

University of Baghdad

Nursing College

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Management of Patients

With Oncologic Disorders

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LEARNING OBJECTIVES

1. Compare the function and behavior of normal and cancer cells.
2. Differentiate between the different malignant processes that occur in oncologic disorders.
3. Identify agents and factors that are carcinogenic.
4. Describe the role of nurses in health education and prevention of oncologic disorders.
5. Differentiate among the goals of cancer care: prevention, diagnosis, cure, control, and palliation.
6. Describe the roles of surgery, radiation therapy, chemotherapy.
7. Use the nursing process as a framework for the care of patients with cancer.

Cancer: is a large group of disorders with different causes, manifestations, treatments, and prognoses. Because cancer can involve any organ system and treatment approaches have the potential for multisystem effects, cancer nursing practice overlaps with numerous nursing specialties. Cancer nursing practice covers all age groups and is carried out in various settings, including acute care institutions, outpatient centers, physician offices, rehabilitation facilities, the home, and long-term care facilities. The scope, responsibilities, and goals of cancer nursing, also called oncology nursing, nursing management of the patient with oncologic disorders includes care of patients throughout the cancer trajectory from prevention through end-of-life care.

Terminology

oncology: field or study of cancer

cancer: a group of disorders characterized by abnormal cell proliferation, in which cells ignore growth-regulating signals in the surrounding environment.

carcinogenesis: process of transforming normal cells into malignant cells

carcinogens: chemicals, physical factors, and other agents that cause cancer.

chemotherapy: the use of medications to kill tumor cells by interfering with cellular functions and reproduction.

malignant: having cells or processes that are characteristic of cancer

metastasis: spread of cancer cells from the primary tumor to distant sites.

palliation: relief of symptoms and promotion of comfort and quality of life regardless of the disease stage.

Radiation therapy: the use of ionizing radiation to kill malignant cells.

Epidemiology

In 2015, nearly 700,000 new cancer cases were diagnosed. In the same year, nearly 600,000 Americans died as a result of cancer. Despite significant advances in science and technology, cancer is the second leading cause of death in the United States.

Pathophysiology of the Malignant Process:

Cancer is a disease process that begins when a cell is transformed by genetic mutations of the cellular deoxyribonucleic acid (DNA). Genetic mutations may be inherited and/or acquired, leading to abnormal cell behavior.

Characteristics of Malignant Cells:

Benign and malignant cells differ in many cellular growth characteristics, Including:

The method and rate of growth,

Ability to metastasize or spread.

Destruction of tissue.

Ability to cause death.

Etiology

Factors implicated or known to induce carcinogenesis include;

Viruses and bacteria. (Examples of these viruses that are known to cause cancer includes human papillomavirus (HPV) (cervical, head and neck cancers), hepatitis B virus (HBV) (liver cancer),

Physical agents. include exposure to sunlight, radiation, chronic irritation or inflammation, tobacco carcinogens, industrial chemicals and asbestos. Excessive exposure to the ultraviolet rays of the sun, especially in fair skinned people, increases the risk of skin cancers. Factors such as clothing styles (sleeveless shirts or shorts), the use of sunscreens, occupation, recreational habits, and environmental variables, including humidity, altitude, and latitude, all play a role in the amount of exposure to ultraviolet light.

Chemicals. (Tobacco smoke, Passive smoke (i.e., secondhand smoke) Many chemical substances found in the workplace are carcinogens or co-carcinogens.

Genetic or familial factors. (Almost every cancer type has been shown to run in families. This may be due to genetics, shared environments, cultural or lifestyle factors

Lifestyle factors. (such as diet, obesity, and insufficient physical activity).

Hormones. (Tumor growth may be promoted by disturbances in hormonal balance, either by the body's own (endogenous) hormone production or by administration of exogenous hormones. Hormonal changes related to the female reproductive cycle are also

associated with cancer incidence. Early onset of menses before age 12 and delayed onset of menopause after age 55, null parity (never giving birth), and delayed childbirth after age 30 are all associated with an increased risk of breast cancer. Women who take estrogen after menopause appear to have an increased risk of ovarian cancer.

