 48 cells/mm$^3$
B. 480 cells/mm$^3$
C. 1480 cells/mm$^3$
D. 2480 cells/mm$^3$
Let’s Practice!

The most common site of infection in the neutropenic patient is which of the following?

A. Perineal region  
B. Respiratory tract  
C. Urinary tract  
D. GI tract
Alterations in Gastrointestinal Function
Alterations in GI function

- Xerostomia
- Dysphagia
- Mucositis or Esophagitis
- Nausea and Vomiting
- Ascites
- Constipation
- Diarrhea
- Bowel Obstruction
- Bowel Ostomies
Xerostomia

• A subjective sensation of dryness in the mouth caused by a reduction in the quantity of saliva produced or a change in its composition.

• Causes include: medications with antimuscarinic properties, RT to the head and neck area, uncontrolled diabetes, and specific diseases of the salivary gland

• Medical Management
  • General or supportive measures; Salivary stimulation; Salivary substitutes; Surgical interventions; Dental prophylaxis; Prophylactic oral antimicrobial therapy.
Dysphagia

• Any disruption in the swallowing process during bolus transport from the oral cavity to the stomach.

• Pathophysiology: Neurologic impairment, tumor infiltration, treatment-related effects, iatrogenic factors, lifestyle-related.

• Progression: Usually insidious and slowly progressive. Usually associated with weight loss, anorexia, nausea, dehydration, malnutrition, cachexia, muscle wasting.

• Medical Management: Treat underlying disease, endoscopic laser surgery, alternative method for feedings, use of thickening agents, medications, swallowing therapy.
Mucositis or Esophagitis

- Inflammatory lesions of the oral and GI tracts caused by high-dose cancer therapies; alimentary tract mucositis refers to mucosal injury across the oral and GI mucosa, from the mouth to the anus.
  - Stomatitis, Esophagitis, Mucositis

- Pathophysiology: Drugs interfere with DNA, RNA, or protein synthesis and cause destruction of rapidly proliferating cells. As host marrow function is more suppressed, the damage is greater. Incidence is multifactorial.
  - Occurs in ~40% of patients receiving standard dose chemotherapy.
  - Occurs in ~70% of patients receiving high dose chemo (BMT)
Mucositis - Risk Factors

• Disease- or host-related
  • Tumor infiltration; pt age (<20); type & location of tumor (solid 2-3x greater than heme)

• Treatment-related
  • Damage directly related to dose (may be dose limiting toxicity), may be acute or chronic, drug administration (direct and indirect effect of chemotherapy), infusion method (continuous infusion greater negative effect vs short infusion), correlates with WBC nadir, RT (high-dose, effects greater when chest, abd, H&N, intestines are in field)

• Lifestyle-related
  • Inadequate oral hygiene; exposure to irritants (citrus, spicy, mouthwash, tobacco, alcohol, temp extremes, poor-fitting prosthesis); dehydration; malnutrition; age; renal & hepatic dysfunction; quality of life.
Mucositis – Medical Management

- Antimicrobial agents, growth factors, cytokines, coating agents, and anti-inflammatory agents – effectiveness not established but may be a soothing agent to patients. Antifungal and antiviral agents are controversial.

- Increasing oral protein intake

- Treatment based on: presence of a working GI tract, cancer treatment modalities, QOL and the expected outcome of CA.

- Systemic therapy
- Topical analgesics and protective/coating agents
- Cryotherapy
- Low-level laser therapy
- Dietary and vitamin supplements
- Problem-specific approaches
Mucositis - Recommendations for Practice

- Non-irritating agents
- Soft-bristle tooth brush/floss: foam toothettes
- Cryotherapy
- Palifermin (Kepevance) - for stem cell transplant patients on high dose chemo or having total body RT
- Bland rinses ie., sodium bicarbonate
Mucositis

- Major dose limiting side effect of cancer therapy
  - 1/3 of patients require discontinuation
    - 62% of these patients require hospitalization
    - 70% require enteral feeding.

NCI grading scale

- Grade 1 (mild): painless ulcers, erythema, soreness
- Grade 2 (moderate) painful erythema, edema, ulcers
- Grade 3 (severe) as above, but PO intake limited
- Grade 4 (life threatening) severe ulceration, hospitalization.
- Grade 5 Death related to toxicity
Nausea and Vomiting

- Nausea is characterized by a queasy sensation, the urge to vomit, or both.
- Vomiting is a reflex involving motor and autonomic responses that result in the forceful expulsion of gastric contents through the mouth, activated by humoral or neuronal stimuli.
Nausea/Vomiting - Pathophysiology

• The Vomiting Center (VC) is located in the brainstem and is directly activated by the visceral and vagal afferent pathways from the GI tract, the chemotherapy trigger zone vestibular apparatus, and the cerebral cortex.

