Chapter 34 Caring for Clients with Cancer
Terms: tumor, cancer, neoplasm, anaplastic, primary tumor, metastasis, second primary tumor, unknown primary tumor, carcinogenesis, oncogenes, cancer suppressor genes
Definitions:
° Cancer = malignant tumor or forms of new malignant cells lacking controlled growth pattern
° Neoplasm = any abnormal growth of new tissue, benign or malignant
Carcinogenesis: cancer growth
° Oncogenes (holding code for cellular growth) are activated.
° Normal cells are converted into cancer cells.
° Carcinogens (e.g. viruses, chemicals, radiation) turn on cell division leading to neoplastic growth.
° Anti-oncogenes (cancer suppressor genes) turn off cell division and inhibit malignant growth.
° Cancer occurs when:
  o Cancer suppressor genes are absent.
  o Abnormal products of oncogenes are present.
° Risk factors for cancer [corresponds to Box 34-2]
Uncontrolled Growth of Tumors
° Cancer cell immortality - unlimited cell division; most normal cells only divide 50-60 times before they die
° Loss of contact inhibition - cancer cells grow up and out and can invade neighboring cells and travel to new sites; normal cells often divide and form a single layer [corresponds to Figure 34-2]
° Diminished growth factor requirements - cancer cells can rob body of nutrients to support growth and seem to be able to divide without serum growth factors or make their own growth factor
  o Term: cachexia
° Ability to divide without anchoring to a surface - can grow in suspension or gel; most normal cells will not divide in a liquid medium.
° No resting phase in cancer cell cycle
Differences Between Normal Cells and Cancer Cells
° Differences in appearance
  o Cytoskeleton and regular shape of normal cells; variable sizes and shapes, darker staining, larger nuclei, abnormal features of cancer cells
° Differences in differentiation
  o Normal cells have specific functions; cancer cells are less differentiated or undifferentiated (called anaplasia)
Cancer Prevention and Cancer Screening
° Know the warning signs [corresponds to Box 34-3]
° Choice of diagnostic evaluation determined by:
  o Client’s presenting symptoms
  o Client’s clinical status
  o Client’s tolerance of invasive tests
  o Anticipated goal of treatment
Biological characteristics of the tumor
Availability of diagnostic equipment
Cost and insurance coverage
• Tips for preventing cancer [corresponds to Table 34-1]

Nursing Implications in Diagnostic Evaluation
• Role of the nurse:
  o Set up appointments.
  o Communicate about family concerns.
    • Cultural considerations [corresponds to Box 34-4]
  o Provide for needs of family:
    • Information
    • Communication
    • Coping skills
    • Support services
  o Listen to client’s feelings.
  o Assist with referrals.

Responses of Nurses to Clients with Cancer
• Distancing
• Attachment

Diagnostic Tests
• Classifying and staging cancer
  o Staging is a method of classifying a malignancy by the extent of its spread.
    • Tumor-Node-Metastasis (TNM)
      ↑ T is for depth of invasion, surface spread and size of primary tumor.
      ↑ N refers to absence, presence, extent of regional lymph node metastasis.
      ↑ M refers to absence or presence of distant metastasis.
      ↑ Numbers 0 (no cancer cells) to 4 for (very large or widespread)
    • "Clark Level" - melanomas staged histologically by level of invasion of the primary tumor.
    • Duke’s staging system - used for classifying colorectal cancer by depth of invasion and by presence of nodal metastasis.
• Tumor marker studies
• Tumor imaging
• Invasive techniques
  o Types of biopsy:
    • Aspiration biopsy
    • Cone biopsy
    • Needle biopsy [corresponds to Figure 34-3]
    • Punch biopsy
    • Surface biopsy (Pap smear)

Factors influencing treatment plan for client with cancer:
• Aggressiveness of the tumor
• Predictability of the disease’s spread
° Morbidity and mortality expected from treatment (can cause a number of serious side effects such as increased susceptibility to infections)
° The successful cure rate of the disease
° Client’s wishes