Diagnosis of Cancer

A cancer diagnosis is based on assessment of physiologic and functional changes and results of the diagnostic evaluation. Patients with suspected cancer undergo extensive testing to:

- (1) determine the presence and extent of cancer.
- (2) identify possible disease metastasis.
- (3) evaluate the function of involved and uninvolved body systems and organs.
- (4) obtain tissue and cells for analysis, including evaluation of tumor stage and grade.

The diagnostic evaluation includes a review of systems;

physical examination;

imaging studies; laboratory tests of blood, urine, and other body fluids; procedures and pathologic analysis.

Staging: determines the size of the tumor, the existence of local invasion, lymph node involvement, and distant metastasis. Several systems exist for classifying the anatomic extent of disease. The tumor, nodes, and metastasis (TNM) system (Chart 15-3) is one system used to describe many solid tumors.

Grading: is the pathologic classification of tumor cells. Grading systems seek to define the type of tissue from which the tumor originated and the degree to which the tumor cells retain the functional and histologic characteristics of the tissue of origin (differentiation). Samples of cells used to establish the tumor grade may be obtained from tissue scrapings, body fluids, secretions, washings, biopsy, or surgical excision. This information helps providers predict the behavior and prognosis of various tumors. The grade corresponds with a numeric value ranging from I to IV. Grade I tumors, also known as well-differentiated tumors, closely resemble the tissue of origin in structure and function. Tumors that do not clearly resemble the tissue of origin in structure or function are described as poorly differentiated or undifferentiated and are assigned grade IV. These tumors tend to be more aggressive, less responsive to treatment, and associated with a poorer prognosis as compared to well-differentiated, grade I tumors.

Primary Tumor (T)

Regional Lymph Nodes (N)

Distant Metastasis (M)

Management of Cancer

Treatment options offered to patients with cancer are based on treatment goals for each specific type, stage, and grade of cancer. The range of possible treatment goals includes:

- = Complete eradication of malignant disease (cure).
- = Prolonged survival and containment of cancer cell growth (control).
- = Relief of symptoms associated with the disease and improvement of quality of life (palliation).
- = Treatment approaches are not initiated until the diagnosis of cancer has been confirmed, and staging and grading have been completed.

The health care team and the patient and family must have a clear understanding of the treatment options and goals. Open communication and support are vital as those involved periodically reassess treatment plans and goals when complications of therapy develop or disease progresses.

Multiple modalities are commonly used in cancer treatment. Various approaches, including surgery, radiation therapy, chemotherapy, hematopoietic stem cell transplantation (HSCT), hyperthermia, and targeted therapy, may be used together or at different times throughout treatment. Understanding the principles of each and how they interrelate is important in understanding the rationale and goals of treatment.

Surgery

Surgical removal of the entire cancer remains the ideal and most frequently used treatment method. However, the specific surgical approach may vary for several reasons. Diagnostic surgery is the definitive method for obtaining tissue to identify the cellular characteristics that influence all treatment decisions. Surgery may be the primary method of treatment, or it may be prophylactic, palliative, or reconstructive.

Diagnostic Surgery

Diagnostic surgery, or biopsy, is performed to obtain a tissue sample for histologic analysis of cells suspected to be malignant. In most instances, the biopsy is taken from the actual tumor; however, in some situations, it is necessary to take a sample of lymph nodes near a suspicious tumor.

Prophylactic Surgery

Prophylactic or risk reduction surgery involves removing non-vital tissues or organs that are at increased risk of developing cancer. The following factors are considered when discussing possible prophylactic surgery:

- Family history and genetic predisposition
- Presence or absence of signs and symptoms
- Potential risks and benefits
- Ability to detect cancer at an early stage
- Alternative options for managing increased risk
- The patient's acceptance of the postoperative outcome.

Examples of prophylactic surgeries are:

Colectomy, mastectomy, and oophorectomy.

Palliative Surgery

When surgical cure is not possible, the goals of surgical interventions are to relieve symptoms, make the patient as comfortable as possible, and promote quality of life as defined by the patient and family. Palliative surgery is performed in an attempt to relieve symptoms, such as ulceration, obstruction, hemorrhage, pain, and malignant effusions.