• Chemotherapy, RT, and other toxins cause cellular damage to the GI mucosa. The damaged mucosa causes enterochromaffin cells in the GI tract to release serotonin, activating 5-HT3 receptors on the visceral afferent fibers in the vagus nerve, which, in turn, induces impulses to areas in the medulla responsible for vomiting.

• Other neurotransmitters, including dopamine and gamma-aminobutyric acid (GABA), are involved.
Nausea/Vomiting – Risk Factors

• Disease-related
  • Primary or metastatic tumor of CNS that includes the VC or increased ICP; delayed gastric emptying; GI tract obstruction; food toxins, infection, motion sickness; metabolic abnormalities

• Treatment-related
  • Stimulation of the receptors of the labyrinth in the inner ear; obstruction, irritation, inflammation and delayed gastric emptying stimulating the GI tract through vagal visceral afferent pathways; stimulation of the VC by chemotherapy or afferent pathways from RT; type of chemo; medication or nutritional supplement side effects.

• Situational
  • Age <50; Female; Increased levels of stress, emotions, anxiety; Increase in noxious odors or visual stimuli; Anticipatory response (up to 75% of pts)
Nausea/Vomiting – Medical Management

• Treatment of underlying disease

• Antiemetic Therapy
  • Serotonin antagonists; Neurokinin-1 receptor antagonist; Dopamine receptor antagonist; Phenothiazines; Corticosteroids; Benzodiazepines; Cannabinoids; Miscellaneous (megestrol acetate, olanzapine, mirtazapine, ginger)

• Nonpharmacologic Interventions
  • Relaxation and distraction techniques; Acupressure; Acupuncture; Ginger

• Management of concurrent symptoms
Nausea/Vomiting

• Potential sequelae of prolonged nausea
  • Vomiting
  • Taste changes, development of food aversions
  • Anorexia with weight loss, fluid and electrolyte imbalances, dehydration
  • Noncompliance or refusal to complete treatment plan
  • Altered QOL
Nausea/Vomiting - Interventions

- Individualizing treatment
- Modification of environment
- Modification of diet
- Avoid movement and recline for 30 min after eating
- Replacement of fluids
- Administer antiemetics
- Encourage nonpharmacologic treatments
- Maximize safety (Positioning during vomiting to reduce aspiration risk; anticipate needs r/t weakness, sedation)
- Patient and family education
Ascities

• Pathologic accumulation of fluid in the abdominal cavity
  • Causes discomfort, anorexia, electrolyte imbalance, N/V, infection, SOB, LE edema, impaired skin integrity, abd distention, fatigue, weight gain

• Pathophysiology:
  • Cancer cells attach to peritoneal lining, proliferate and invade; lymphatic obstruction; increased filtration into abdominal cavity from portal vein hypertension

• Risk Factors:
  • Associated with various tumors; Liver metastasis; Previous RT to abd; Surgical modification to venous or lymphatic channels

• Medical Management:
  • Treatment of underlying cause; diet; diuresis; paracentesis; intraperitoneal treatment; chemotherapy; external drains
## Bristol Stool Chart

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Separate hard lumps, like nuts (hard to pass)</td>
</tr>
<tr>
<td>Type 2</td>
<td>Sausage-shaped but lumpy</td>
</tr>
<tr>
<td>Type 3</td>
<td>Like a sausage but with cracks on its surface</td>
</tr>
<tr>
<td>Type 4</td>
<td>Like a sausage or snake, smooth and soft</td>
</tr>
<tr>
<td>Type 5</td>
<td>Soft blobs with clear-cut edges (passed easily)</td>
</tr>
<tr>
<td>Type 6</td>
<td>Fluffy pieces with ragged edges, a mushy stool</td>
</tr>
<tr>
<td>Type 7</td>
<td>Watery, no solid pieces. <strong>Entirely Liquid</strong></td>
</tr>
</tbody>
</table>
Constipation

• Decreased frequency in defecation; often accompanied by discomfort

• Physiology: Slowing of intestinal mobility by primary, secondary, or iatrogenic mechanism