Three Major Treatments for Cancer
° (Most cancers treated using multiple treatment modalities.)
° Surgery - Approximately 55% of persons with cancer have surgery alone or in combination with other modalities.
° Radiation
° Chemotherapy

Other Treatments:
° Biotherapy - manipulation of the immune system to restore, augment, or modulate its functions
° Bone marrow transplant - replacement of diseased marrow with healthy donor marrow.
  ° High-risk procedure
  ° Limited effectiveness with solid tumors
  ° Mostly used with hematologic cancers (multiple myeloma, leukemia)

Goals of Therapy:
° Goals determine type of treatment.
° Curative (complete elimination of cancer)
° Controlling (slowing the progression of the disease)
° Palliative (providing comfort only).
° Combination therapy and more aggressive therapies are appropriate if a cure is possible. If not possible, the therapy should not create more hardship.

Factors Influencing Chemotherapy’s Effectiveness against Cancer Cells
° Biological characteristics of tumor
  ° More actively dividing cells are most sensitive to chemotherapy
° Host’s nutritional status and immune system
° Drug regimen, dose, scheduling, toxicity route, and drug resistance

Providing Maximum Cell Kill -
° Maximum cell kill for resistant cells
° Minimize development of resistant cells
° Provide maximum cell kill with tolerable toxicity by:
  ° Use of multiple drug agents (combination chemotherapy) with different actions
  ° Intermittent high doses of drugs
  ° Alternation of non-cross-resistant chemotherapy regimens
  ° Minimizing of interval between treatments to coincide with normal cell recovery
  ° Maintaining optimum duration of therapy without having to reduce the dosage or delay treatment.

Surgical Therapy
° Uses:
  ° Cancer prevention (bilateral prophylactic mastectomy)
Diagnosis (colonoscopy with biopsy)
Definitive treatment (colectomy)
Rehabilitation (limb salvage for sarcoma)
Palliation (removal of mass to improve breathing, when cure is impossible)

Factors in decision to use surgery:
- Tumor cell kinetics (movement patterns)
- Growth rate (slow-growing tumors more localized)
- Invasiveness (ability to remove margin of normal tissue with tumor)
- Metastatic potential (surgery best if potential is low)
- Tumor location (ease of removal, functionality of remaining part)
- Physical status (coexisting disease)
- Quality of life (postsurgical status)

Priorities in nursing care:
- Focus on postoperative care and emotional needs of client.
- Reassure client as appropriate.
- Be calm and matter-of-fact, even when there is disfigurement.
- Assess for VS and pain at least q 4 hr.
- Keep wounds and dressings clean.
- Measure client’s weight daily.
- Ensure adequate nutrition and caloric intake.
- Monitor I&O.

Radiation Therapy
- May be used alone or with other therapy
- Delivery methods:
  - External (teletherapy)
  - Internal (brachytherapy)
- Safety with radiation administration
  - Three major safety factors:
    - **Time** - exposure to radiation is directly proportional to time spent within a specific distance from source
    - **Distance** - amount of radiation reaching a given area decreases as distance increases
    - **Shield** - sheet of absorbing material radiation source and detector decreases amount of radiation.
  - Workers wear badges that signal when dangerous levels of exposure are reached.
- Simulation – establishing precise location for radiation treatment
- Side effects of radiation [corresponds to Table 34-2]
- Priorities in nursing care:
  - Maintain nutrition, hydration, energy, and skin integrity.
  - Encourage rest as needed.
  - Observe skin for signs of burns or breakdown; report skin loss immediately.
  - Help clients overcome side effects.
Ask about client's pain level at each visit.
- Monitor vital signs.
- Explain what client can expect during procedures.
- Listen to the client's concerns and fears.
- Determine the level of understanding of the treatment.