Procedure	Indications
Abdominal shunt placement	Ascites
Biliary stent placement	Biliary obstruction
Bone stabilization	Displaced bone fracture related to metastatic disease
Colostomy or ileostomy	Bowel obstruction
Cordotomy	Pain
Epidural catheter placement (for administering epidural analgesics)	Pain
Excision of solitary metastatic lesion	Metastatic lung, liver, or brain lesion
Gastrostomy, jejunostomy tube placement	Upper gastrointestinal tract obstruction
Hormone manipulation (removal of ovaries, testes, adrenals, pituitary)	Tumors that depend on hormones for growth
Nerve block	Pain
Percutaneous enteral gastrostomy (PEG) tube placement	Enteral nutrition
Pericardial drainage tube placement	Pericardial effusion
Peritoneal drainage tube placement	Ascites
Pleural drainage tube placement	Pleural effusion
Ureteral stent placement	Ureteral obstruction
Venous access device placement (for administering parenteral analgesics)	Pain

Radiation Therapy

Approximately 60% of patients with cancer receive radiation therapy at some point during treatment. Radiation may be used to cure cancer, as in thyroid carcinomas, localized cancers of the head and neck, and cancers of the cervix. Radiation therapy may also be used to control cancer when a tumor cannot be removed surgically or when local nodal metastasis is present.

Chemotherapy

Chemotherapy involves the use of antineoplastic drugs in an attempt to destroy cancer cells by interfering with cellular functions, including replication and DNA repair. Chemotherapy is used primarily to treat systemic disease rather than localized lesions that are amenable to surgery or radiation. Chemotherapy may be combined with surgery, radiation therapy, or both to reduce tumor size preoperatively, **to** destroy any remaining tumor cells postoperatively or to treat some forms of leukemia or lymphoma (primary). The goals of chemotherapy (cure, control, or palliation) must be realistic because they will determine the medications that are used and the aggressiveness of the treatment plan.

Potential Long-Term Complications of Cancer

Chemotherapy

Abnormalities in senses of taste, smell, and touch

Abnormal balance, tremors, or weakness

Avascular necrosis

Cardiovascular toxicity (coronary artery disease, myocardial infarction, congestive heart failure, valvular heart disease, peripheral arterial disease)

Decreased libido

Dental caries

Dry mouth

Dysphagia

Dyspnea on exertion

Growth retardation in children

Herpes infections (zoster and varicella)

Hypothyroidism

Immune dysfunction

Infertility

Osteoporosis

Pericarditis (acute or chronic)

Pneumococcal sepsis

Pneumonitis (acute or chronic)

Nursing Management

Patients undergoing surgery for cancer require general perioperative nursing care. Surgical care is individualized according to age, organ impairment, specific deficits, cultural implications, and altered immunity. Combining other treatment methods, such as radiation and chemotherapy, with surgery also contributes to postoperative complications, such as infection, impaired wound healing, altered pulmonary or renal function, and the development of venous thromboembolism (VTE). The nurse completes a thorough preoperative assessment for factors that may affect the patient undergoing the surgical procedure.

Preoperatively, the nurse provides the patient and family with verbal and written information about the surgical procedure as well as other interventions that may take place intraoperatively (i.e., radiation implants). Instructions concerning prophylactic antibiotic requirements, diet, and bowel preparation are also provided. Patients who are undergoing surgery for the diagnosis or treatment of cancer may be anxious about the surgical procedure, possible findings, postoperative limitations, changes in normal body functions, and prognosis. The patient and family require time and assistance to process this information, possible changes, and expected outcomes resulting from the surgery.

The nurse serves as the patient advocate and liaison and encourages the patient and family to take an active role in decision making when possible. If the patient or family asks about the results of diagnostic testing and surgical procedures, the nurse's response is guided by the information that was conveyed previously. The nurse may be asked to explain and clarify information for patients and families that was provided initially but was not grasped because of intense anxiety. It is important that the nurse, as well as other members of the health care team, provide information that is consistent.

Postoperatively, the nurse assesses patient responses to surgery and monitors the patient for possible complications, such as infection, bleeding, thrombophlebitis, wound

dehiscence, fluid and electrolyte imbalance, and organ dysfunction. The nurse also provides for the patient's comfort. Postoperative education addresses wound care, pain management, activity, nutrition, and medication information. Plans for discharge, follow-up, home care, and subsequent treatment and rehabilitation are initiated as early as possible to ensure continuity of care from hospital to home or from a cancer referral center to the patient's local hospital and health care provider. Patients and families are encouraged to use community resources such as the ACS for support and information