• Risk Factors:
  • Disease-related, Treatment-related, situational

• Medical Management:
  • Surgical correction, correction of fluid and electrolyte imbalance, enemas/irrigation, medications, increased fiber in diet

• Potential sequelae:
  • Fecal impaction, paralytic ileus, intestinal obstruction, laxative dependence
Diarrhea

• Passage of more than 3 unformed stools in 24 hours
  • Classified by volume and acuity

• Physiology: Osmotic, Secretory, or Hypermotility

• Risk Factors:
  • Disease-related; Treatment-related; Lifestyle-related

• Medical Management:
  • ASCO and ONS guidelines vary slightly; Pharmacologic management; Modification of associated therapy; Treatment of associated conditions; Surgery; Hormone inhibition therapy; Patient/family education

• Potential sequelae:
  • Dehydration; Electrolyte imbalance; Impaired skin integrity; Decreased social interaction; Fatigue
Bowel Obstruction

• Any process preventing forward movement of bowel contents

• Pathophysiology:
  • Mechanical Obstruction or Functional Obstruction
  • Location: Small Intestine or Large Bowel

• Risk Factors: Disease-related or Treatment-related

• Medical Management:
  • Surgical options, NPO, Abdominal decompression, Correction of fluid and electrolyte imbalance, Parenteral nutrition, pharmacologic management

• Potential sequelae:
  • Dehydration, Peritonitis, Bowel perforation, hypotension, hypovolemic or septic shock
Bowel Ostomies

• A surgical creation of an opening between the colon and the abdominal wall

• Temporary or Permanent

• Location of ostomy determines consistency and volume of output

• Stomas: End, loop, or double-barrel
Let’s Practice!

A patient receiving chemotherapy complains of severe diarrhea for 6 days and agrees to come to the outpatient clinic to be evaluated. Appropriate nursing action would include all of the following except

A. Monitor fluids and electrolytes
B. Notify the physician for fluid replacement and evaluation
C. Monitor the patient for orthostatic hypotension, lethargy, and weakness
D. Notify the physician for possible administration of antidiarrheal medication
Alterations in Genitourinary Function
Alterations in Genitourinary Function

• Urinary Incontinence
  • Stress; Urge; Reflex; Functional; Total; Urinary Retention
  • Medical Management; Assessment; Teaching

• Ostomies and Urinary Diversions
  • Ileal conduit; Continent diversions; Orthoptic neobladder
  • Assessment; Teaching

• Renal Dysfunction
  • Kidneys regulate fluid and electrolyte balance by filtering essential substances from the blood, selectively reabsorbing needed fluid and electrolytes, and excreting those not needed in the urine.
  • Compression of ureters or blood vessels; hypercalcemia of malignancy; chemotherapy; Radiation.
Let’s Practice!

Following a radical cystectomy, the nurse is instructed to irrigate the pouch regularly to maintain patency. The patient expresses dismay, stating that he does not feel he can learn to do this. The nurse’s best response is which of the following?

A. “Irrigation is necessary to prevent urinary reflux”
B. “Most of the time, the mucus becomes very thin and easy to pass”
C. “Has your doctor told you it will be necessary for you to irrigate the pouch?”
D. Mucous production will decrease over time, and irrigation will become unnecessary.
Alterations in Musculoskeletal, Integumentary, & Neurologic Function
Alterations in Musculoskeletal Functions

• **Impaired physical mobility** — a state in which the patient experiences or is at risk for a limitation in independent, purposeful physical movement of the body or one or more extremities.

• **Physiology:** Quantitative decline in muscle mass; Inactivity may lead to decreased muscle size, atrophy, weakness; motor impairment.

• **Risk Factors:** Disease related, Treatment related, Lifestyle related, Psychological and social issues

• **Assessment, Teaching, Interventions**
Alterations in Integumentary Function

• The skin is composed of 3 layers: the epidermis, the dermis, and the subcutaneous layer

• Intact skin protects the body from bacteria, temperature changes, physical trauma, and radiation.

• Skin is the 1st line of defense by regulating thermal processes, protecting underlying structures, and excreting waste.