For clients with GI side effects associated with treatment for cancer:
- Consult with physician and dietitian about a high calorie, high protein, high carbohydrate liquids or soft bland foods.
- Get a dietary consult.
- Encourage clients to delay intake of a full meal until 3 or 4 hours after treatment.
- Take the top off food trays to let smells escape.
- Encourage clients with diarrhea to eat a low-residue diet and use loperamide hydrochloride as instructed.
- Advise clients to gargle frequently with a solution such as a half strength H₂O₂ and brush their teeth with a soft-bristled brush several times a day.

Skin care for clients undergoing treatment for cancer:
- Encourage client to keep skin free of moisture.
- Discourage use of powders, lotions, creams, alcohol and deodorants within the field of radiation.
- Encourage loose fitting garments to prevent chafing and allow perspiration to evaporate.
- Protect skin from sunlight, swimming pools and temperature extremes.

For clients with bone marrow depression:
- Report signs of bleeding, anemia, infection (may be life threatening).
- Teach client to avoid crowds, sick people, and children. Wear gloves when gardening.
- Once certified, assist with transfusions as ordered.

Chemotherapy
- Tumor and host factors determine appropriateness.
- Combination chemotherapy can provide maximum cell kill with tolerable toxicity.
- Measures to prevent acquired drug resistance
- Cell kill in liver illustrated [corresponds to Figure 34-7]
- Clinical trials
  - Phase I evaluates acute toxicities, establishes maximum tolerated dose, analyzes pharmacologic data.
  - Phase II determines tumor activity, designs administration techniques, identifies precautions and toxicity, determines dose modifications, and identifies need for supportive care.
  - Phase III compares drug to standard therapy, evaluates response and duration of response, evaluates toxicity and quality of life issues.
  - Phase IV determines new ways to use the drug and its effect in adjuvant therapy.
- Management of chemotherapeutic toxicities [corresponds to Box 34-5]
  - Can be acute and long-term
Multiple effects on body systems [corresponds to Figure 34-8]

Priorities in nursing care:
- Monitor VS often, especially temperature.
- Manage side effects and provide emotional support.
- Evaluate effectiveness of treatment for nausea and vomiting and contact care provider if it is not effective.
- Monitor blood work closely for decreased RBCs, WBCs, and platelets; report stat.
- Teach client about protective actions.
- Listen to client or family feelings.
- Report immediately:
  - Infection
  - Bone marrow suppression
  - Uncontrolled nausea and vomiting
  - Overwhelming fatigue
  - Signs of drug toxicity

Biotherapy – manipulates immune system
- Biological response markers (BRMs) stimulate or suppress immune function. Three categories:
  - BRMs that restore, augment, or modulate host immunologic mechanisms
  - BRMs with direct antitumor activity
  - BRMs with other biological effects
- Nursing care: Obtain VS often; provide emotional support.

Bone Marrow Transplant and Stem Cell Transplant
- Four types of BMT:
  - Syngeneic – identical twin
  - Allogeneic – not a perfect match
  - Autologous – client’s own marrow purged of malignant cells
  - Autologous peripheral stem cell transplantation (PSCT) – cells collected by apheresis; only stem cells returned
- Complications:
  - GI toxicity up to 28 days after BMT
  - Graft vs. host disease (GVHD) 10-70 days after BMT
  - Chronic graft-versus-host disease (GVHD) – major cause of morbidity
  - Hematologic complications
  - Renal insufficiency 1-50 days after BMT
  - Veno-occlusive disease of liver 6-15 days after BMT
  - Infection (GI tract, lung, skin, indwelling catheter sites)
- Nursing considerations: monitor for complications and work to prevent them.

Children with Cancer
- Most common types leukemia, brain and other nervous system tumors, lymphomas, bone cancers, soft tissue sarcomas, kidney eye, adrenal gland cancers
- Cancer tends to respond well to chemotherapy.
Educators should be involved in treatment because of developmental needs.

Critical Thinking Care Map: Caring for Client with Fatigue