• Etiologic Factors of Skin Reactions
  • Radiation Alone: Acute or Chronic radiation dermatitis
  • Combo RT/Chemo: Radiation recall dermatitis
  • Chemo alone: Allergic or Immune Complex reactions, Light-related reactions, Nail changes, Pigment changes, Rashes
Neuropathies

• Any functional disturbances, pathologic changes, or both in the peripheral nervous system (cranial, sensory, and motor nerves and portions of the autonomic nervous system)

• Neuropathies of the CNS: seizures, encephalopathy, cerebellar dysfunction, ophthalmologic toxicities, ototoxicities, mental status changes, and peripheral neuropathies with sensory and motor dysfunction.

• Toxicities may be dose related and reversible on discontinuation of therapy.

• Treatment recommendations vary

• Assure patient safety
Alterations in Mental Status

• With alterations in mental status, changes may occur in general appearance, cognition, and self-care skills.

• Components of behavior or personality involve a person’s presence or consciousness noted in thoughts, emotions, and actions.

• An alteration in mental status may also result in loss of the ability to carry out ADLs and meet self care needs.

• Assessment, management, teaching

• Patient Safety needs
Let’s Practice!

Which of the following chemotherapy agents is not associated with peripheral neuropathy?

A. Cytarabine  
B. Cisplatin  
C. Methotrexate  
D. Carboplatin
Alterations in Respiratory Function
Alterations in Respiratory Function

• Inadequate ventilation or oxygenation

• Anatomic or Surgical Alterations
• Pulmonary Toxicity related to Cancer Therapy
• Dyspnea
• Pleural Effusions
Let’s Practice!

During a thoracentesis procedure your patient is placed in an upright sitting position. As the fluid is being removed the patient becomes diaphoretic, pale, and appears to be fainting. As you administer care to your patient, you realize her symptoms are due to what?

A. Needle phobia
B. Pneumothorax
C. A vasovagal reaction
D. Reexpansion pulmonary edema
Alterations in Cardiovascular Function
Alterations in Cardiovascular Function

• Lymphedema
• Edema
• Malignant Pericardial Effusion
• Cardiovascular Toxicity related to Cancer Therapy
  • Cardiotoxicity, Hypertension, QT prolongation, Venous Thromboembolism
  • Acute, Early onset, Late onset
• Thrombotic Events
  • High risk: Cancers of the lung, GI tract, pancreatic, prostate, ovary, leukemias, MM, HD, NHL. Advanced or metastatic disease.
Let’s Practice!

James is starting doxorubicin therapy, without mediastinal radiation. You explain to him that his lifetime total cumulative dose of doxorubicin is

A. 550 mg
B. 600 mg
C. 550 mg/m^2
D. 450 mg/m^2
Alterations in Nutritional Status
Alterations in Nutritional Status

• Weight Changes and Body Composition
  • Effects of cancer and cancer treatments may cause overnutrition and undernutrition which may negatively affect cancer recurrence, survival, and QOL.

• Taste Alterations
  • Actual or perceived change in taste sensation or loss of taste

• Anorexia
  • Loss of appetite accompanied by decreased oral intake

• Cachexia
  • Progressive deterioration with muscle wasting that occurs when protein and calorie requirements are not met. Characterized by: anorexia, weight loss, skeletal muscle atrophy, and asthenia
Alterations in Nutritional Status

• Nutritional Support Therapy
  • Nutritional Complications
    • Poor Nutrition
    • Effects on malignant tumors
      • Cancer cells compete with normal cells for nutrients
      • Altered carbohydrate metabolism, altered protein metabolism, fluid and electrolyte disturbances
    • Effects of cancer treatment
      • Structural and functional changes

• Nutritional Assessment
• Principles of Medical Management
  • Controversies for long-term support; Goals; Selection of type of therapy (increase oral intake, enteral, parenteral)
Let’s Practice!

Which of the following is considered a contraindication to enteral nutrition?

A. Diarrhea
B. Severe weakness
C. Mechanical obstructions
D. Functioning GI tract
Comfort

LIFE BEGINS AT THE END OF YOUR COMFORT ZONE

http://www.theinspiredman.com
Comfort

- Pain
- Pruritis
- Fatigue
- Sleep Disorders
Pain

• Definition:
  • IASP: A sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.
  • Defined as whatever the person says it is, existing whenever he or she says it does.

• Characteristics:
  • Acute
  • Chronic
  • Cancer
Pain

• Types of Pain:
  • Nociceptive- Results from the activation of nociceptors (pain fibers) in deep and cutaneous tissues
    • Somatic – arises from the bone, joint, or connective tissue; described as sharp, throbbing, or pressure; well localized
    • Visceral – results from nociceptor activation secondary to distention, compression, or infiltration; characterized by a diffuse, aching or cramping sensation; poorly localized.
  • Neuropathic- Results from compression, inflammation, infiltration, ischemia, or injury to the peripheral, sympathetic, or CNS.
    • Peripheral Neuropathic Pain
    • Centrally Mediated Pain
    • Sympathetically maintained pain
Pain Physiology

- Transduction
- Transmission
- Perception
- Modulation
Pain – Risk Factors

• Disease-related
  • Type of Cancer (H&N -70%; GYN-ONC – 60%; GI - 59%)
  • Bone Metastases (most common: breast, prostate, lung, MM)
  • Visceral Pain
  • Nerve compression or injury

• Treatment-related
  • Chemotherapy (mucositis, peripheral neuropathy, herpetic neuralgia
  • Radiation (mucositis, skin changes)
  • Chronic pain related to cancer surgery

• Personal and psychosocial factors
  • Patient (reluctance to take meds, fear); Provider (misunderstanding; reluctance to prescribe; suboptimal training); Age; Culture
Pain

• Assessment
  • Physical, Psychological, Social, Spiritual/existential
  • History and Physical exam
  • Evaluation and reassessment of pain

• Planning and Implementation
  • Pharmacologic and nonpharmacologic management
  • Interventions to increase comfort and client and family knowledge
  • Interventions to facilitate coping
Pain –
Pharmacologic and nonpharmacologic management

• Treat the underlying cause of the pain
• Tailor pain management care according to patient’s individualized pain assessment

• Pharmacologic Pain Management
  • Use WHO analgesic ladder; equianalgesic conversion table; miscellaneous interventions; intraspinal analgesia; RT; Interventional or Surgical strategies

• Nonpharmacologic Interventions
  • OT, PT, Cancer rehabilitation; Acupuncture, acupressure, heat/cold therapy; complementary therapies
WHO Analgesic Ladder

1. Pain
   - Non-opioid
   - ± Adjuvant

2. Pain persisting or increasing
   - Non-opioid
   - ± Adjuvant

3. Pain persisting or increasing
   - Opioid for mild to moderate pain
   - ± Non-opioid
   - ± Adjuvant

Freedom from cancer pain
- Opioid for moderate to severe pain
  - ± Non-opioid
  - ± Adjuvant
Pruritus

• Itching
• Physiology: Mediators, Neural Pathway, Risk Factors
• Assessment: Clinical exam, H&P exam
• Interventions
  • Manage Pruritis: Treat/remove underlying cause, pharmacologic and nonpharmacologic management
  • Increase Patient and family knowledge: Education, provide information
  • Maximize comfort: Modify environment, minimize vasodilation, promote skin integrity
  • Protect from potential sequelae: Avoid scratching, keep nails short, good hand hygiene, assess site
  • Facilitate coping: Teaching and encouragement
Fatigue

• A distressing, persistent, subjective sense of physical, emotional, and/or cognitive tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning. (NCCN)

• 70-80% of patients report fatigue at some point

• Physiology
• Risk Factors
• Assessment
• Interventions
Sleep Disorders

- Range from insomnia, being sleepy during daytime hours, abnormal movements and/or behaviors during rest
- Experienced by 30-75% of patients with cancer, has a significant negative impact on QOL
- Sleep problems not mentioned by many patients with cancer
- Physiology
- Risk Factors
- Assessment
- Interventions
References

• Itano, JK (2016) *Core Curriculum for Oncology Nursing.* Elsevier.


• CJON 2009 article-Putting Evidence Into Practice: Prevention and Management of Bleeding in Patients with Cancer

• CJON 2009 article-Putting Evidence Into Practice: Evidenced-Based Interventions for the Management of Oral Mucositis

• CJON 2009 article-Putting Evidence Into Practice: Evidenced-Based Interventions for the Prevention and Management of Constipation in Patients with Cancer

• https://evs.nci.nih.gov/ftp1/CTCAE/CTCAE 4.02 2010-06-14 quick reference 8.5x11.pdf

• PEP UPDATE April 2009 Volume 13, Number 2 CJON

Questions?

Thank you!
GOOD LUCK!!

S: Stay positive
W: Work hard
E: Examine the questions
E: Eliminate wrong answers
T: Take all the time given

you will ace your next exam 😊